ISSN 1810-1828, e-ISSN 2408-8714
Medicine Today 2017, Volum 29 Number 01

MEDICINE today

a professional medical journal

www.banglajol.info/index.php/MEDTOADY
Enlisted in BanglaJOL/AsiaJOL
Indexed in: DOAJ, Google Scholar, Google

Instruction to Authors

Original Article

Review Article

Case Report

Medicine Today is a Professional Medical Journal Recognised by Bangladesh Medical & Dental Council (BMDC)
published two times a year in January and July.

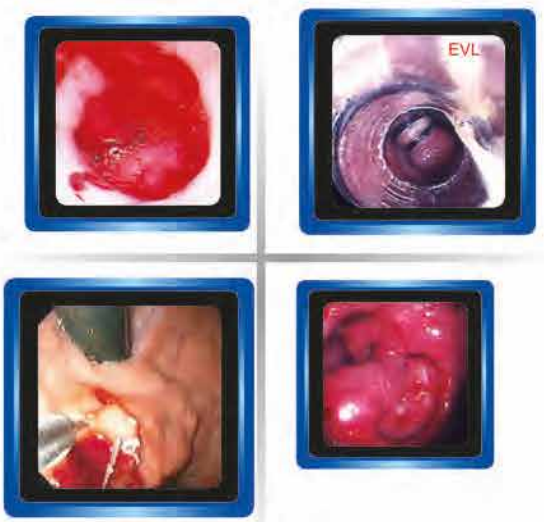
MEDICINE today

Crescent Gastroliver & General Hospital

24 HOurs

2 4 H o u r s

Gastro-Intestinal & Liver Emergency Service



Cyanoacrylate Glue Injection in Fundic Varix

- **Any kind of GI Bleeding**
  Haematemesis, melaena & P/R bleeding
- **Fulminant Hepatic failure**
- **Acute Pancreatitis**
- **Acute Abdomen**
- **Intestinal Obstruction**
- **Gastrointestinal Perforation**
- **Acute Appendicitis**

Crescent & Gastroliver General Hospital

25/i, Green Road, Dhanmondi, Dhaka-1205
[Eastern end of Dhanmondi Road # 7]
Phone : 8621612, 8611936, Mobile : 01713-033326

MEDICINE today

A Professional Medical Journal

EDITORIAL BOARD

MEDICINE today

A Professional Medical Journal

Volume 29, January 2017

Production Editing: Medical Services Department, Biopharma Ltd.
e-mail: medicinetoday@biopharmabd.com

Published by: Dr. Md. Ali Ashraf Khan

MEDICINE today

A Professional Medical Journal

CONTENTS

INSTRUCTIONS TO AUTHORS

The Journal Medicine Today agrees to accept manuscript prepared in accordance with the 'Uniform Requirements Submitted to the Biomedical Journals' published in the New England Journal of Medicine 1991; 324: 424 8.

Aims and scope:

The **Medicine Today** is a professional Medical Journal recognised by BMDC, published two times a year in January & July. It is devoted to continuing education in Medical Science. It accepts original articles, review articles, letter to the editor and case reports. Complimentary copies of the journal are sent to libraries of all medical and other relevant academic institutions in the country and selected institutions abroad.

Conditions for submission of manuscript:

- All manuscripts are subject to peer review.
- Manuscripts are received with the understanding that they are not under simultaneous consideration by any other journal.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance.

Ethical aspects:

- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
- Any manuscript that includes table, illustration or photograph that have been published earlier should accompany a letter of permission for republication from the author(s) of the publication and editor/publisher of the Journal where it was published earlier.
- Permission of the patients and/or their families to reproduce photographs of the patients where identity is not disguised should be sent with the manuscript. Otherwise the identity will be blackened out.

Preparation of manuscript:

Criteria:

Information provided in the manuscript are important and likely to be of interest to an international readership.

Preparation:

a) Manuscript should be written in English and typed on one side of A4 (290 x 210 cm) size white paper.

b) Double spacing should be used throughout.

c) Margin should be 5 cm for the header and 2.5 cm for the remainder.

d) Each of the following section should begin on separate page:

- Title page
- Summary/Abstract
- Text
- Tables and legends
- References
- Acknowledgement

Title Page

The title page should contain:

- Title of the article (concise, informative and self explanatory).
- Name of each author with highest academic degree.
- Name of the department and institute where the work was carried out.
- Name and address of the author to whom correspondence regarding manuscript to be made. It should include e-mail address, mobile number.

Abstract

The abstract of the manuscript:

- Should be informative.
- Should be limited to less than 250 words.
- Should be suitable for use by abstracting journals and include introduction and materials and methods, results and conclusion.
- Should emphasize mainly on new and important aspects of the study.
- Should contain only approved abbreviations.

Text

Introduction:

- Nature and purpose of the study.
- Rationale of the study.
- Brief review of the subject excepting data and conclusion.

Materials & Methods:

This section of the study should be very clear and describe:

- The selection criteria of the study, population including controls (if any).
- The methods and the apparatus used in the research.
- The procedure of the study in such a detail so that other workers can reproduce the results.
- Previously published methods (if applicable) with appropriate citations.

Results:

The findings of the research should be described here and it should be:

- Presented in logical sequence in the text, tables and illustrations.
- Described without comment.
- Supplemented by concise textual description of the data presented in tables and figures where it is necessary

Tables:

During preparation of tables following principles should be followed:

- Tables should be simple, self explanatory and supplement, not duplicate the text.
- Each table should have a title and typed in double space in separate sheet.
- They should be numbered consecutively with roman numerical in order of text. Page number should be in the upper right corner.
- If abbreviations are to be used, they should be explained in footnotes.

Figures and photographs:

The figures and photographs.

- Should be used only where data can not be expressed in any other form
- Should be unmounted glossy print in sharp focus, 12.7 x 17.3 cm in size.
- Should bear number, title of manuscript, name of corresponding author and arrow indicating the top on a sticky, label and affixed on the back of each illustration.

Legend:

The legend:

- Must be typed in a separate sheet of paper
- Photomicrographs should indicate the magnification, internal scale and the method of staining.

Discussion:

The discussion section should reflect:

- The authors' comment on the results and to relate them to those of other authors.
- The relevance to experimental research or clinical practice.
- Well founded arguments.

References:

This section of the manuscript:

- Should be numbered consecutively in the order in which they are mentioned in the text.
- Should be identified in the text by superscript in numerical.
- Should use the form of references adopted by us.

  National Library of Medicine and used in Index Medicus.

The authors are responsible for the correctness of references. References are numbered consecutively in the order in which they appear in the text. Citations should be in superscript without bracket and should appear in front of the period or comma at the end of the sentence/clause. All references should be cited.

Unpublished data, personal communications, abstracts at meetings and manuscripts submitted for publication are not acceptable as references. References should be listed in numerical order in the Reference section. Journal titles should be abbreviated according to the list of Journals Indexed in Index Medicus or MEDLINE. Please note that no periods are used after the authors initials. A period is used at the end of each reference. The type and punctuation of references is consistent with the Uniform Requirements for Manuscripts Submitted to Biomedical Journals of the International Committee of Medical Journal Editors (http://www.ICMJE.org/). Some examples follow.

Journal article up to six authors (list all authors)

Smithline HA, Mader TJ, Ali FM, Cocchi MN. Determining pretest probability of DVT: clinical intuition vs. validated scoring systems. N Engl J Med. 2003 Apr 4;21(2):161-2.

Journal article more than six authors (list first six and add et al.):

Gao SR, McGarry M, Ferrier TL, Pallante B, Gasparrini B, Fletcher JR, et al. Effect of cell confluence on production of cloned mice using an inbred embryonic stem cell line. Biol Reprod. 2003;68(2):595-603.

Book:

Carlson BM. Human embryology and developmental biology. 3rd ed. St. Louis: Mosby; 2004.

Chapter in a book:

laxter PS, Farnsworth TP. Social health and class inequalities. In: Carter C, Peel JR, editors. Equalities and inequalities in health. 2nd ed. London: Academic Press; 1976: 165-78.

Acknowledgements:

Individuals, organizations or bodies may be acknowledged in the article and may include:

- Name (or a list) of unding bodies
- Name of the organization(s) and individual(s) with their consent.

INSTRUCTIONS TO AUTHORS

Manuscript submission:

Manuscript should include hard and soft copy. No manuscript will be considered without hard and soft copy. It should be submitted to the Editor in Chief and must be accompanied by a covering letter and following inclusions:

a) A statement regarding the type of article being submitted.

b) A statement that the work has not been published or submitted for publication elsewhere.

c) A statement of financial or other relationships that might lead to a conflict of interests.

(d) A statement that the manuscript has been read, approved and signed by all authors.

e) If the article is a whole or part of the dissertation or thesis submitted for diploma/degree, it should be mentioned in detail and in this case the name of the investigator and guide must be specifically mentioned. Submissions must be in triplicates with three sets of illustrations. Text must be additionally submitted in a compact disc (CD).

Editing and peer review:

All submitted manuscripts are subject to scrutiny by the Editor in chief or any member of the Editorial Board. Manuscripts containing materials without sufficient scientific value and of a priority issue, or not fulfilling the requirement for publication may be rejected or it may be sent back to the author(s) for resubmission with necessary modifications to suit one of the submission categories. Manuscripts fulfilling the requirements and found suitable for consideration are sent for peer remit, Wt Submissions, found suitable for publication by the reviewer, may need revision/ modifications before being finally accepted. Editorial Board finally decides upon the publishabillty of the reviewed and revised/modified submission. Proof of accepted manuscript may be sent to the authors, and should be corrected and returned to the editorial office within one week. No addition to the manuscript at this stage will be accepted. All accepted manuscript are edited according to the Journal's style.

Subscription information:

Journal of Medicine Today ISSN 1810-1828 published by the Dr. Md. Ali Ashraf Khan. Executive Director, BIOPHARMA LTD. two times a year in January and July.

Address of correspondence:

Manuscripts and other communication for the editors should be address to Medicine Today, **Medical Services Department.**
Biopharma Ltd. 7/16, Block-B, Lalmatia, Dhaka-1207.
e-mail: medicinetoday@biopharmabd.com
Phone: 01711465704, 01714-096030 .

Original Article

Efficacy and Safety of Topical Tacrolimus (0.03%) in the Treatment Localized Vitiligo

Husain MA[1], Alam MN[2], Rahim R[3], Joarder Y[4], Wahidujjaman[5], Ferdous M[6]

Abstract

Vitiligo is an acquired, pigmentary skin disorder which is disfiguring and difficult to treat. Phototherapy and application of topical corticosteroids are most commonly prescribed. However, these therapies are often not effective and use of corticosteroids on the face may lead to cutaneous atrophy, telangiectasia, and ocular complications. This case control study was conducted among the patients who sought health care in the Dermatology and Venereology out patient department of Ibn Sina Medical College, Dhaka from January, 2014 to June, 2015. The study was conducted with a view to evaluate the efficacy of topical tacrolimus in localized vitiligo and to see the adverse effects of topical tacrolimus in the treatment of vitiligo. This study assessed the efficacy and safety of tacrolimus 0.03% ointment in patients with vitiligo compared with control. 60 patients were enrolled as case group, among them 22 were male and 38 were female. There mean age was 23.33 years with a standard deviation of ±11.43 years. Another 60 patients were enrolled as control group. Patients in case group were treated with tacrolimus 0.03% ointment applied twice daily. Monthly evaluations were performed. At six months, 50 patients (89%) achieved varying levels of repigmentation. There was a statistically significant decrease depigmentation & increase pigmentation at sixth month. Mean area of repigmentation was 33.33% with a standard deviation of ±23.90. 24 patients (40.0%) had reported up to 50% repigmentation. Sign and symptoms of erythema (10%) and burning (10%) were minimal. In conclusion, it is proposed that tacrolimus ointment may be a efficacious and safe option for the treatment of vitiligo. The ease of topical self-administration with minimal side effects makes this novel immunomodulatory agent a promising addition to the therapeutic armamentarium for vitiligo.

Key words: Localized vitiligo, Tacrolimus, Repigmentation.

1. Corresponding Author:
Dr. Md. Anwar Husain
Associate Professor & Head
Department of Dermatology & Venereology
Ibn Sina Medical College, Dhaka.
e-mail:anwarbd64@gmail.com

2. Dr. Mohd. Nurul Alam
Assistant Professor
Department of Dermatology & Venereology
Ibn Sina Medical College, Dhaka.

3. Dr. Rezaur Rahim
Assistant Professor
Department of Dermatology & Venereology
Rangpur Medical College, Rangpur.

4. Dr. Yasmin Joarder
Associate Professor & Head
Department of Dermatology & Venereology
Northern Medical College, Dhaka.

5. Dr. Wahidujjaman
Assistant Professor & Head
Department of Dermatology & Venereology
Khulna Medical College, Khulna.

6. Dr. Monalisa Ferdous
Registrar
Department of Dermatology & Venereology

Introduction

Vitiligo is an acquired pigmentary disorder presenting as hypopigmented or depigmented macules and affects 0.5-2% of the population worldwide[1]. Segmental vitiligo has depigmented macules arranged in a dermatomal or quasi-dermatomal distribution, which does not cross the midline and is usually unresponsive to medical treatment[2,3]. Tacrolimus and topical corticosteroids are effective in treating vitiligo,[4,5,6] but there are not many studies conducted on segmental vitiligo.

Vitiligo is characterized by the progressive disappearance of melanocytes, resulting in depigmentation of the skin and/or hair. The etiology of vitiligo is unknown[8]. Genetic studies support a non-Mendelian inheritance, suggesting that vitiligo is a multifactorial, polygenic disorder. The autoimmune theory remains the most widely accepted. Vitiligo has

frequently been reported in association with autoimmune disorders such as thyroid disease, diabetes mellitus and alopecia areata. Several studies have suggested that the presence of increased antimelanocyte antibodies and the imbalance of T-cell (CD4+/CD8+ and Tregs) subsets, along with their functional defects, may result in melanocyte destruction in vitiligo patients[9]. The disease affects both genders equally. It can appear at any age and the average age of onset is somewhat variable in different geographic regions. The mean onset age is reportedly 22 in the U.S. and India, 24 in Brazil and 25 in the UK[10]. Vitiligo treatment remains a challenge. Therapeutic options for vitiligo include: topical and systemic corticosteroids, topical calcineurin inhibitors, calcipotriol, phototherapy, excimer laser, and surgical methods such as skin/single-hair grafting, autologous cultured melanocyte or epidermal suspension transplantations. Topical corticosteroids are most commonly used drug to treat vitiligo but there are concerns over side effects due to long-term use. Steroid application causes skin atrophy, telangiectasia, hypertrichosis and acne. Tacrolimus and pimecrolimus are used as topical immunomodulators. They inhibit calcineurin action, thus preventing T-cell activation and the production of various inflammatory cytokines. Both have been used to treat other inflammatory and immunologic skin disorders, including vitiligo, with encouraging results[11]. Tacrolimus is a macrolide antibiotic produced by Streptomyces tsukubaensis with strong T-specific, immunosuppressant activity. The biological activity of tacrolimus takes effect after binding to the cytosolic 12- kd macrophilin FK506 binding protein (FK-BP). The tacrolimus/FK-BP complex inhibits calcineurin-mediated phosphorylation of the transcription factor, the nuclear factor of activated T-cells (NFAT). Hence, the expression of several inflammatory T-cell cytokines is inhibited[11].

Vitiligo is an acquired depigmenting disorder characterized by loss of functional melanocytes. It is estimated that about 1-2% of population[13] suffers from vitiligo. The onset of vitiligo is usually in childhood or young adulthood. Men and woman are equally affected; all races are affected, in 50% of cases the age of onset fall within the first two decade of life in Iraq the mean age of onset 17.9 years and in 60% of patients it develops before the age of 20 years, 25% of patients had family history of vitiligo[14]. Current treatment of vitiligo e.g. topical corticosteroid, topical tincture iodine 5%,[15] narrow band UVB[16] and PUVA are the most prescribed, corticosteroid applied to the face may lead to cutaneous atrophy, telangiectasia and ocular complication, narrow bad UVB requires expensive equipments and trained personnel and PUVA has been associated with risk of carcinogenesis, phototherapy and corticosteroid have limited effectiveness particularly on the face[17]. Immunomodulator such as Tacrolimus 0.1% and 0.03 %, and pimecrolimus cream 1 % are approved and pimecrolimus cream 1 % are approved for treating atopic dermatitis in adult patients and paediatric patients over 2 years of age.(5) Tacrolimus (FK-506) is an immunosuppressive drug membred macrolide lactone discovered in 1984[18] from the fermentation broth of Japanese soil sample that contained the bacteria streptomyces tsukubaensis can be used as an alternative to topical steroids in many other forms of dermatitis. This ointment does not cause atrophy, telangectasiae or adverse ocular effects of topical corticosteroids which has limited application to the face and intertregnous areas[17]. Tacrolimus acts on T cells and mast cells inhibiting T cell activation and the production of proinflammatory cytokines such as tumor necrosis factor (TNF) whose level are higher in vitiligo lesional skin. Moreover it prevents the release of proinflammatory mediators in mast cells by degranulation[18].

Materials and Methods

It was a prospective, randomized Case-control study carried out in the Out Patient Department of Dermatology and Venereology of Ibn Sina Medical College, Dhaka. Total 60 cases & 60 controls were included in this study from January, 2014 to June, 2015. Vitiligo was diagnosed by clinical assessment & wood's lamps examinations. Clinical assessment was done at baseline. Clinical assessment consists of examine all the treated lesions. Lesions of one palm sized area are considered as 1% of involvement. As the study was conducted by topical application of medicine, involvement less than 10% was included in the study. Disease activity was assess by taking history, disease was considered as active if the existing lesion increase in size or there is development of new lesions. History of spontaneously repigmenting vitiligo was excluded from the study. There is currently no quantitative tool for evaluating vitiligo treatment response using parametric methods (Hamzavi et al 2004). Repigmentation may starts on the hair follicle(typical perifollicular) or starts as homogenous pigmentation from the periphery of the lesions (perilesional) (Baltas & Csoma 2002).

Repigmentation was assessed in a five point scale

At the baseline repigmentation was considered as 0% means the lesion was completely depigmented or no pigmentary remnant. 1-25% pigmentation were considered as minimal, when only specks of pigment appeared. 26-50% pigmentation were considered as mild, when some pigmentation but depigmented area exceeded pigmented area. 51-75% pigmentation were considered as moderate, when there were some depigmentation but pigmented area exceeded depigmented areas. 76-100% pigmentation were considered as excellent, when the treated areas were either completely repigmented or there is only specks of depigmentation (Lepe et al 2003). Colored photographs of treated lesions were taken at the beginning of the study and subsequent monitoring of

of the treatment assess by comparing the treated lesions with baseline photograph.

Consecutive 120 vitiligo patients were included in this study using lottery method of Random sampling. Topical tacrolimus 0.03%(Tacrol ointment) is applied twice daily for 24 weeks to the case group. The control group applied Vaseline only twice daily. Clinical assessment was done monthly for six months. The monthly assessment includes seeing the extent of repigmentation and depigmentation, and also monitoring the adverse effects such as pruritus, erythema, burning, stinging, anaphylactoid reaction. All data were checked and edited after collection. Then the data were entered into computer and analyzed with the help of SPSS win 12 software programme.

Results

The mean age of case and control groups are 23.33 years and 24.03 years respectively. Male and female percentage of cases are 36.7 and 63.3 respectively, where as that percentage of controls are 46.7 and 53.3 respectively (Table-I).

Table-I: Baseline characteristics of two groups

Characteristics	Case		Control	
	Frequency	Percent	Frequency	Percent
Age (Mean±SD)	23.33±11.43		24.03±11.24	
Sex				
Male	22	36.7	28	46.7
Female	38	63.3	32	53.3

Presence of family history was found in 23.3% of cases and 16.7% of control groups (Table-II) .

Table-II: Family history between two groups.

Family history	Case		Control	
	Frequency	Percent	Frequency	Percent
Present	14	23.3	10	16.7
Absent	46	76.7	50	83.3
Total	60	100.0	60	100.0

Koebner's phenomenon was present in 26.7% of cases and 30% of controls (Table-III).

Table-III: Koebner's sign between two groups

	Case		Control	
	Frequency	Percent	Frequency	Percent
Present	16	26.7	18	30.0
Absent	44	73.3	42	70.0
Total	60	100.0	60	100.0

Side effects (erythema, burning) were found in 12% of cases, where as in 80% cases there was no side effect (Table- IV).

Table- IV: Distribution of side effects case

Side effects	Frequency	Percent
Erythema	6	10.0
Burning	6	10.0
No side effects	48	80.0
Total	60	100

The mean involvement of the body surface area before treatment was 6.667%, which was reduced to 4.033% after treatment (Table-V).

Table-V: Improvement of the body surface area before and after treatment of topical tacrolimus

	Mean±SD
Area of involvement before treatment (%)	6.67±2.73
Area of involvement after treatment (%)	4.03±2.27

The percentage of repigmentation after tacrolimus use was more in non acral part than acral part (Table-VI).

Table-VI: Percentage of repigmentation after tacrolimus use in case group and relationship with their site of lesion (n=60)

Percentage of repigmentation	Site of lesions		Total
	Acral part	Non acral part	
No Pigmentation	10	0	10
1-25%	8	4	12
26-50%	0	24	24
51-75%	0	12	12
76-100%	0	2	2
Total	18	42	60

Discussion

Although medical and surgical options are available for the treatment of vitiligo, this condition remains one of the most daunting therapeutic challenges in dermatology. Sunscreens, cosmetics, topical corticosteroids, topical and oral psoralens plus ultraviolet A, narrow-band ultraviolet B exposure and phenylalanine with heliotherapy are current medical approaches used to treat vitiligo. Surgical modalities include a variety of grafting and melanocyte transplant techniques. Each of this treatment options has achieved some success in the management of vitiligo. However, many patients are not successfully treated with the current therapeutic options due to a lack of efficacy, intolerance of side effects, concern about long-term effects or resistance of treatment[21].

This case control study was conducted among the patients who sought health care in the Dermatology and Venereology out patient department of Ibn Sina Medical College, Dhaka from January 2015 to December, 2015. The study was conducted with a view to evaluate the efficacy of topical tacrolimus in vitiligo and to see the adverse effects of topical tacrolimus in the treatment of vitiligo.

Sixty patients were enrolled in this study as a case. Among them 22 were male and 38 were female. Mean age of this study group was 23.33 years with a standard deviation ±11.433 years.

sixty control subjects were also included in this study. Among the control group 28 were male and 32 were female, mean age was 24.03 years with a standard deviation of ±11.245 years.

Present study revealed that there is a strong association between tacrolimus use and repigmentation (P<0.001). This is supported by many other studies[21,22,23].

According to this study, mean percentage of regimentation was 33.3333% with a standard deviation of ±23.90114%.

All patients are treated with 0.03% tacrolimus. This study findings does not accord with the findings of Grimes et al where they found 41.3%[24]. and also differ from Silverberg et al[22] findings of 61% for head/neck regions and 47% for trunk and/or extremities. It is worthy mention that Grimes et al's[24] study was performed by 0.1% tacrolimus upon the group of mean age 38.4 years with SD ±10.26, and Silverberg et al.[22] study was performed upon children by 0.03 & 0.1% tacrolimus.

From the present study it has been found that overall 83.3% of the patients responded positively to therapy. Silverberg et al support this result[22].

This result differ from Grimes et al[24] findings of (89%), Lepe et al.[25] findings (90%), Grimes et al findings of (100%),Tanghetti findings of (87%)patient's achieved repigmentation.

Of the 36 respondents in whom face and neck regions were treated, 34 patients (94.4%) responded to tacrolimus application. Of the 24 respondents with involvement of other than face and neck areas, 16(66.6%) patients responded to tacrolimus.

This result is different from Silverberg et al.[22] They studied three group of patients; one group had lesions on the head & neck area; one group had lesions on the trunk & extremities; one group had lesions head, neck, trunk & extremities. Furthermore they studied with two different strength of tacrolimus ointment.

Excellent repigmentation was noted, 76-100%, in 2 (3.3%) patient. This result is largely differ from Silverberg et al.[22] This result is also differ from Lepe et al.[25] where they found tacrolimus produce more than 75% repigmentation, most of this on facial areas. The probable causes of the difference is the concentration difference of tacrolimus 0.03% vs 0.1%.

Current study has revealed that 24(40%) patients experienced 26-50% repigmentation after medication with topical application of tacrolimus.

The present study further documents the safety of tacrolimus for the repigmentation in vitiligo. Because of the need for an effective therapy with a positive benefit-risk profile, the results of the study are quite promising. Twice-daily tacrolimus 0.03% ointment therapy was well

tolerated. Report of side effects from this study was only 20% & were transient and mild, no patient discontinue therapy due to adverse effects. 80% patient was free from any kind of side effects. Most common side effects were erythema and burning. This result is supported by various other studies[22,24].

In conclusion, the data presented by this study indicate that topical tacrolimus may represent a new effective treatment option of vitiligo, with convenient use and

References

1. Bhuvana K, Sarala N, Singh G, Kumar TN. Effect of 0.1% tacrolimus ointment in localized vitiligo: an open uncontrolled trial. Indian J Dermatol. 2011 Jul-Aug; 56(4): 445-446.

2. Hann SK. Clinical features of segmental Vitiligo. In: Hann SK, Nordlund JJ, editors. Vitiligo, 1 st ed. Oxford : Blackwell Science; 2000: 49-60.

3. Hann SK, Lee HJ. Segmental vitiligo: Clinical findings in 208 patients. J Am Acad Dermatol. 1996;35:671-4.

4. Grimes PE, Soriano T, Dytoc MT. Topical tacrolimus for repigmentation of vitiligo. J Am Acad Dermatol. 2002;47:489-91.

5. Travis LB, Weinberg JM, Silverberg NB. Successful treatment of vitiligo with 0.1% tacrolimus ointment. Arch Dermatol. 2003;139:571-4.

6. Kanwar AJ, Dogra S, Parsad D. Topical tacrolimus for treatment of childhood vitiligo in Asians. Clin Exp Dermatol. 2004;29:589-92.

7. Lerner AB. Vitiligo. J Invest Dermatol. 2009;32:285-310.

8. Allam M, Riad H. Concise review of recent studies in vitiligo. Qatar Med J. 2013:1-19.

9. Begum R, Marfatia YS, Laddha NC, Dwivedi M, Mansuri MS, Singh M, et al. Vitiligo: a complex disease and a complex approach. Mol Cytogenet. 2014;7:I57.

10. Tarlé RG, Nascimento LM, Mira MT, Castro CC. Vitiligo - part 1. An Bras Dermatol. 2014;89:461-70.

11. Hengge UR. Off-label indications for topical tacrolimus. Hautarzt. 2013;64:752-6.

12. Barclay L. Tacrolimus helpful for vitiligo treatment. Arch Dermatol. 2003;139: 581-585.

13. David B. Mosher, Thomas B. Fitzpatrick, JeanPaul Ortonne, Yoshiaki Hori. Hypomelanosis and Hypermelanosis. Fitzpatrick's Dermatology in General Medicine. USA; library of Congress Cataloging-inpublication Data.1999;2:945-61.

14. Sharquie KE. Vitiligo in Iraq. Iraqi medical J. 2007; 35(2):31-2.

15. Sharquie KE, Majeed MH. Treatment of vitiligo by Topical Application of Iodine Tincture 5% in Comparison with 8- methoxypsoralen Lotion 0.3%. J Pan-Arab league of Dermatologists. 2001;12:27-33.

16. Njoo-MD, Bos JD, Westerhof W. Treatment of Generalized Vitiligo in Children with narrow band (TL-01) UVB radiation therapy. Am Acad Dermatol. 2000; 42:245-53.

17. Zabawski EJ, Costner M, Cohen JB. Tacrolimus: pharmacology and therapeutic uses in dermatology. Int J Dermatol. 2000;39:721-727.

18. Kino T, Hatanaka H, Hashimoto M, Nishiyama M, Goto T, Okuhara M, et al. Fk-506, a novel immunosuppressant isolated from a Streptomyces. I. fermentation, isolation, and physio-chemical and biological characteristics. J Antibiotic (Tokyo). 40(9):1249-55.

19. Hamzavi, I. Jain, H. McLean, D. Shapiro, J. Zeng, H. Lui, et al. Parametric Modeling of Narrowband UV-B Phototherapy for Vitiligo Using a Novel Quantitative Tool. Arch Dermatol. 2004;140:677-683.

20. Baltas, E. Csoma. Treatment of vitiligo with the 308-n Xenon Chloride Excimer Laser. Arch Dermatol. 2002;138:1619-20.

21. Smith DA, Tofte SJ, Hanifin JM. Repigmentation of Vitiligo with topical Tacrolimus. Dermatology. 2002;205:301-303.

22. Silverberg N, B Lin P, Travis L, Farley-Li, Manchini J. Tacrolimus ointment promotes repigmentation of vitiligo in children: A review of 57 cases. J Am Acad Dermatol. 2004;51(5):760-766.

23. Travis LB, Weinberg JM, Silverberg NB. Successful treatment of vitiligo with 0.1% Tacrolimus ointment. Arch Dermatol. 2003;139:571-574.

24. Grimes PE, Halder RM, Jones C, Chakrabarti SG, Enterline J. Autoantibodies and their clinical significance in a Black Vitiligo Population. Arch Dermatol. 2003;119:300-303.

25. Lepe V, Moncada B, Castanedo-Cazares JP, Torres-Alvarez MB, Ortiz C. A double-blind randomized trial of 0.1% Tacrolimus vs 0.05% clobetasol for the treatment of childhood vitiligo. Arch dermatol. 2003;139: 581-585.

Original Article

Comparative Study of Surgical Site Infection between Laparoscopic Appendectomy and Open Appendectomy

Salim M[1], Ahmed JU[2], Bhuyian NH[3], Rahman M[4], Alam M[5], Khan MAF[6], Anwar MK[7]

Abstract

Surgical site infection (SSI) is defined as infection at surgical site within 01 month after surgery (or within a year in case of implant). Surgical-site infection requires microbial contamination of the surgical wound to occur. LA provides considerable benefits over OA, including a shorter length of hospital stay, less postoperative pain, earlier postoperative recovery, and a lower complication rate. This was a prospective observational study conducted inpatient department of Chittagong Medical College Hospital and private hospitals and clinics in Chittagong city. The patients were interviewed face to face by the researcher for the purpose of collection of data and were examined by the researcher for certain signs recorded in the fixed protocol. Collected data was classified, edited, coded and entered into the computer for statistical analysis by using SPSS-22. Out of 200 cases mean age was found 33.76 ± 23.35 years in OA group and 32.21 ± 16.51 years in LA group. Male was found 58% in OA group and 53% in LA group. Female was found 42% and 47% in OA and LA group respectively. Mean operative time was found 41.2±8.5 minutes in OA group and 49.3±8.9 minutes in LA group. Alternate pathology were more frequently detected in LA due to wide area of vision. Superficial incisional SSI was found 10% in OA group and 5% in LA group. Deep incisional SSI was found 2% in OA group and 2% in LA group. Organ/space SSI was 2% and 3% in OA group and LA group respectively. Staphylococcus aureus is the commonest organism isolated form the surgical wounds from 41.34% followed by Pseudomonas 21.26%, no growth 11.1%, E.coli 9.6%, others 9.4%, Klebsiella 7.0%. Laparoscopic appendectomy was better than open appendectomy with respect to wound infection rate, postoperative pain, postoperative hospital stay and return to normal activities.

Key Words: Surgical site infection- SSI, Laparoscopic appendectomy- LA, open appendectomy- OA.

1. Corresponding Author:
Dr. Md. Salim
Sr. Consultant
Department of Surgery
General Hospital Rangamati.
e-mail: salimdr45@yahoo.com

2. Dr. Jashim Uddin Ahmed
Professor
Department of Surgery
Chittagong Medical College & Hospital.

3. Dr. Nur Hossain Bhuyian
Assistant Professor
Department of Surgery
Chittagong Medical College & Hospital.

4. Dr. Mahmudur Rahman
Jr. Consultant
Department of Orthosurgery
Upazilla Health Complex, Lohagara, Chittagong.

5. Dr. Monirul Alam
Associate Professor
Department of Anesthesiology
CIMC.

6. Dr. Muallem Al Farukh Khan
Assistant Professor
Department of Urology
Rangamati Medical College.

7. Dr. Md. Khairul Anwar
Associate Prof. & Head
Department of Anesthesiology

Introduction

The microorganisms may originate from either endogenous or exogenous sources. Infection only occurs if the number and virulence of the bacteria or fungi overwhelm natural host defense mechanisms unless foreign material is present in the surgical site (ie, suture, mesh)[1]. According to the CDC (Centers for Disease Control) definition surgical sites infection splits into 3 groups: superficial incisional SSI, deep incisional SSI and organ-space SSIs- depending on the site and extend of infection. By definition, superficial incisional SSI involves only the skin and subcutaneous tissue and occurs within 30 days after the operation. Purulent drainage, positive fluid, or tissue cultures, pain or tenderness,

localized swelling, redness, or heat are characteristic. Organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision. At least one of the following signs or symptoms of infection: pain or tenderness, localised swelling, redness, or heat and superficial incision are deliberately opened by surgeon, unless incision is culture-negative. Diagnosis of superficial incisional SSI made by a surgeon or attending physician. The following are not considered superficial SSIs: Stitch abscesses (minimal inflammation and discharge confined to the points of suture penetration). Incisional SSIs that extend into the fascial and muscle layers[2]. Deep Incisional Surgical Site Infection: Infection occurs within 30 days after the operation if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operation and infection involves deep soft tissue (e.g. fascia, muscle) of the incision and at least one of the following: Purulent drainage from the deep incision but not from the organ/space component of the surgical site. A deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms: fever (>38°C), localised pain or tenderness, unless incision is culture-negative. An abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination. Diagnosis of deep incisional SSI made by a surgeon or attending physician[2].

Organ/ Space Surgical Site Infection: Infection occurs within 30 days after the operation if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operation and infection involves any part of the anatomy (e.g., organs and spaces) other than the incision which was opened or manipulated during an operation and at least one of the following: Purulent drainage from a drain that is placed through a stab wound into the organ/space. Organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/ space. An abscess or other evidence of infection involving the organ/ space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination. Diagnosis of organ/ space SSI made by a surgeon or attending physician[2]. Surgical site infection is a major cause of morbidity and mortality inspite of development in surgical care. It imposes substantial burden on health care resources[3]. SSI depends on site and type of an operation. Hospital variation is also there[4]. Acute appendicitis is one of the most common abdominal emergency and accounts for approximately 1% of all surgical operations[5]. The surgical treatment of appendicitis is one of the great public health advancement of the last 150 years[4]. The treatment of acute appendicitis remained essentially unchanged since its first description by Charles MC Burney in 1889[7]. Appendectomy by Mc Burney's incision remained the procedure of choice for nearly a century until 1983, when Curt Semn offered an alternative "laparoscopic appendectomy". Minimally invasive surgery is a breakthrough in this context. For example laparoscopic appendectomy and open appendectomy SSI rate 0.6% and 3.9% respectively in Korea. This is due to less invasive procedure, early mobilization and less hospital stay.[6] Several studies have shown the advantages of laparoscopic surgery in terms of shorter hospital stay, rapid postoperative recovery, and better pain control[8-10]. However, there have been concerns about the risk of infectious complications, particularly the development of intra abdominal abscess and superficial wound infection. This risk is significantly increased in cases of perforated appendicitis[11,12].

Materials and Methods

This prospective observational study was carried out in Chittagong Medical College Hospital and some Private Hospitals and Clinics in Chittagong City. Total 200 cases (100 laparoscopic appendectomy and 100 open appendectomy) were selected conveniently during January 2015 to June 2016. Post operative follow up (indoor and outdoor) of all cases were ensured for one month, Post operative cases of appendectomy between 18-16 years of age group agreed to participate in the study. Non diabetic and free from possible confounders and serious illness, are included in the study and post operative appendectomy patient beyond 18-60 years age group, not agreed to participate in the study, diabetic and other serious illness which may act as a confounder was excluded in this study. After getting consent from the participants, standard questionnaire were used to identify the surgical site infection complain and collect demographic information. The patients were interviewed face to face by the researcher for the purpose of collection of data. Then the patients were examined by the researcher for certain signs and those were recorded in the check-list. Investigations were done for supporting the diagnoses. According to the participants' understanding level, sometimes the questions was described in the native language so that the patients can understand the questions perfectly and answer accurately. No randomization was carried out. The choice between open and laparoscopic approach was decided by the operating surgeon after discussion with the patient. All patients got prophylactic antibiotics at induction (cefuroxime 1.5 g and metronidazole 500 mg).

All patients got a 5-day course of antibiotics in post operative period. Patients were discharged after 24-72 hours post operatively or as wishes of the patient. Follow up were done in the OPD or over telephone after 2 weeks, 1month, for more remote patients. Follow up was for any post-operative complications and to assess quality of life. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 21.0 for Windows (SPSS Inc.,

Chicago, Illinois, USA). The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Chi-Square test was used to analyze the categorical variables, shown with cross tabulation. Student t-test was used for continuous variables. P values <0.05 was considered as statistically significant. Informed written consent was taken from the patient or patient's guardian after duly informing the procedure of treatment, anticipated result, possible advantages, disadvantages and complications considering all ethical issues. Confidentiality was maintained both verbally and documentary by using separate locker and computer password. Protocol was approved by ethical committee of Chittagong Medical College, Chittagong.

Results

Table I shows characteristics of the patients. It observed that mean age was found 33.76 ± 23.35 years in OA group and 32.21 ± 16.51 years in LA group. Male was found 58% in OA group and 53% in LA group. Female was found 42% and 47% in OA and LA group respectively. Mean BMI was found 21.86±4.27 kg/m^2 in OA group and 22.50±3.98 kg/m^2 in LA group. The mean BMI difference was statistically significant (p<0.05) between two groups. Majority patients had multiple attack in both groups, which was 68% in OA group and 70% in LA group. Mean leucocyte count was found 14.87±6.7 ×10^3/μL in OA group and 13.26±4.9 ×10^3/μL in LA group. The mean age, number of attack and mean leucocyte count were not statistically significant (p>0.05) between two groups.

Table-I: Patient characteristics

Characteristic	Study group		P-value
	OA (n = 100)	LA (n = 100)	
Age (yr)	33.76 ± 23.35 23.35	32.21 ± 16.51 16.51	$^a0.08^{ns}$
Gender			
* Male	58%	53%	$^b0.57^{ns}$
* Female	42%	47%	
BMI (kg/m^2)	21.86 ± 4.27	22.50 ± 3.98	$^a0.044^s$
Number of attack			
* Single	32%	30%	$^b0.759^{ns}$
* Multiple	68%	70%	
Leucocyte count (×10^3/ μL)	14.87±6.7	13.26±4.9	$^a0.831^{ns}$

Values are presented as mean ± SD, no. of cases (%) or %. OA, open appendectomy; LA, laparoscopic appendectomy; BMI, body mass index. s=significant; ns=not significant [a]P value reached from unpaired t-test [b]P value reached from Chi square test

P value reached from Chi square test Regarding appendix pathology, 35.0% patients had hyperemic in OA group and 38.0% in LA group, 45.0% patients had suppurative in OA group and 43.0% in LA group, 8.0% patients had gangrenous in OA group and 11.0% in LA group, 12.0% patients had perforated/ abscess in OA group and 8.0% in LA group. The difference was not statistically significant (p>0.05) between two groups. (Table-II)

Table-II: Appendix pathology

	Study group		P-value
	OA (n = 100)	LA (n = 100)	
*Appendix pathology			
Hyperemic	35.0%	38.0%	
Suppurative	45.0%	43.0%	0.695^{ns}
Zangrenous	8.0%	11.0%	
Perforated/ abscess	12.0%	8.0%	

ns=not significant

Table-III shows postoperative recovery and complications. It was observed that mean operative time was found 41.2±8.5 minutes in OA group and 49.3±8.9 minutes in LA group. Port site bleeding was found 2% in LA group. Subcutaneous Emphysema was 1% in LA group. Port site infection was found 14% in OA group and 10% in LA group. Incisional/port site hernia was 4% in OA group and 2% in LA group. Mean operative time was statistically significant (p<0.05) between two groups.

Table-III: Per operative and postoperative clinical outcome (n=200)

	OA (n = 100)	LA (n = 100)	P-value
Operation time (min)	41.2 ± 8.5	49.3 ± 8.9	$^a0.001^s$
Port site bleeding	0	2%	$^b0.155^{ns}$
Subcutaneous Emphysema	0	1%	$^b0.316^{ns}$
Port site infection	14%	10%	$^b0.384^{ns}$
Incisional/port site hernia	4%	2%	$^b0.632^{ns}$

Values are presented as mean±SD or no. of cases (%). OA= open appendectomy; LA= laparoscopic appendectomy. s=significant; ns=not significant [a]P value reached from unpaired t-test [b]P value reached from Chi square test

Table IV shows surgical-site infections in overall appendicitis.

Table-IV: Surgical-site infections in overall appendicits

	OA (n = 100)	LA (n = 100)	P-value
Superficial incisional	10%	5%	0.179^{ns}
Deep incisional	2%	2%	1.000^{ns}
Organ/space	2%	3%	0.650^{ns}
Overall SSI	14%	10%	0.384

Values are presented as no. of cases (%). OA= open appendectomy, LA= aparoscopic appendectomy; SSI= surgical-site infection. s=significant; ns=not significant P value reached from Chi square test.

It was observed that superficial incisional was found 10% in OA group and 5% in LA group. Deep incisional was found 2% in OA group and 2% in LA group. Organ/space was 2% and 3% in OA group and LA group respectively. Overall SSI was 14% in OA group and 10% in LA group. The difference were not statistically significant (>0.05) between two groups.

Atypical myobacteirial infection was found 1(10.0%) in LA group but not found in OA group. The difference was not statistically significant (p>0.05) between two groups. (Table-V)

Table-V: Diagnosis of atypical mycobacterial infection in SSI

	OA (n = 14)	LA (n = 10)	P-value
Atypical mycobacterial infection	0	1(10%)	0.226^{ns}

ns=not significant P value reached from Chi square test

Port site infection was found in 10 patients of laparoscopic appendectomy, among them 7 (70.0%) patients had umbilical port, 2 (20.0%) had right iliac port and 1 (10.0%) had left iliac port site infection. (Table-VI)

Table-VI: Frequency of different port site infection in laparoscopic appendectomy (n=10)

Port site infection	Frequency	Percentage
Umbilical port	7	70.0
Right iliac port	2	20.0
Left iliac port	1	10.0

Staphylococcus aureus is the most commonest organism isolated form the surgical wounds from 41.34% followed by Pseudomonas 21.26%, no growth 11.1%, E.coli 9.6%, others 9.4%, Klebsiella 7.0% (Figure-I).

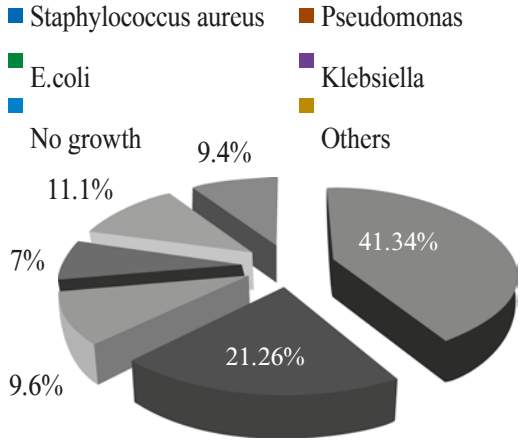


Figure-I: Organisms isolated from SSI wounds

Discussion

This prospective observational study was carried out in Chittagong Medical College Hospital and Private Hospitals and Clinics in Chittagong City. Total 200 cases (100 laparoscopic appendectomy and 100 open appendectomy) were selected conveniently during January 2015 to June 2016. Post operative follow up (indoor and outdoor) of all cases were ensured for one month. In this study it was observed that mean age was found 33.76 ± 23.35 years in OA group and 32.21 ± 16.51 years in LA group. The mean age difference was not statistically significant (p>0.05) between two groups. In study of Biondi et al.[13] showed the mean age was found 29.66±15.13 years in OA group and 27.75±14.24 years in LA group. The mean age difference was not statistically significant (p>0.05) between two groups. In study of Rahman et al.[14] showed the mean age was found 31.5±6.1 years open group and 29.8±5.2 years in laparoscopic group. The difference was not statistically significant (p>0.05) between two groups. In study of Suh et al.[4] also supported our results they showed the mean age was found 34.96±23.35 years OA group and 31.11±16.51 years in LA group. The mean age difference was statistically significant (p<0.05) between two groups. In study of Kargar et al.[15] also observed the LA and OA groups participants' mean age was 26.94±9.51 and 25.36±8.92, respectively (P=0.394). In this study it was observed that male was found 58% in OA group and 53% in LA group. Female was found 42% and 47% in OA and LA group respectively. Male female ratio was 1.4:1 in group OA group and 1.12:1 in LA group. The difference was not statistically significant (p>0.05) between two groups. Similar results were found Biondi et al.[13] they showed male was found 59.3% in OA group and 42.7% in LA group. Female was 40.7% and 57.3% in OA and LA group respectively. In study of Islam et al. showed in the laparoscopic group 123 (39%) were adult male, 176 (56%) were adult female. In study of Rahman et al.[14] observed Male:female was found 32:21 in open group and 17:29 in laparoscopic group. In Kargar et al.[15] study showed twenty three men (46%) and twenty seven women (54%) underwent LA while 28 men (86%) and 22 women (22%) were operated by OA technique. No statistically significant difference was observed in male to female ratio (P=0.212). Regarding body mass index (BMI) it was observed that mean BMI was found 21.86±4.27 kg/m^2 in OA group and 22.50±3.98 kg/m^2 in LA group. The mean BMI difference was statistically significant (p<0.05) between two groups. In Amiri and Ansari[16]. study showed that the average body mass index (BMI) was higher in the laparoscopic group (LA 26 kg/m^2; open appendectomy (OA); 22 kg/m^2). In study of Suh et al.[4] howed the mean BMI was found 21.86±4.27 kg/m^2 in OA group and 22.50±3.98 kg/m^2 in LA group. The mean BMI difference was statistically significant (p<0.05) between two groups. In this present study it was observed that majority patients had multiple attack in both groups, which was 68% in OA group and 70% in LA group. The difference was not statistically significant (p>0.05) between two groups. Similar results was found

Rahman et al.[14] single attack was found 18 (32.1%) in open group and 14 (30.4%) in LA group. Multiple attack was 38 (67.9%) in open group and 32 (69.6%) in LA group. The difference was not statistically significant (p>0.05) between two groups. In this study it was observed that mean leucocyte count was found 14.87±6.7 $\times 10^3/\mu L$ in OA group and 13.26±4.9 $\times 10^3/\mu L$ in LA group. The mean leucocyte count was not statistically significant (p>0.05) between two groups. In study of Katkhouda et al.[17] showed the mean WBC was found $15.4\times 10^3/\ \mu L$ in open appendectomy group and 15.4 $\times 10^3/\mu L$ in laparoscopic appendectomy group. The difference was not statistically significant (p>0.3058) between two groups. Regarding appendix pathology, 35.0% patients had hyperemic in OA group and 38.0% in LA group, 45.0% patients had suppurative in OA group and 43.0% in LA group, 8.0% patients had gangrenous in OA group and 11.0% in LA group, 12.0% patients had perforated/abscess in OA group and 8.0% in LA group. The difference was not statistically significant (p>0.05) between two groups. In study of Lasheen et al.[18] observed that the severity of appendicitis was similar in both groups (27 catarrhal appendicitis 45%, 20 suppurative appendicitis 33.3% and 13 perforated appendicitis 21.7%). In the study of Suh et al.[4] showed hyperemic was found 16.7% in OA group and 17.0% in LA group. Suppurative was 39.0% in OA group and 42.5% in LA group. Gangrenous was 8.6% in OA group and 11.6% in LA group. Perforated/abscess was 35.7% in OA group and 28.9% in LA group. In this study it was observed that mean operative time was found 41.2±8.5 minutes in OA group and 49.3±8.9 minutes in LA group. Mean operation time was statistically significant (p<0.05) between two groups. Similar observation was found in different studies Kargar et al.[15] study showed the average skin to skin operation time was 34.4± 8.42 min in LA hand and 41.7± 8.84 in OA hand (P=0001). In study of Lasheen et al.[18] showed the mean operative time in group A was 55.7 minutes (range, 27 to 90) and in group B 57 minutes (range, 25 to 95), P = 0.0231. In study of Biondi et al.[13] showed the mean ± standard deviation (SD) operative time of 54.9 ± 14.7 min for the LA group was longer than the mean operative time of 31.36 ± 11.43 min for open appendectomy (P <0.0001). In another study of Islam et al.[19] showed the operating time in LA was 33±5.8 minutes and in OA was 37±7.5 minute (OR-0.79, CI-95%). In my study it was observed that port site infection occur in two groups, which was 14% in OA group and 10% in LA group. Incisional/port site hernia was found 4% in OA group and 2% in LA group. In study of Rahman et al.[14] showed in LA group one patient developed mild surgical emphysema, resolved spontaneously. Wound or port site infection is significantly higher in open group (p=0.019). Mortality rate was "0" in both groups. Two patient in the LA group required conversion to open operation. In Lasheen et al.[18] study observed that port wound infection was recorded in one patient of group A (1.7%) and 8 patients which was managed by drainage and daily dressing as outpatient. In Suh et al.[4] study also observed readmission within 30 days of surgery was observed in 2 cases (0.6%) in the LA group and 9 cases (2.1%) in the OA group, but the difference was not statistically significant. Regarding surgical-site infections in overall appendicitis. It was observed that superficial incisional was found 10% in OA group and 5% in LA group. Deep incisional was found 2% in OA group and 2% in LA group. Organ/space was 2% and 3% in OA group and LA group respectively. Overall SSI was 14% in OA group and 10% in LA group. The difference were not statistically significant (>0.05) between two groups. Suh et al.[4] study showed the overall SSI rate was not different between the two groups (2.8% for the OA group vs. 4.6% for the LA group, respectively, P=0.204), but the superficial SSI rate was significantly lower in the LA group (3.2% vs. 0.6%, P = 0.016). In addition, the difference in the superficial SSI rate was more significant in severe forms of appendicitis, such as suppurative, gangrenous or perforated appendicitis. However, in the Suh et al.[4] study, the overall SSI rate was not significantly different between the two groups, and the superficial SSI rate was rather significantly lower in the LA group. The difference in the superficial SSI rate was more evident in severe forms of appendicitis, such as suppurative, gangrenous, or perforated appendicitis. SSI may occur anywhere from the skin to the organ/ space in both the LA and OA groups. However, the superficial SSI, which only involves the skin or subcutaneous tissue, is rare in the LA group because of the unique nature of the laparoscopic procedure. In this study it was observed that superficial incisional was found 10 (71.4%) in OA group and 5(50.0%) in LA group. Deep incisional was found 2 (14.3%) in OA group and 2 (20.0%) in LA group. Organ/space was 2 (14.3%) and 3 (30.0%) in OA group and LA group respectively. Overall SSI was 14 (100%) in OA group and 10 (100%) in LA group. The superficial incisional was statistically significant (<0.05) between two groups. In this study it was observed that atypical myobacteirial infection was found 1 (10.0%) in LA group but not found in OA group. The difference was not statistically significant (p>0.05) between two groups. Port site infection was found 10 patients laparoscopic appendectomy among them 7 (70.0%) patients had umbilical port, 2 (20.0%) had right iliac port and 1 (10.0%) had left iliac port site infection. In a study done by Karthik et al. found most common ports involved were umbilical port sites (47%). In present study Staphylococcus aureus is the most commonest organism isolated form the surgical wounds from 41.34% followed by Pseudomonas 21.26%, no growth 11.1%, E.coli 9.6%, others 9.4%, Klebsiella 7.0%. Ananda et al. found in their study Staphylococcus aureus 42.85%, Pseudomonas 19.64%, no growth 12.5%, E.coli 10.7%, Klebsiella 5.4% and others 8.9%. This was similar in this present study.

In conclusion, laparoscopic appendectomy was better than open appendectomy with respect to superficial wound infection rate, postoperative pain, postoperative hospital stay and return to normal activities.

Recommendations

Further studies can be undertaken with large number of patients in a single Hospital with a specific surgical team in a optimum operation theatre Environment.

Bibliography

1. Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR. The Hospital infection Control Practices Advisory Committee. Guideline for prevention of surgical site infection. Infect Control Hosp Epindemiol. 1999;20:247-278.

2. Horan TC, Gaynes RP, Martone WJ, Jarvis WR, Emori TG. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. Infect Control Hosp Epidemiol. 1992;13(10):606 - 608.

3. Wilson AP, Treasure T, Sturridge MF, Gruneberg RN. A scoring method (ASEPSIS) for postoperative wound infections for use in clinical trials of antibiotic prophylaxis. Lancet. 1986;1(8476): 311-3.

4. Suh YJ, Jeong SY, Park KJ, Park JG, Kang SB, Kim DW, et al. Comparison of SSI between open and Laparoscopic appendectomy. J Korean surg soc. 2012;82(1):35-39.

5. Yeo C.J. Shackel fords surgery of the Alimentary Tract "appendix" Gordon 6th edition volume II saunders publishers Philadelphia U.S.A 2007;2141.

6. Owens CD and Stoessel K. Surgical site infections: epidemiology, microbiology and prevention. J Hosp Infect. 2008;70 Suppl 2:3-10.

7. McBurney C. The incision made in the abdominal wall in cases of appendicitis, with a description of a new method of operation. Ann Surg. 1894;20:38e43.

8. Golub R, Siddiqui F, Pohl D. Laparoscopic versus open appendectomy: a meta analysis. J Am coll Surg. 1998; 186:545-553.

9. Chung RS, Rowland DY, Li P, Diaz J. A meta-analysis of randomized controlled trials of laparoscopic versus conventional appendectomy. Am J Surg. 1999;177:250 -256.

10. Garbutt JM, Soper NJ, Shannon WD, Botero A, Littenberg B. Meta-analysis of randomized controlled trials comparing laparoscopic and open appendectomy. Surg Laparosc Endosc. 1999;9:17-26.

11. Frazee RC, Bohannon WT. Laparoscopic Appendectomy for Complicated appendicitis. Arch Surg. 1996;131:509-512.

12. Pai PS, Towson JA, Anthone GJ, et al. Intra abdominal abscesses following laparoscopic and open appendicectomies. J Gastrointest Surg. 1998;1:188-193.

13. Biondi A, Di Stefano C, Ferrara F, Bellia A, Vacante M, Piazza L, et al. Laparoscopic versus open appendectomy: a retrospective cohort study assessing outcomes and cost-effectiveness. World Journal of Emergency Surgery. 2016;11(44):2-6.

14. Rahman MM, Rahman MS, Ahmed G, Rahman MM, Miah MZI, Nath SC. Laparoscopic Versus Open Appendicectomy: A Comparison of Primary Outcome. Faridpur Med. Coll. J. 2014;9(2):84-87

15. Kargar S, Mirshamsi MH, Zare M, Arefanian S, Yazdi ES, Aref A. Laparoscopic Versus Open Appendectomy; Which Method to Choose? A Prospective Randomized Comparison. Acta Medica Iranica. 2011;49(6):352-356.

16. Amiri NAH, Ansari AL. Laparoscopic versus open appendectomy: A retrospective study in the Kingdom of Bahrain. Archives of International Surgery 2013;3(1):39-42.

17. Katkhouda N, Mason RJ, Towfigh S, Gevorgyan A, Essani R. Laparoscopic Versus Open Appendectomy A Prospective Randomized Double-Blind Study. Ann Surg. 2005;242:439-450.

18. Lasheen AE, Khalil O, Elaal SA, Alkilany M, Sieda B, Alnaimy T. Surgical Wound Infections After Laparoscopic Appendectomy with or Without Using Reusable Retrieval Bag; Retrospective Study. J Minim Invasive Surg Sci. In Press (In Press):2016;e36894.

19. Islam SR, Pasha K, Rahman S, Nasir E, Hanif E, Barman A. Laparoscopic vs Open Appendectomy : A Comparative Study. Bangladesh journal of endosurgery. 2014;2(1):5-8.

20. Karthik S, Augustine AJ, Pai MV. Analysis of laparoscopic port site complications: A descriptive study. J Minim Access Surg. 2013;9(2):59-64.

21. Ananda BB, Raj S, Ramesh BS. Clinical Study of Causative Factors, Precautionary Measures and the Treatment of Surgical Site Infections (SSIs) in Elective General Surgery Cases at Dr B.R.AMCH. Int. J. Life. Sci. Scienti. Res 2016;2(4):303-308.

Original Article

Khatun J[1], Khanom K[2]

Abstract

Obstructed labour is an important cause of maternal death in developing countries. Obstructed labour also causes significant maternal morbidity mainly due to infection and hemorrhage and foetal death from asphyxia is also common. Objectives are to reduce maternal and newborn complications by early detection and rapid interventions and to reduce maternal and perinatal morbidity and mortality. This Hospital-based prospective cross-sectional study was conducted from June 2013 to June 2014 in Sylhet, MAG Osmani Medical College Hospital. 100 obstructed labour cases were selected those who were admitted in Inpatient department of Obstetrics and Gynaecology, SOMCH. 100 obstructed labour cases were recorded. The majority (80%) were residents of rural areas in which transportation were difficult, the occupation of the women were housewives mostly (90%) and remaining (10%) were tea-garden worker.75% of the obstructed labour cases did not have any ante-natal follow-up. Most of the cases (70%) were visited Osmani Medical College Hospital by their attendant. 70% Visited at 12-24 hours of labour, (80%) came from a distance of 10-50 kilometers. Cepholo-pelvic disproportion was the major cause of obstructed labour (78%) and cesarean section was the main way of delivery (95%). PPH (4%), puerperal sepsis (4%), rupture uterus (2%), VVF (2%), rupture uterus with shock (1%), were the main complications and maternal death (1%). Obstructed labour was the major causes of poor perinatal outcome and perinatal death (7%). This study revealed high incidence of maternal morbidity and perinatal morbidity and mortality.

Key words : obstructed labour, outcome, risk factors.

1. Corresponding Author:
Dr. Jamila Khatun
Associate Professor
Department of Obstetrics and Gynecology
Sylhet M.A.G Osmani Medical College and Hospital, Sylhet.
e-mail: mirshah1962@gmail.com

2. Dr. Khudeja Khanom
Medical Officer
Department of Obstetrics and Gynecology

Introduction

Obstructed labour is one where inspite of good uterine contractions; the progressive descent of the presenting part is arrested due to mechanical obstruction[1]. In the developing countries the prevalence of obstructed labour is about 2 to 8% in the referral hospital. Obstructed labour is still a major cause of maternal morbidity and mortality and of adverse outcome for newborns and accounts for approximately 8% of maternal death globally[2].

There are five major causes of direct obstetric death: Haemorrhage (28%), complications of unsafe abortion (19%), pregnancy induced hypertension (17%), infection (11%), and obstructed labour (11%). Direct obstetric deaths account for about 75% of all maternal deaths in developing countries[3,4].

To reduce maternal and perinatal morbidity and mortality and preventing obstetric complications by proper antenatal care, identification of high risk pregnancy and advise for institutional delivery, as most of the complications can be prevented. Cardio-tocography (CTG) and using partograph monitoring the foetal well being helps to reduce perinatal mortality[5]. There are different studies in developing countries showing incidences of obstructed labour varying from as low as 1.3%. In a Sudan study to as high as 7%. In a retrospective study done at Jimma University Specialized Hospital (JUSH)[6]. The major cause of obstructed labour identified in different studies was Cephalo-pelvic disproportion being responsible for 80% in JUSH, 67% in Nigerian study and 41.1% in an Indian study[7]. Several procedure are done to relieve the obstruction in obstructed labour. The major procedure done was cesarean delivery (C/S) which was done in 85% of cases in a Nigerian study and 63.3% of cases in Indian study[8]. Complications observed in women with obstructed labour at studied areas were puerperal sepsis in 57% cases in Nigeria, 12.5% in India and extension at time of surgery in 14% of cases in India. Maternal Mortality from obstructed labour ranges from 32/1000 in Nigeria to 91/1000 in Jimma University Specialized Hospital. The perinatal mortality was 160/1000 in India, 290/1000 in Nigeria and 621/1000[9]. It helps to compare the findings with present study done in the sylhet MAG Osmani Medical College Hospital, Sylhet which could give a picture about the status of quality of health service care.

Materials and Methods

This study was a hospital based prospective cross-sectional study, carried out in IPD (inpatient department) of Obstetrics and Gynecology of Sylhet, M.A.G Osmani Medical College and Hospital, Sylhet in between June 2013 to June 2014. Total 100 cases were enrolled in this study. Data was collected by using a preformed questionnaire and check list. Cases were selected according to inclusion and exclusion criteria. Relevant infromations (according to questionnaire) were taken from patients or attendants after data collection all data were entered in master sheet and analyzed manually in view of the objective of the study. Results were published in tabulated form.

Results

Table-I shows 60 (60%) of the obstructed labour cases were 18-20 years. Majority of them 95 (95%) were Muslim. Majority (70%) were Primipara, 90% were housewives and 10% were tea-garden worker, 50% had no education, 60% had monthly income <5000taka.

Table-I: Background characteristics of obstructed labour

Background information		Number of cases (n=100)	Percent
Age	18-20 years	60	60
	21-29 years	25	25
	30-24 years	13	13
	>35 years	2	2
Religion	Muslim	95	95
	Hindu	5	5
Parity	Primipara	70	70
	Para 2-4	25	25
	Para≥5	5	5
Occupation	No Education	50	50
	Tea-garden worker	10	10
Education	No education	50	50
	Primary incomplete	48	48
	Secondary incomplete	2	2
Monthly income	<5000 taka	60	60
	5000-10000 taka	40	40

Table-II shows 75 (75%) of the obstructed labour cases did not have any antenatal follow-up. Most of the cases 65 (65%) visited hospital 70 (70%) visited in SOMCH between 12-24 hours of labour. About 80% cases came from distance between 10-50km.

Table-II: Distribution of cases with obstructed labour in relation utilization and access to health services

Helth Service Utilization		Number of case (N=100)	Percent %
ANC follow-up	Had at least one follow-up	25	25
	Had no follow-up	75	75
Source of referral	Self	65	65
	Health center	35	35
Duration of labour before visiting SOMCH	<12 hours	10	10
	12-24 hours	70	70
	>24 hours	20	20
Distance from SOMCH	<10 kilometer	20	20
	10-50 kilometer	80	80

Table-III shows majority 60 (60%) attended late more than 24 hours of labour due to distance more than 10km (10-50 km)

Table-III: Factors associate with delayed visit to SOMCH among Obstructed labour.

Independent Variables	Categories	Duration of labour before arrival to SOMCH <24 hours	>24 hours
Age	18-20 years	25	35
	21-29 years	15	10
	30-34 years	3	10
	≥35 years	0	2
Parity	Primi	45	25
	Para 2-4	10	15
	Para ≥5	1	4
ANC follow-up	Had at least one follow-up	20	5
	No follow-up	15	60
Distance	<10 kilometer	15	5
	10-50 kilometer	20	60

Teble-IV shows CPD was the major causes 75 (78%) cases, mal presentation 10 (10%), mal position 7 (7%), followed by big baby 4 (4%) and fetal anomaly (1%).

Table-IV: Distribution of risk factors of obstructed labor

Cause	No. Patient and Percentage
CPD	75
Mal Presentation	10
Mal position	7
Big baby	4
Fetal anomaly	1

Table-V shows 20% cases of obstructed labour was prolonged abdominal distension, post-partum haemorrhage and puerperal sepsis both were 4% , rupture uterus and VVF both were 2% Rupture uterus with shock 1%, maternal death 1% (due to shock with DIC) and no significant complications 66%.

Table-V: Distribution of complication in case of obstructed labour.

Outcome / Complication	Number of Patient	Percentage
Abdominal Distension	20	20
Post-partum Haemorrhage	4	4
Puperal Sepsis	4	4
Rupture Uterus	2	2
VVF	2	2
Rupture with Shock	1	1
Maternal Death	1	1
No Significant Complication	66	66

Table-VI shows Cesarean section was the major way of delivery 95 (95%) of cases followed by laparotomy 4 (4%) and craniotomy 1 (1%) of cases.

Table-VI: Intervention done in cases of obstructed labor

Intervention	Number of patient	Percentage
Cesarean section	95	95
Laporatomy	4	4
Carniotomy	1	1

Discussion

This study had tried to look at risk factors and outcome of mother and newborn of obstructed labour admitted in Sylhet, M.AG. Osmani Medical College Hospital, Sylhet. This study showed a high incidence of maternal and perinatal morbidity. This hospital is a referral hospital covering wide catchments area and most of the patients referred were already complicated. Seventy-five percent (75%) of the obstructed labour did not have any antenatal follow-up where as twenty -five percent (25%) had at least one follow-up. The Cephelo-pelvic disproportion is the major cause of obstructed labour (78%), which is comparable to the study done in Jimma University Specialist Hospital, Ethiopia (67.6%) and study done in Nigeria[8]. lower than the previous study undertaken in this hospital[7]. Cesarean section was the main way of delivery (95%), which is higher than the study done in Nigeria and India[8,9,11]. Destructive delivery was least frequent mode of delivery compared to the other studies[7]. Prolong abdominal distention, PPH and peuperal sepsis, are the common complication of the study followed by rupture uterus, VVF, shock, DIC and death. Uterine rupture is a well known contributor of maternal hemorrhage and sepsis which are major cuses maternal morbidity and mortality.

The study also showed obstructed labour to be one of the major causes of poor perinatal outcome. But it is to low than other studies made in Nigeria and India. Maternal and perinatal morbidity and mortality is associated with age, parity, low socioeconomic condition, ignorance and time for seeking treatment for obstetric complications. Thirty-four (34%) of women with obstructed labour developed complications and 66% not developed significant complication. One (1%) obstructed labour case died due to rupture uterus, sepsis, shock with DIC. The adverse outcome of obstructed labour, was associated with older age, high party, areas of residence and particular health facility.

The main causes of obstructed labour in this study were CPD (78%), followed by mal- presentaion (10%), mal-Position (7%), big baby (4%) and fetal anomaly (1%) which have been reported by others[8]. CPD is mostly due to contracted pelvic and adolescent or early marriages[8]. Grand multi para women may also be at higher risk of obstructed labour from mal-presentation and mal-position.

In conclusion, socio-demographic and health system factors are strongly associated with obstructed labor and its outcome. This study provides baseline information on the individual socio- economic and health system factors associated with obstructed labour.

References

1. Gessessew A, Mesfin M. Obstructed labour in Adigrat Zonal Hospital, Tigray Region. Ethiopia. Ethiop J Health Dev. 2003;17(3):175-180.

2. WHO. The World Health report: 2005: Make every mother and child count. Geneva: World Health Organization; 2005.p.230.

3. Nwogu-lkojo EE, Nweze So, Ezegwui HU. Obstructed labour in enugu Nigeria. J Obstet Gynaecol. 2008;28(6):596-599. Doi: 10.1080/01443610802281682. [Pub Med] [Cross Ref]

4. Ali AA, Adam I. Maternal and perinatal outcomes of obstructed labour in kassala hospital, sudan. J Obstet Gynaecol. 2010;30 (4):376-377. doi: 10.3109/ 01443611003672096. [Pub Med] [Cross Ref]

5. Mathai M. The partograph for the prevention of obstructed labor. Clin Obstet Gynecol.2009;52 (2):256-269. doi: 10.1097/ GRF.0 b 013e3181 a 4f163. [Pub Med] [Cross Ref]

6. Maine, D. Why Did maternal mortality Decline in matlab? Studies in family planning. 1996 July/Aug ;27(4).

7. Danel, isabella. Maternal mortality reduction, Honduras,1990-1997:A case study" centers for disease control and prevention. Report prepared for the world bank.

8. Neilson JP, Lavender T, Quenby S, Wray S. Obstructed labour. Br Med Bull. 2003;67:191-204. doi:10.1093/ bmb/ idg018. [Pub Med] [Cross Ref]

9. Gessessew A, Mesfin M. Obstructed labour in Adigrat Zonal Hospital, Tigray Region, Ethiopia. Ethiop J Health Dev. 2003;17(3):175-180.

10. BY JK Kabakyenga, PO Ostergren, E Turyakira, 2011.

11. DC Datta Textbook of obstetrics. 6th edition. 2005:402-406.

Original Article

Comparative Study between Primary Closure and T-tube Drainage after Open Choledochotomy

Asaduzzaman M[1], Mia MGM[2], Abdullah SM[3], Islam MS[4], Hanif MA[5], Karim SMR[6]

Abstract

Common Bile Duct (CBD) exploration for choledocholithiasis is usually closed after T-tube insertion. However, complications of T-tube insertion limit its use. In the present study, we wanted to compare outcomes between primary repair of choledochotomy and traditional T-tube insertion. Thirty patients with CBD stones admitted at Tangail Medical College Hospital, Tangail, from January 2010 to December 2015, were included in this study. The patients were randomly divided into two groups: T-tube drainage group and primary closure group. Intraoperative findings and postoperative complications were recorded and analyzed. There was no mortality and retained stones in both groups. Two of 15 patients in the T-tube group and four of 15 patients in primary closure group suffered from minor bile leakage. There was no major bile leakage in the T-tube group but one patient in the primary closure group had major bile leakage, which was treated conservatively without surgical or endoscopic intervention. Wound infection was seen in two patients in the T-tube group and one patient in the primary closure group. In follow up assessment, there was no intra-abdominal collection in both groups. Overall postoperative complications include biliary complications, wound infection and intra-abdominal collections, were seen in four patients in the T-tube group and six patients in primary closure group; that was not statistically significant. Primary (Para) closure of CBD after open choledochotomy is feasible and is as safe as T-tube insertion. In effect, primary closure avoids T-tube insertion and disadvantages associated with the use of T-tube. Primary closure can be recommended for selected patients with choledocholithiasis.

Key words: Common bile duct stones,

1. Corresponding Author:
Dr. Md. Asaduzzaman
Assistant Professor
Department of Pediatric Surgery
Tangail Medical College & Hospital, Tangail.
e-mail: asadap69@gmail.com

2. Dr. Md. Golam Mostofa Mia
Associate Professor & Head
Department of General Surgery
Tangail Medical College & Hospital, Tangail.

3. Dr. SM Abdullah
Assistant Professor
Department of Pediatric Surgery
Abdul Malek Ukil Medical College, Noakhali.

4. Dr. Md. Shofiqul Islam
Senior Consultant
Department of Surgery
250 Beded General Hospital, Tangail.

5. Dr. Mohammad Abu Hanif
Assistant Professor
Department of General Surgery
Tangail Medical College & Hospital, Tangail.

6. Dr. SM Rejaul Karim (Maruf)
Associate Professor & Head
Department of Pediatric Surgery

Introduction

Choledocholithiasis is not an uncommon disease. The incidence is even higher in older ages. It may result in complete or incomplete bile duct obstruction and manifest with cholangitis or gallstone pancreatitis[1]. Closure of choledochotomy upon T-tube is the traditional surgical technique following open choledocal drainage. The theories for this strategy are distal decompression of bile duct, availability of postoperative contrast studies and availability of extraction of retained stones. However, T-tube insertion deserves potential complications[3]. The most frequent of this is bile leakage after T-tube removal[2,4]. Complications may be serious in some patients. Biliary Tract infection and bile leakage following early removal of T-tubes without tract formation may require reoperation and has potential morbidity and mortality. Primary closure of the CBD after

There are many papers reported by different authors, which support the primary closure of the duct immediately after CBD exploration[2,3,6-9]. The aim of this randomized study is to find out whether primary closure without T-tube drainage after open choledochotomy is feasible and as safe as T-tube insertion.

Materials and Methods

30 patients with CBD stones disease admitted at Tangail Medical College Hospital, Tangail, from January 2010-Decemder 2015, were included in this study. The patients were randomly divided into two groups: T-tube drainage group and primary closure group. Each group was consisted of 15 patients. Routine investigations were performed for all patients including complete blood count, liver function tests, serum amylase, blood urea nitrogen, serum creatinine and abdominal ultrasonography. Inclusion criteria was jaundice on physical examination or hyperbilirubinemia in the presence of gallstone disease, CBD stones in ultrasonography, intraoperative palpation of stones in CBD. Patients with acute pancreatitis or cholangitis.

At presentation, suspicious malignancy, lesser than 20 or older than 80 years old, patients with history of laparotomy, history of heart failure, renal failure, cerebrovascular accidents and myocardial infarction, obese patients were excluded. All patients were given prophylactic antibiotic and a Kocher's subcostal incision was used. A longitudinal supraduodenal choledochotomy was done. Stones were taken out and saline flushing followed to ensure patency. We confirmed the clearance of the duct with a intraoperative cholangiography (IOC). After completion of IOC, patients were randomized to two groups of primary duct closure and T-tube drainage. In the primary closure group, the choledochotomy was closed primarily with interrupted 4-0 absorbable sutures (4-0 PDS), whereas in the T-tube drainage group, a latex rubber T-tube of appropriate size (14-16 French size) was inserted into the CBD and CBD incision was closed using interrupted sutures (4-0 PDS). Saline was flushed through the T-tube to rule out leakage. At the end of the procedure, a single sub-hepatic closed suction drain was placed (Jackson Pratt Drain).

The day after the surgery, patients were ambulated and returned to oral intake as tolerated. If there was an insignificant output from closed suction drain, it was removed after a few days and patients were discharged. Afterward, they were follow up after (controlled) 2 weeks, 1 month and 3 month following discharge.

Patient's demographics (age, gender), operative time, duration of hospital stay, comorbidities, number of CBD stones, CBD diameter, clinical presentation and postoperative complications; including minor (<200 ml in 24 hours) and major (>200ml in 24 hours); bile leakage,

Results

CBD exploration was performed in 30 patients, out of which 15 had primary closure of CBD after stone removal and T-tube drain was placed in remainder.

The mean age of patients in primary closure was 42.1 years and that of T-tube group was 40.1, (PV=0.71). There were three males (20%) and 12 females (80%) in the primary closure group, and four males (26.7%) and 11 females (73.3%) in T-tube group (Table I).

Table-I: Age distribution of patients of primary closure and T-tube drainage group (n=30)

Group	n=30	Minimum age	Maximum age	Mean±SD	P	Remark.
Primary Closure	15	32	63	42.13±15.5	0.765	Not
T-tube drainage	15	30	62	40.13±20.38		Significant

Data were expressed as mean ±SD. n: Number of the subject.

Group A: Primary closure. Group B: T- Tube drainage.

SD: Standard Deviation. P: Probability value.

Table-II: Sex Distribution of the primary closure and T-tube drainage group (n=30).

Group	n=30	Male	Female	Male:Female	Remark.
Primary Closure	15	3	12	1:4	
T-tube drainage	15	4	11	1:3.75	

*Results are expressed as mean ± standard deviation.

T-tube cholangiograhy or ultrasonography was used for detection of residual stones and ultrasonography was used for assessment of postoperative intra-abdominal collections. Wound infection was defined as a wound requiring partial or complete opening. Abdominal collections were defined intra-abdominal collections requiring surgical or percutaneous drainage. Operating time was calculated in minutes. Hospital stay was defined as postoperative admission days.

In the T-tube group, T-tube cholangiogram was performed on the 25-30th postoperative day and tube was removed after confirmation of free flow of contrast with no residual stone.

For comparison of the two groups, Fisher's exact test of chi-squared was used when appropriate for qualitative data $P < 0.05$ was considered statistically significant. Statistical analyses were carried out using SPSS (version 18) software.

Informed consent for randomization to primary closure or T-tube drainage was requested to all patients, none refused.

The median time spent in hospital after the operation for those having primary closure was 5.8 days, whereas those patients having a T-tube inserted remained in hospital from 6.3 days. Preoperative abdominal ultrasound showed the diameter of CBD, which was then confirmed during the operation. Operative findings are summarized in Table-III.

Tabel-III: Operative findings of CBD Diameter.

Group	n=30	Minimum CBD diameter	Maximum CBD diameter	Mean±SD	P	Remark
Primary Closure	15	11.00	17.00	13.13±3.11	0.03	Not Significant
T-tube drainage	15	10.00	15.00	10.73±2.60		

*Results are expressed as mean ± standard deviation.

Most common presentation in the primary closure group was jaundice but most of the patients in the T-tube group presented with acute cholecystitis. The clinical presentations of patients are listed in Table IV.

Table-IV: Clinical Presentation of the patients.

Group	n=30	Acute Cholecystitis	Biliary Colic	Dyspepsia	Janndice
Primary Closure	15	2(13.3%)	3(20.0%)	4(26.6%)	6(40.0%)
T-tube drainage	15	10(66.7%)	1(6.7%)	2(13.3%)	2(13.3%)

*Results are expressed as number and percentage.

One patient (6.7%) in the primary closure group and two patients (13.3%) in the T-tube group had wound infection that requiring opening for drainage. In the primary closure group, one patient experienced major bile leakage, which responded to conservative treatment and bile leak ceased spontaneous on the 7th postoperative day.

Endoscopic or surgical intervention did not require. None of the patients in the T-tube group had major bile leak. Four patients (26.6%) in the primary closure group and two patients (13.3%) in the T-tube group experienced minor bile leakage, which stopped spontaneously with extended peritoneal drainage. There was no complication following removal of T-tube. Overall postoperative complications include biliary complications, wound infection and intra-abdominal collections were observed in four patients (13.3%) of the group assigned to the T-tube group and six patients (19.9%) assigned to primary closure group; that was not statically significant difference. There were not any residual CBD stones and intra-abdominal collections seen up to 3 months follow up and postoperative ultrasound findings were almost normal. Two patients (13.3%) in the primary closure group and four patients (26.6%) in the group T-tube group had comorbidities like hypertension, diabetes mellitus, ischemic heart disease and osteoporosis. There was a significantly lower operating time in the T-tube group compared to the primary closure group (111 versus 124 minutes, $P < 0.13$). There was no death in this study.

Discussion

Open CBD exploration has been the main treatment modality for CBD stones for many years. It is also performed frequently at the present time[10]. T-tubes are usually inserted for biliary decompression and stenosis. This strategy has been the modality of choice for many years[2,11]. Although T-tube insertion is proved to be a safe and effective method for postoperative biliary decompression, its potential complications are seen in 10% of patients and thus limit its use[3]. It is believed that insertion of T-tube allows spasm or edema of sphincter to settle after the trauma of the exploration. Moreover, postoperative T-tube drainage has been used to prevent bile stasis, decompress the biliary tree, and minimize the risk of bile leakage. A T-tube also provides an easy percutaneous access for cholangiography and extraction of retained stones[12]. However, leakage of bile may be encountered after removal and patient have to carry it for several weeks before removal[13].

In our study, we had four cases (4/15) of minor bile leakage among the 15 patients in whom primary closure of the CBD was done, and two cases (2/15) among other 15 patients in whom the T-tube was used. None of the patients in the T-tube group had major bile leak but, in the primary closure group, one patient experienced major bile leakage, which was treated conservatively without endoscopic or surgical intervention.

Overall postoperative complications include biliary complications, wound infection and intra-abdominal collections, in the T-tube and primary closure group, were four and six patients; that was not statically significant difference. There were not any residual CBD stones and intra-abdominal collections, in this study. Also there were no deaths. Compared with primary closure group, T-tube group had shorter operating time (111 versus 124 minutes, $P < 0.13$). The reason for this was probably that we spent more time because of intraoperative cholangiography in this group of patients. The difference between the groups was not statically significant for hospital stay (6.3 and 5.8 days). The two groups were similar in terms of demographics include age, gender etc. Diameter of CBD in the T-tube group were statistically lower than that of primary closure group (Table III).

Similar to the findings by others[2,3,5,6,8,12,13] in our study, there were no statically significant differences for postoperative complications and residual stones. Therefore, postoperative T-tube drainage is not necessary for decompression of the biliary tree. In addition, the use of intraoperative cholangiography can also avoid missed biliary problems. Our findings showed that primary closure did not increase the risk of postoperative bile leakage. We believe that primary closure is a safe method in patients with choledocal stones. Patients could return to work earlier, following exploration of the common bile-duct, if the duct is sutured without T-tube drainage, and primary closure of CBD is a safe and effective alternative measure and is associated with low complication rates

References

1. Oddsdottir TH, Hunter JG. Gallbladder and the extrhepatic biliary system. In: Brunicardi FC, Editor. Schwart's Principles of Surgery. 9th ed. United States of

2. Williams JAR, Treacy PJ, Sidey P. Primary duct closure versus T-tube drainage following exploration of the common bile duct. ANZ J Surg. 1994;64:823-6.

3. Perez G, Escalona A, Jarufe N. Prospective randomized study of T-tube versus biliary stent for common bile duct decompression after open choledochotomy. World J Surg. 2005; 29: 869-872.

4. Gharaibeh KIA, Heiss HA. Biliary leakage following T-tube removal. Int Surg. 2000;85:57-63.

5. Placer G. Bile leakage after removal of T-tube from the common bile duct. Br J Surg. 1990;77:1075.

6. Zhang LD, Bie P, Chen P. Primary duct closure versus T-tube drainage following laparoscopic choledochotomy. Zhonghua Wai KeZaZhi. 2004;42: 520-523.

7. Marwah S, Singh I, Godara R. Evaluation of primary duct closure vs T-tube drainage following choledochotomy. Indian J Gastroenterol. 2004;23:227-228.

8. Ambreen M, Shaikh AR, Jamal A, Qureishi JN, Dalwani AG, Memon MM, et al. Primary closure versus T-tube drainage after

9. Qian D. Zhu, Chong L, Tao, Meng T, Zhou, Zheng P, et al. Primary closure versus T-tube drainage after common bile duct exploration for choledocholithiasis. Langenbecks Arch Surg. 2011;396:53-62.

10. Verbesey, JE, Birkett, DH. Common Bile Duct Exploration for Choledocholithiasis. Surg Clin N Am. 2008;88:1315-1328.

11. De Roover, D Vanderveken, M Gerard, Y. Choledochotomy: primary closure versus T-tube. A prospective trial. Acta Chir Belg. 1989;89:320-324.

12. Martin IJ, Bailey IS, Rhodes M. Towards T-tube-free laparoscopic bile duct exploration: A methodological evolution during 300 consecutive procedures. Ann Surg. 1998;228:29.

13. Ahmed I, Pradhan C, Beckingham IJ, Brooks AJ, Rowlands BJ, Lobo DN, et al. Is a T-tube necessary after common bile duct exploration? World J Surg. 2008;32:1485-8.

Original Article

Comparison between Modified Alvardo Score & Pediatric Appendicitis Score in the Early Diagnosis and Management of Acute Appendicitis in Children

Haque MS[1], Karim MS[2]

Abstract

Early diagnosis of acute appendicitis in children is a challenge for the pediatric surgeons. The objectives of this study were to compare the accuracy of Modified Alvardo Score (MAS) & Pediatric appendicitis Score (PAS) in the management of acute appendicitis in children, to make early diagnosis & treatment of acute appendicitis and to reduce morbidity of negative appendectomy or delayed appendectomy. It was a comparative prospective study. This study was carried out in Dhaka Shishu (Children) Hospital from January' 2004 to April '2005, a period of 16 months in the department of Pediatric Surgery. During this 16 months period, 106 patients with suspected acute appendicitis were admitted. Among these, 97 patients underwent surgery and 9 patients treated conservatively. Out of 97 patients, 90 specimens were sent for histological examination. Positive histological (Positive appendix) criteria of acute appendicitis required demonstration of acute inflammatory cells infiltration of the appendix wall. Only 85 histological reports were available finally & were included in this study. The sensitivity, specificity and diagnostic accuracy of MAS are 92.42%, 84.21% & 90.59% respectively. The sensitivity, specificity and diagnostic accuracy of PAS are 90.91%, 100% & 92.94% respectively. In these two scoring systems, the sensitivity, specificity and diagnostic accuracy are high. But in our study, PAS is better than the MAS regarding specificity & diagnostic accuracy.

Key words: Modified Alvardo Score (MAS), Pediatric appendicitis Score (PAS).

1. Corresponding Author:
Dr. Md. Sajedul Haque
Assistant Professor
Department of Pediatric Surgery
Comilla Medical College
e-mail: drsajid1970@gmail.com

2. Professor Dr. Md. Shahid Karim
Senior Consultant & Coordinator Pediatric Surgery & Pediatric Urology
Apollo Hospital, Dhaka.

Introduction

In 1886, Harvard pathologist Reginald Fitz presented "Perforative Inflammation of the Vermiform Appendix with special reference to Its Early Diagnosis and Treatment" to the Association of American Physicians. Fitz was the first to describe "appendicitis" and suggested immediate surgical intervention (less than 3 days) to prevent spreading peritonitis or deteriorating clinical status[1]. The entire spectrum of appendiceal disease was described in 1905 by Howard Kelly in his book, The Vermiform Appendix and its Diseases[2].

But after passing more than a century, diagnosis of acute appendicitis still remain an enigma[3]. The diagnosis of acute appendicitis based mainly on history taking and clinical examination and still remains a major problem despite our best effort. Definitive diagnosis of appendicitis is made in only 50% - 70% of children at the time of initial assessment[4]. Only 55% of patients with appendicitis present with classic history & physical findings[5]. Although various aids exist like abdominal ultrasonography, laparoscopy, computerized tomography, MRI, computer aid barium enema, the usefulness of these tests has not been established, moreover they need expertise, are costly, sometimes are not without complications[6]. Acute appendicitis is difficult to diagnose in children due to lack of communication and co-operation. There is still appreciable morbidity and occasional mortality, which is related to failure of making an early diagnosis. For this fear of complication from a missed diagnosis; 15-30% of negative appendectomy has been accepted with impunity by some authors[7-8].

In recent years, to diagnose acute appendicitis and to reduce the incidence of negative appendectomy without increasing the risk of perforation, at least 6 different scores have been developed to face the patients with suspected acute appendicitis for observation &/or surgery[9-10]. The Alvardo score was described in 1986[11]. This scoring system has subsequently been validated by prospective studies in adult[12]. O. Bengezi and Al-Fallouji have modified the Alvardo score into a more practical and easy score to use in patient with acute appendicitis[6]. Pediatric Appendicitis Score (PAS) was proposed by Samuel Madan[4]. He evaluated 1170 children aged 4 to 15 years with abdominal pain suggestive of acute appendicitis & negative appendectomy was performed in 3% (36 of 1170)[4].

Materials and Methods

This prospective comparative type of study was done on children 2.5 to 12 years of age admitted in Dhaka Shishu Hospital with the provisional diagnosis of acute appendicitis from January '2004 to April' 2006. Two diagnostic approaches, MAS & PAS, have been validated against the histological findings.

All available cases were selected for this study. The number of patients under study was 85. Patient in whom surgery was not performed, Appendix abscess or mass was confirmed and histopathology report was not available, were excluded in this study. Research instruments were General Questionnaire, Modified Alvardo Score & Pediatric Appendicitis Score. On admission, the patients were evaluated by using the MAS & PAS scores and recorded in data sheet. After collecting data, editing was done manually & prepared for data entry, which will be done by using computer Programmed, SPSS.

Data analysis was done by using standard statistical Methods. Appendicitis & non-appendicitis group were compared by using unpaired student's t test and sex by using chi-square test. To determine and compare the sensitivity, specificity & diagnostic accuracy of MAS & PAS with histological findings in acute appendicitis, the following formulas have been used:

Sensitivity = TP x 100% / (TP+FN).

Specificity = TN x 100% / (TN+FP).

Accuracy = (TP + TN) x 100% / (TP+TN+FP+FN).

(Where, TP = True positive, TN = True negative, FP = False positive, FN = False negative).

Results

Study population

Total 106 patients were admitted with suspected acute appendicitis out of 2763 admissions in pediatric surgery department of Dhaka Shishu Hospital within 16 months period. Of which 97 cases were operated & 9 cases were treated conservatively. Total 90 specimens were sent for histopathology and 7 samples were missed. Histopathology reports were available in 85 cases & 5 reports were missed (figure-I). So, total study population was 85.

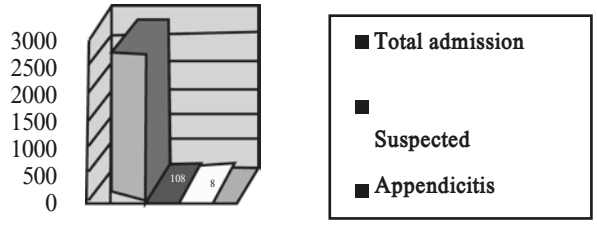


Fig-I: Hospital Incidence

Symptoms of acute appendicitis

Migratory right iliac fossa (RIF) pain was present in 60 (70.58%) cases. The most common symptom, anorexia was present in 81 (95.24%) cases & nausea/vomiting was in 69 (81.18%) cases. Scoring value of each of the symptom is 1 (one).

Signs of acute appendicitis

All the patients (100%) were present tenderness in RLQ. Rigidity/rebound tenderness was present in 67 (78.82%) cases, Elevated temperature/pyrexia was 58 (68.24%) cases, Rovsing's sign was 62 (72.94%) cases & Percussion tenderness (figure-II) was 69 (81.18%) cases.

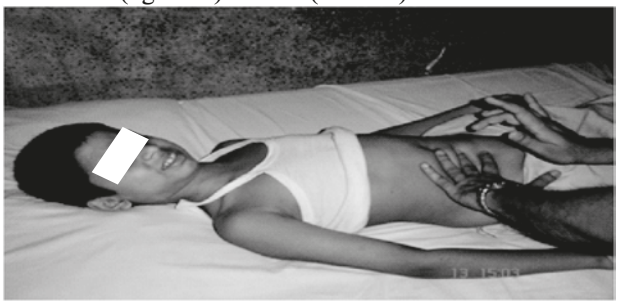


Fig-II: Percussion Tenderness with facial expression.

Laboratory investigation

Blood for Haemoglobin, TC, DC, and ESR was done in all patients. Leukocytosis (≥10,000/c.mm) was present in 75 (88.24%) cases & Neutrophilia was in 50 (59%) cases. Scoring value of Leukocytosis is 2 in MAS & 1 in PAS and of Neutrophilia is 0 in MAS 1 in PAS.

Histological findings

Histopathology is the gold standard for the confirmatory diagnosis of acute appendicitis. Histopathology proven Acute Appendicitis was present in 66 (77.65%) cases & non appendicitis was present in 19 (22.35%) cases which was shown in Table I.

Table-I: Histological findings

Histology	Cases (n=85)	Percentage (%)
Positive (appendicitis)	66	77.65
Negative (No appendicitis)	19	22.35
Total	85	100.00

Relationship between histological and MAS findings

MAS were divided into 3 groups according to the interpretation of scores (Table II). P value is highly significant (<0.001) in relation to histological finding of positive and Negative appendectomy with MAS.

Table-II: Relationship between histological & MAS findings

Histology	MAS Score						P value
	Negative (1-4)		Doubtful (5-7)		Positive (8-10)		
	No.	%	No.	%	No.	%	
Positive (n=66)	0	0	5	7.6	61	92.4	<0.001
Negative (n=19)	1	5.3	15	78.9	3	15.8	
Total (n=85)	1	1.18	20	23.53	64	75.29	

Relationship between histological & PAS findings

PAS were also divided into 3 groups according to the interpretation of scores (Table III). P value is also highly significant (<0.001) in relation to positive and Negative appendectomy with PAS.

Table-III: Relationship between histological & PAS findings

Histology	PAS Score						P value
	Negative (≤5)		Doubtful (6-7)		Positive (8-10)		
	No.	%	No.	%	No.	%	
Positive (n=66)	0	0	6	9.1	60	90.9	<0.001
Negative (n=19)	10	52.6	9	47.4	0	0	
Total (n=85)	10	11.76	15	21.18	60	70.59	

Relationship between histological finding and MAS & PAS finding of acute appendicitis

Histological study showed that 66 cases were acute appendicitis & 19 cases were normal. In MAS, 61 were true positive & 3 were false positive within the score of 8-10 and 16 were true negative & 5 were false negative within the score of 1-7. In PAS, 60 patients were true positive & there was no false positive within the score of 8-10 and 19 patients were true negative & 6 were false negative within the score of ≤5-7.

Statistical analysis of MAS & PAS

Sensitivity of MAS is 92.42% & that of PAS is 90.91%. Specificity of MAS & PAS is 84.21% & 100% respectively. Diagnostic accuracy of PAS & MAS is 92.94% & 90.59% respectively (Table IV).

Table-IV: Statistical analysis of MAS & PAS

Scoring Systems	Sensitivity (%)	Specificity (%)	Diagnostic Accuracy (%)
MAS	92.42	84.21	90.59
PAS	90.91	100.00	92.94

Discussion

In recent years, various scoring systems totaling about 12 have been developed to aid the early diagnosis of acute appendicitis & to reduce negative appendectomy[10]. Notably of them are Alvardo score (AS), MAS & lastly PAS[4]. AS and MAS were applied in all age groups not confined to the pediatric age group only. The accuracy of MAS in children was studied by Matin[13] in DSH. PAS was proposed by Madan Samuel[4] for evaluates exclusively pediatric age group patients of suspected acute appendicitis. In this series, acute appendicitis was diagnosed histologically in 66 cases & 19 cases were normal out of 85 cases. In this study, MAS suggested definite acute appendicitis for score 8-10 and 64 cases were in this range of score. Among them 61 cases were true positive and 3 cases were false positive proven histologically. Among the 21 cases of score 1-7, 16 were true negative and 5 were false negative. So, the sensitivity, specificity and diagnostic accuracy of MAS are 92.42%, 84.21% & 90.59% respectively & it is correlated with the study of Matin[13], Al-Fallouji[6]. PAS suggested definite acute appendicitis for score 8-10 and 60 cases were in this range of score. Among them all 60 cases were true positive & there was no false positive case. Rests of the 25 cases of score 1-7, 19 were true negative & 6 were false negative. So, the sensitivity, specificity and diagnostic accuracy of PAS are 90.91%, 100% & 92.94% respectively & these findings are correlated with the study of Madan Samuel[4]. In these two scoring systems, the sensitivity, specificity and diagnostic accuracy are high. But in our study, PAS is better than the MAS regarding specificity & diagnostic accuracy which is proven statistically. The study was carried out in a small number of patients. It shows that the use of these scoring systems in these patients provides a high degree of sensitivity and specificity. These scoring tools have an easy application because of they rely on purely history, examination and a simple investigation which are easily available.

In conclusion, this study showed histological validation of Modified Alvardo Score (MAS) & Pediatric Appendicitis Score (PAS) in the early diagnosis and management of acute appendicitis in children. These organized scoring systems give us accurate guide line about hospitalization, observation and indication of immediate appendectomy in children and based only on symptoms, signs & simple blood test which are easily available. PAS is more accurate than MAS in higher degree of specificity & diagnostic accuracy. Besides, patient compliance is better in eliciting the sign of PAS which is devoid of the irritating sign (rebound tenderness) of MAS. So, this study recommends to general practitioners, pediatricians, pediatric & general surgeons to follow the guide line of PAS in their practice.

References

1. Stevenson, RJ. Appendicitis, Operative Pediatric Surgery. In: Ziegler MM, Aziz khan, RG, Weber, TR, McGraw-Hill, editors. New York; 2003: 671-689.

2. Kelly, HA, Hurnden E. The Vermiform Appendix & its disease. WB Saunders, Philadelphia. 1905.

3. Fyfe AHB. Acute appendicitis, Surgical emergencies in children. In: PAM. Raine, AFF Azmy, Forrester Cockburn, editors. London: Butterworth Heinemann publications; 1994:78-91.

4. Samuel, M. Pediatric Appendicitis Score. J. of Pediatric Surgery. 2002;37(6):877-881.

5. Steven LL, Inflammation of Vermiform Appendix, [Online], eMedicine, Available from: http://www.emedicine.com/med/topic3327.htm. Updated: Oct 19, 2015.

6. Al-Fallouji, MAR. Postgraduate Surgery. Butterworth Heinemann, London. 1998:247-248.

7. Kathryn D, Anderson, Parry RL. Appendicitis, Pediatric Surgery. In: James A, O'Neill, Marc I, Rowe JL. Grosfeld, Eric W. Fonkalsrud, Arnold G. Coran, editors. USA: Mosby Publishers; 1998:1369-1379.

8. Sivit Carlos J. Imaging children with right lower quadrant pain. The Pediatric clinics of North America. 1997; 44 (3):575-589.

9. Hoofmann J, Rasmussen OO. Aids in the diagnosis of acute appendicitis. British Journal of Surgery. 1989; 76:774-779.

10. Ohmann C, Yang Q, Franke C. The Abdominal Pain Study Group 1995, 'Diagnostic Scores for Acute Appendicitis. European J. of surgery. 1995; 161:273-281.

11. Alvardo A. A practical score for the early diagnosis of acute appendicitis. Annals of Emergency Medicine. 1986;15(5):557-564.

12. Owen TD, Williams H, Stiff G, Jenkinson LR, Rees Bl. Evaluation of the Alvardo score in acute appendicitis. J of the Royal Society of Medicine. 1992;85:87- 88.

13. Matin F. Histopathological Validation of Modified Alvardo Score in the diagnosis of acute appendicitis in Children. MS Thesis, University of Dhaka, Bangladesh, 2001.

Original Article

Causes of Vascularised Corneal Opacity Those Were Treated by Corneal Grafting

Bhuiya MSI[1]

Abstract

One of the leading causes of blindness is corneal disorder. By keratoplasty we can restore vision of those patients to some extent and many surgeons are performing keratoplasty on vascularised cornea. Present study was done to evaluate its outcome. Patients (5-70 yrs) were recruited from eye ward of Dhaka Medical College Hospital from January, 2007 to December, 2007. Patients were selected on some criteria. Total 33 cases were evaluated before and after operation. This study was carried out to know pattern of blindness and to obtain the causes of corneal vascularisation and results of keratoplasty on these patients. Among 2 types of grafting all our patients were undergone penetrating keratoplasty. Male predominance (57.50) was marked as male are more prone to corneal diseases and trauma. Considering age group nobody is immune from corneal disease but children and young persons are more vulnerable. Socio-economic status of our maximum patients are middle-class or poor class. We got a rough idea about the causes leading to vascularisation of cornea. Amongst them; trauma, corneal ulcer, chemical injury and under nutrition are noted in our study. Out of 33 healthy grafts, visual improvement occurred in 24 cases. Visual results of grafting on vascularised corneas are variable. Our study concludes that trauma and corneal ulcer are the leading causes of corneal opacity which need penetrating keratoplasty. Whatever the cause of corneal vascularisation, prognosis of keratoplasty on such cases is not disappointing. Rather keratoplasty done on early notified corneal opacity with superficial vascularisation gives satisfactory results.

1. Corresponding Author:
Dr. Md. Shariful Islam Bhuiya
Assistant Professor & Head
Department of Ophthalmology

Introduction

In an eyeball, the cornea is the transparent anterior one sixth of its outer tunic. In our country the third cause of avoidable blindness is the corneal affection due to trauma or diseases. The only substitute for a damaged cornea is with another healthy one. This procedure is known as keratoplasty or corneal transplantation or corneal grafting. Keratoplasty is now more often under taken with objective optimism and hope of good visual recovery but very much unpredictable in its outcome. As cornea is an avascular tissue, so to select good recipient, avascularity is a vital factor for rendering good vision in the long run[1,3]. Keratoplasty on vascularised cornea was kept for as an exclusion criteria previously[4] because vascularised cornea are very much prone to angiogenesis (revascularisation on recipient cornea) and graft failure ; that is why it needs long time immunosuppressive medication after surgery[5]. But now-a-days increasing numbers of ophthalmic surgeons at home & abroad are performing keratoplasty on vascularised cornea with reasonable visual recovery[4,6]. Though follow up of a corneal grafted patient is necessary almost for life time, but in this limited study we tried to find out the causes of vascularised corneal opacity whose were undergone keratoplasty for visual rehabilitation.

Materials and Methods

This longitudinal type of descriptive study was carried out during January 2007 to December 2007 in the department of Eye, Dhaka Medical College Hospital. Patients admitted in eye ward for surgical intervention for vascularised cornealopacity. 40 cornea affected patients from study population indicated for keratoplasty operation were enrolled purposely in this study on the basis of following criteria - Exclusion criteria were extreme ages [<5 years &>70 years], patient with known autoimmune disorder like SLE, hypothyroidism, patient with uncontrolled DM, patient with history of exposure to radiation or chemical burn & other associated ocular pathology like dry eye, secondary glaucoma, retinal diseases or optic neuropathy etc.

Inclusion criteria were random selection of patients who attended to hospital, age of patients from 5-70 years, recipients having vascularised cornea either superficial or deep vascularisation more than one quadrant & patients with corneal opacity having some clear cornea at the periphery.

It was purposive sampling. After excluding the criteria of exclusion and fulfilling the inclusion criteria first 40 cases were taken serially.

Each eye was expressed as a case. Total 40 cases were evaluated thoroughly before operation and all finding were recorded.[7] Cases were excluded from the study for different reasons. Thus out of 40 eligible cases finally 33 cases were entered in our study. Postoperatively they were followed up in the eye dept (indoor) of DMCH periodically.

Results

Analytical study was done after collecting all data. The results were as follows:

Table-I: Sex distribution of vascularised cornea patients (n=33)

Sex	No. of patients	Percentage
Male	21	57.50
Female	12	42.50
Total	33	100

Table-II: Age distribution of vascularised cornea patients (n=33)

Age Group	No. of patients	Percentage
1st	8	24.24
2nd	9	27.27
3rd	10	30.30
4th	6	18.18
Total	33	100

Table-III: Socio-economic status of the patients (n=33)

Socio-economic condition	No. of patients	Percentage
Rich	5	15.15
Middle Class	13	39.39
Poor	15	45.45
Total	3	100

Table-IV: Causes of corneal vascularisation (n=33)

Causes	No. of pts	Percentage
Physical trauma	12	36.36
Healed corneal ulcer	8	24.24
Chemical injury	8	24.24
Under nutrition	5	15.15
Total	33	100

Table-V: Prognosis of grafted patients (n=33)

Visual acuity	Number of patients	Percentage
6/24	4	12.12
6/36	5	15.15
6/60	15	45.45
Hand movement	9	27.27
Total	33	100

Discussion

In human body, one the most common transplant procedures is penetrating keratoplasty (more recognizable to patients as corneal transplant or graft). The main aims of a corneal graft are to improve vision, reduce pain and repair structural damage. A successful visual outcome depends on the long- term survival of the graft. Good recipient preferably non vascularised cornea, good donor tissue and good surgical technique are the main determining factors for survival of any type of host graft junction[5,7,8].

The study of this series of 33 patients was carried out to know a little bit pattern of blindness in our country and to obtain the causes of corneal vascularisation as well as prognosis of keratoplasty on such patients.

Among 2 types of grafting all our patients were undergone penetrating keratoplasty, because our people are not aware of their diseases and as a result corneal diseases involve the deeper layer where lamellar keratoplasty is not indicated[7,13]. Male predominance (57.50) was marked as male are more prone to corneal diseases and trauma. Considering age group no body is immune from corneal disease blindness but children and young persons are more vulnerable as in case of children trauma and nutritional deficiency and in case of young adult industrial and agricultural trauma are more happened. Socio-economic status of our maximum patients are middle-class or poor class, as they are not aware of their health care in their struggling of life[9,10].

From table-IV, we gets a rough idea about the causes leading to vascularisation of cornea. Amongst them; trauma, corneal ulcer, chemical injury and under nutrition are noted in our study. Mentionable that though few patients of vit-A deficiency were noticed in our study, but vit-A deficiency is no more a challenging factor for us, which causes the pre-mature blindness of our future generation. On the contrary, it is a matter of worriedness that trauma (physical or chemical) is the leading cause of corneal scarring. Rather these patients attend to doctor or hospital in late due to lack of awareness, as a result enough time enhances cornea for development of vascularisation. Our findings are very much compatible with other investigators who worked similar studies[2,11,12,13].

In table-V, visual prognosis of grafted patients on vascularized cornea are shown. Out of 33 healthy grafts, more or less visual improvement occurred in 24 cases. Multiple factors affected this variation. If the visual acuity is considered as the main factor for success of corneal grafting, then our study carries a significant result[2,13].

Regarding vascularisation of the recipients it was revealed that vascularisation did not recur after the corneal grafting within our short follow up time . This correlates with the results of the study made by Huda KH on the relationship of preoperative vascularisation with postoperative graft clarity and rejection[13].

From the study it is concluded that trauma/ injury and corneal ulcer are the most prior causes of corneal opacity enhancing vascularisation which needs penetrating keratoplasty. Though corneal ulcer is a multifactorial disease but by taking preventive measures and developing consciousness we can, at least, reduce the incidence of trauma. Regarding performing keratoplasty on vascularized cornea, though our study does not reflect the whole scenario of this situation as it is done in a smaller scale; so to give a final and concrete comment similar study should be conducted in a larger scale by multicentric procedure.

References

1. Kanski J J. Clinical Ophthalmology-A systemic

2. Bhuiya M S I, Faruk T I M A. A study of the success rate of Keratoplasty. Bangladesh Medical Journal. 2001;30(1).

3. Buxton J N, Apison J H, Hoeffle FB. Corticosteriods in 100 Keratoplasties. Am J Ophthalmol. 2005;67:46.

4. Ainsile D C. Recent Advances in Keratoplasty. Brit J Ophthal. 2004; 58:340

5. Kirk R W. Basic & Clinical Science course, External Disease & Cornea. The foundation of the American. Academy of Ophthalmology. 2000-2001;8:407.

6. Marjolijn C. Long-term out come in high risk corneal transplantation and the influence of HLA-A and HLA-B matching. 2003; Cornea 22(6):552-556.

7. Soong H K. Penetrating keratoplasty in focal points. Clinical modules for Ophthalmologists. American

8. Roper-Hall M J. Stallard's Eye Surgery, Butterworth-Heinemann Ltd., 7th Edn. 2003.

9. Walter J. Stark, Hugh R. Taylor, Manuel Datiles, Elaine young, Pamela Klein. Clinical & Experimental Ophthalmology. 2007, issue 4: p 333-389.

10. Beekhuis WH. Current clinician's on risk factors in corneal grafting. Cornea. 1995;14:39-42

11. P A Dyer, A B Tullo. Cornea transplantation in Britain. BMJ. 1995;10:1347-1348.

12. Volker-Dieben HJ, Kok-van Alphen C C, Lansbergen Q, Persijn G G. Different influence on 539 transplants. Acta ophthamol (Cophen). 1982 Apr,60(2):190-202.

13. Huda KH. Study on Outcome of Penetrating Keratoplasty (P.K)-A Retrospective Study. 2003, (In dissertation) pp 216-228.

Original Article

Congenital Anomalies among the Babies of Diabetic Mothers with Uncontrolled Blood Sugar -A Study in a Tertiary Hospital

Taslima K[1]

Abstract

Diabetes mellitus is a silent killer which affects at any stage of life. Worldwide incidence of major malformation among the offspring of diabetic mothers ranges from 5-10%. Though 65-75% of birth defects are multifactorial, poor diabetic control in pregnancy predisposes congenital malformation. The aim of this retrospective study is to see the actual picture of congenital anomalies among the babies of uncontrolled diabetic mothers. Cases are taken from the hospital records of the patients who delivered congenitally abnormal babies & were admitted in SCABU of BIRDEM during the period of January, 2006 to December, 2010. After going through all records, patients were divided into DM/GDM/ND groups and different variables are studied. Among the patients (163), 57 (35%) were DM, 38 were (23.3%) GDM and 68 (41.7%) were ND. Major congenital anomalies were found 82.45% in DM and 71.05% in GDM and 83.82% in ND patients. Rests were minor anomalies. Among the anomalies maximum were congenital heart diseases, then CNS anomalies, then renalanomalies and then others. In this study congenital anomalies were found 1.4 times more in DM patients. Among DM and GDM patients maximum had uncontrolled blood sugar. Neonatal mortality was higher in DM and GDM groups. Both cardiac and CNS abnormalities were 1.2 times higher in diabetic groups. Renal anomalies were 2.8 times higher. Limb abnormalities were 7.15 times higher in diabetic groups. So it is concluded that pregnancy with uncontrolled diabetes increases the risk of birth defects, mainly CVS, CNS and Renal system related.

Key words: Congenital anomalies, Babies of diabetic mother, Uncontrolled blood sugar

1. Corresponding Author:
Dr. Kazi Taslima
Junior Consultant
Department of Obs & Gynae
Upazila Health Complex, Matlab (South), Chandpur

Introduction

Congenital anomalies are recognised in 2-3% of newborn babies[1]. Anomalies are more common in pregnancies with diabetes, among aborted foetus, pre-term and still-born infants. Birth defects are the leading cause of infant deaths in USA[2]. In past, anomalies were responsible for 10% of all perinatal deaths. Now with the reduction of other causes malformation accounts for 30-50% of perinatal mortality. In worldwide studies incidence of major malformation among off-springs of IDDM (insulin dependant diabetes mellitus) mothers ranges from 5-10 %[3].

20-25% congenital malformations are the result of chromosomal abnormalities or single gene defect. 65-75% of birth defects are due to multiple causes such as maternal infections (e.g. CMV, syphilis, rubella, toxoplasma), maternal disease (e.g. diabetes, epilepsy, alcohol abuse), exposure to drugs (alcohol, thalidomide, folic acid antagonist, DES, androgen, anticonvulsant, high dose of vitamin A, synthetic oestrogen, radioactive iodine etc.) and radiation[2].

The cause of diabetic embryopathy is not fully understood. Maternal hyperglycaemia has proposed by most investigators as primary teratogenic factor but various factors are related such as hyperketonaemia, hypoglycaemia, somatomedin inhibitor excess, excess free radical production, reduced intracellular myoinositol, arachidonic acid deficiency, yolk sac failure and maternal vasculopathy[4]. Profile of a woman most likely to produce an anomalous infant would include a patient with poor periconceptional diabetic control, long standing diabetes with vasculopathy. Genetic susceptibility to the teratogenic influence of diabetes may be a factor. However, teratogenic effect of hyperglycaemia has been suggested by human study and has been confirmed by animal study[5].

Prior to the advent of insulin co-existence of DM with successful pregnancy was a rare event. William reported maternal mortality of 30% and perinatal loss of 70% in 1909. Discovery of insulin in 1921 changed the outlook for the pregnant patient completely. Maternal mortality was reduced to nil and perinatal mortality to 3-5 % over the years. High incidence of congenital malformation of about 12% is reduced to 5-6 % by pre-pregnancy counseling and control of diabetes. In pre-gestational diabetes, foetal mortality and morbidity occurs more than in gestational diabetes (GDM)[6].

Poor diabetic control predisposes congenital malformation, particularly of CNS, cardiac and renal systems. It occurs 3 to 4 times more commonly than in non-diabetic woman[7]. Comparable prevalence figures for congenital anomalies, ranging from 41 per 1000 to 97 per 1000, although these

studies have been based predominantly on the babies of women with type 1 diabetes[12]. In one study the prevalence of major anomalies in the offspring of diabetic mother was 46 per 1000 total births. This compares with 21 per 1000 total birthsfrom the EUROCAT data for 2002 (prevalence ratio 2.2, 95% confidence interval 1.8 to 2.6; P < 0.001). The prevalence of major anomalies associated with type 1 diabetes was 48 per 1000 total births, and the prevalence associated with type 2 diabetes was 43 per 1000 total births. Statistically significant increases were confined to anomalies of the nervous system (prevalence ratio 2.7, 1.5 to 4.4; P <0.001) and congenital heart disease (prevalence ratio 3.4, 2.5 to 4.6; P < 0.001). The increase in anomalies of the nervous system was driven by an increase in the observed number of neural tube defects (prevalence ratio 4.2, 2.0 to 7.8; P < 0.001)[11].

Sacral agenesis and caudal regression syndrome is almost pathognomonic of diabetes and occurs 256 times more often in diabetic than non-diabetic[13].

Rapid development of techniques allowing early and accurate pre-natal diagnosis of foetal disorder reduces the rate of congenital anomaly among newborn babies. Antenatal diagnosis of some cardiac conditions decreases the risk of neonatal mortality[8]. Routine ultrasound scanning foranomalies in the UK has been reported to identify 23% of cardiac defects[9]. Implementing specialist views of the fetal heart may increase the pick-up rate of cardiac anomalies up to 75%[14]. This study showed that cardiac lesions were the most frequent anomaly in the off spring of women with diabetes and 55% were detected ante-natally. If blood glucose concentration during diabetic pregnancy is maintained near normal level and available techniques for assessment of foetal growth and well-being are used appropriately, then a pregnancy outcome approaching that of non-diabetic mother can be achieved[15]. Congenital malformation developed during early gestational period. So its prevention necessitate pre-conceptional care. In 14 cohort studies, major congenital malformation swere assessed among 1192 off spring of mothers who had received preconception care and 1459 off spring of women who had not. The pooled rate of major anomalies was lower among preconceptioncare recipients (2.1%) than non-recipients (6.5%) (RR 0.36,95% CI 0.22-0.59)[16].

The aim of my study is to see the actual picture of congenital anomaly among diabetic mothers in our BIRDEM hospital and the association of poorly controlled DM with occurrence of congenital anomaly. My study will provide information to doctors, help them in pre-natal counseling and thus reduce the rate of occurrence of birth defects among babies of diabetic mothers.

Materials & Methods

This cross -sectional study was done in the Department of obstetrics and gynaecology in BIRDEM hospital, Dhaka from, January, 2006 to December, 2010. Permission was taken from the concerned Department & authorities after getting recommendation of ethical committee. Informed consent was taken from all the study subjects after full explanation of nature and purpose of study. Total 163 subjects of age ranged from 20 - 40 years were selected from the Department of Obs & Gynae and also from SCABU of same institute detail record files were searched to collect all data. Study subjects were selected according to inclusion and exclusion criteria Exclusion criteria were age >40 years, patients having congenital heart disease, patients with known autoimmune disorder like SLE, Hypothyroidism etc, patients with history of exposure to radiation, patients with history of teratogenic drugs taking. Inclusion criteria were after exclusion of above patients, all women who delivered congenitally abnormal babies in BIRDEM hospital and the mothers whose congenitally abnormal babies admitted in SCABU in same hospital. Sample were selected randomly according toinclusion and exclusion criteria. All data were checked and edited after collection. Then the data were entered into the computer and analyzed with the help of SPSS 12 program me.

Results

Among the mothers of congenitaly abnormal babies, maximum (58.3%) and among them 3.5% gave history of previous congenitally abnormal babies. Blood sugarwas found uncontrolledin 82.5% of diabetic and 89.5% are gestational diabetic patient. Among diabetic patient HbAIc was raised more indiabetic than gestational diabetes (96.5% versus 84.2%.

Multiple types of congenital anomalies was found and maximum was cardiac and CNS related. Among CNS anomalies hydrocephalus, meningocele and anencephaly was found.

Table-I shows out of 163 cases, majority 58.3% [95] were diabetic. Among them 35% [57cases] were pregestational and 23.3% were gestational.

Table-I :Glycaemic status of patients

Glycaemic status	No. of patient	Percentage
DM	57	35
GDM	38	23.3
ND	68	41.7
Total Diabetic Patients	95	58.3

Table II shows the history of congenitally abnormal baby in previous pregnancy. In the study population only in DM group 2 patients [3.50%] had the history of congenitally abnormal baby in previous pregnancy.

Table-II: History of congenitally abnormal baby in previous pregnancy.

Positive History of congenitally abnormal baby	No. of patient	Percentage
DM	2	3.50
GDM	0	0
ND	0	0

Table III shows the blood sugar level in DM and GDM. In DM patients 82.50% [47cases] were uncontrolled, where as in GDM group it was 89.50% [34 cases].

Table-III: Blood sugar level in DM and GDM.

No. of patient & Percentage	Blood sugar level [mmol/L]	
	Controlled (mmol/L)	Uncontrolled (mmol/L)
DM	10 (17.5%)	47 (82.5%)
GDM	4 (10.5%)	34 (89.5%)

Table IV shows the Haemoglobin A1C level in DM and GDM. In DM patients it was raised in 96.50% [55cases], where as in GDM group it was raised 84.20% [32 cases].

Table -IV: Haemoglobin A1C level in DM and GDM.

	Haemoglobin A1C level	No. of patient	Percentage
DM	Within normal limit	2	3.5
	Raised	55	96.5
GDM	Within normal limit	6	15.8
	Raised	32	84.2

Table -V: Types of congenital anomalies in all groups[b].

Congenital anomalies		No of pt.	Percent
Hyrdocephalus	DM	8	14.03
	GDM	4	10.52
Meningocele/ With Encephalocele	DM	4	7.01
	ND	8	11.76
	GDM	3	7.89
Anancephale	DM	7	12.28
	ND	7	10.29
	GDM	3	7.89
Congenital heart disease	DM	13	22.80
	ND	3	4.41
	GDM	4	10.52
Renal anomalies	DM	7	12.28
	ND	13	19.11
	GDM	1	2.63
Cleft lip/ with Cleft palate	DM	1	1.75
	ND	4	5.88
	GDM	7	18.42
Coanal stenosis with lerangeal obstruction	DM	0	0
	ND	6	8.82
	GDM	3	7.89
Facial dismorphism	DM	4	7.01
	ND	0	0
	GDM	1	2.63
Congenital hydrocele, hypospadias,	DM	4	7.01
	ND	0	0
	GDM	4	10.52
Congenital hydrocele, ambigousgenitalia	DM	4	7.01
	ND	4	5.88
hypospadias, ambigousgenitalia Limb abnormalities	GDM	4	10.52
	DM	6	10.52
	ND	4	5.88
	GDM	4	10.52
Caudal regression syndrome	DM	1	1.47
	ND	1	1.47
	GDM	0	0
Diaphramatic hernia	DM	1	1.75
	ND	0	0
	GDM	1	2.63
Omphalocele	DM	1	1.75
	ND	0	0
	GDM	0	0
	ND	1	1.47

Table -VI: Rate of congenital anomalies.

Glycaemic status	Total deliveries	No. of anomalies	Percentage
DM	1865	57	3.05
GDM	1858	38	2.04
DM+GDM	3723	95	2.55
ND	1979	68	3.43

Discussion

Congenital anomalies are common causes of perinatal morbidity and mortality. In this study it is shown the types of congenital anomalies among the babies of diabetic mothers and comparison with that of non-diabetic mothers. This study done in BIRDEM hospital where diabetic patients are common and non-diabetic patients are also attended there.

This study has been done among the patients who delivered congenitally abnormal babies in BIRDEM hospital during the period extending from January 2006 to December 2010 [5 years]. It was a retrospective study. During the period I have seen 163 patients and I subdivided them in DM, GDM and ND groups. I compared them in various parameter. Blood sugar level was mentioned controlled/ uncontrolled; HbA1c was mentioned within normal limit/ raised according to ADA criteria. I found CNS, cardiac, renal anomalies, limb abnormalities, facial dysmophysm, omphocele and diaphragmatic hernia, congenital hydrocele and hypospadias are more common in diabetic than non-diabetic patients. Cleft lip/ with cleft palate are more common in non-diabetic group. Caudal regression syndrome found in one DM patients.

Age distribution

Most patients are between 30 - 34 years of age. Most congenital anomalies occurs after 30 years of age and least patients are before 20 years of age.

It reflects that most congenital anomalies occurs in aged pregnancy than early. Higher rate of education and improvement of consciousness about early marriage and child bearing is discouraged in educated society. In my study area [BIRDEM hospital] most patients come from middle class or higher class families.

Duration of Diabetes

Here duration of pregnancy is < 5 years in majority of cases which does not correlate with other studies[19]. Endocrinology & Metabolism news-September 2006, where major congenital anomalies associated with duration of diabetes >10 years in IDDM patients. In our study most patients are NIDDM [type -II] and here onset of diabetes occurs at a latter age, so most patient's duration of diabetes is < 5 years [68%] and least duration is 10 years (only 5%).

Glycaemic status of patient

Among 163 patients most patients are diabetic { DM (57) + GDM (38) = 95 (58.2%) }. That is congenital anomalies are 1.4 times more in diabetic patients. This result correlate with the study done by Marry C M Macintosh et al which indicates risk of major congenital anomalies are two fold in DM patients than general population.

History of IUD/still birth

In our study the incidence of IUD/ still birth is 2.38 times more in diabetic patients. Higher incidence of IUD &still birth in our study than that of Steel J. M. et al. Significantly higherstillbirth rates (4.7 times) and perinatal mortality (3.8 times) compared withthe general maternity population were found in a cohort study done by Mary C M Macintosh et al.

History of neonatal death

Neonatal mortality is higher in GDM [15.7%] and DM than in ND group [0%]. There is possibility of congenital anomalies and also other factor [birth asphyxia, PNS, prematurity] correlate with the study of Khatun F. Neonatal mortality found to be 2.6 times higher in a study done by Mary C M Macintosh et al.

History of abortion

Abortion is maximum in diabetic group [50.87%] and 1.3 times more in DM than ND patients which correlate with the study done by Dicker [1998], where it is 1.3 times more in IDDM patients.

History of congenitally abnormal baby

Among 57 diabetic cases 2 had positive H/O congenitally abnormal babies in previous pregnancy. So, recurrence of congenitally abnormal babies positive in diabetic patient and not in other groups.

Blood sugar level

The American College of Obstetricians and Gynecologists (ACOG) recommends that women with pregestational diabetes maintain fasting plasma glucose levels between 60-90 mg/dL and 2-hour postprandial levels <120 mg/dL[8]. For women with gestational diabetes who are not controlled within these targets on dietary therapy alone, ACOG recommends the additional of insulin therapy[9].

The American Diabetes Association recommends that women with pregestational diabetes maintain capillary plasma glucose levels of 80-110 mg/dL before and <155 mg/dL 2 hours after meals before pregnancy and while trying to conceive[10]. The ADA does not list target glucose level for women with pregestational diabetes once they become pregnant. The ADA recommends the use of diet and insulin therapy to maintain preprandial plasma glucose levels of <105 mg/dL and 2-hour postprandial levels below <130 mg/dL in gestational diabetes.

In our study we followed ADA criteria for the target of control blood suger level during pregnancy. So, controlled are grouped as fasting < 6.1 mmol/L [105 mg/dl] and post prandial < 7.6 mmol/L [130mg/dl].

Among 57 diabetic patients only 10 patents [17.5%] had controlled blood sugar level. Among 38 GDM patients 4 patients [10.5%] had controlled blood sugar level. So, it is clear that congenital anomalies are more common among the uncontrolled group. Rosenn and Tsang (1991) summarize several studies with compared incidences of congenital malformations in women with poor versus good control. The rate of birth defects among women with poor control ranges from 4.5% - 35.3%. However, with good glycaemic control, these risks are greatly reduced with a range from 0% - 10.7%.

HbA1c level

Among 57 diabetic patients only 55 patents [96.5%] had HbA1c level above normal level. In case of GDM patients it was 84.2%. Study done by Marry C M Macintosh et al showed that good control defined by glycosylatedhaemoglobin (HbA1c) of less than 7%, was achieved by 596 (37%) women. The median HbA1c was 7.9% for the women whose pregnancies resulted in a congenital anomaly. The result is similar to my study. In another study shows that, when the frequency of congenital anomalies in patients with normal or high first-trimester maternal glycosylated hemoglobin values was compared to the frequency in healthy patients, the rate of anomalies was only 3.4% with glycosylated hemoglobin (HbA1C) values of less than 8.5%, whereas patients with poorer glycemic control in the periconceptional period (HbA1C>8.5%) had a 22.4% rate of malformations. An overall malformation rate of 13.3% was reported in 105 patients with diabetes, but the risk of delivering an infant who is malformed was comparable to a normal population when the HbA1C value was less than 7%.

IUD/Still birth

It is 12.3% in DM group and 0% in GDM group and ND group [8.8%]. So, it is 1.4 times more in Diabetic group.The study of Mary C M Macintosh et al showed that neonatal mortality (2.6 times) in this cohort compared with the general maternity population in 2002.

Low birth weight

Incidence of LBW baby is almost similar in both diabetic [DM - 29.8% and GDM - 36.8%] and ND group [39.7%]. The study of Mangala R, et al showed that the mean difference in the birth weight of offspring between diabetic and non-diabetic women (133 g; -29 g to 296 g) was not significant (P=0.11)

The study of Metzger BE et al showed that in a total of 3764 women with GDM and 416 women with known type 2 diabetes mellitus. Maternal historical (age, prepregnancy

BMI, prior pregnancy with macrosomia, stillbirth or anomalies) and clinical parameter (gestational age at first prenatal visit, first trimester exposure to sulfonylurea agents) and value of the initial fasting glucose and HbA1c were investigated regarding their relation to anomalies. 143 infants (3.4%) with major anomalies were identified, with a prevalence of 2.9% in GDM and 8.9% in type 2 diabetes. The most frequently affected organ systems were cardiac (37.6%), musculo-skeletal (16%) and nervous system (9.8%).

In conclusion, DM in mother has been suggested an important risk factor for the development of congenital anomalies among the offspring. Mills [1988] reported rate of major malformation 2-3 times greater in infants of IDDM mother 3 even 10 times when DM is severe at conception. Others had found the rate of anomalies in offspring of diabetic women to be 2-5 times greater than the general population. The overall rate of congenital anomalies in infants born to diabetic mothers may be as high as 10% when there is not good glycemic control. The prevalence of malformations appears to increase with more severe degrees of diabetic disease 04 Mary C.M. Macintosh et al seen the risk of major congenital anomalies in the offspring of women with diabetes was more than two fold increased than in general population[17]. In our study we have found major anomalies are about 1.2 times more in diabetic patients. In our study most diabetic patients had uncontrolled blood sugar [96.5% in DM and 84.2% in GDM] and HbA1c level more than normal limit [> 7%]. Rosenn and Tsang (1991) summarize several studies with compared incidences of congenital malformations in women with poor versus good control. The rate of birth defects among women with poor control ranges from 4.5% - 35.3%. However, with good glycaemic control, these risks are greatly reduced with a range from 0% - 10.7%. As most of the anomalies of the foetus occur between 4th to 7th weeks of gestation after conception, so periconceptional diabetic control is important. In pre-conceptional care [in diabetic patients] strict blood sugar control is advised. In one study major congenital anomalies were lower among pre-conception care recipients [2.1%] than non-recipients [6.5%]. In 14 cohort studies, major congenital malformations were assessed among 1192 off spring of mothers who had received preconception care, and 1459 offspring of women who had not. The pooled rate of major anomalies was lower among preconception care recipients (2.1%) than non-recipients (6.5%) (RR 0.36, 95% CI 0.22-0.59). In nine studies, the risk for major and minor anomalies was also lower among women who received preconception care (RR 0.32, 95% CI 0.17-0.59)[15]. We found commonest anomalies were cardiac anomalies in IDDM. Tamura and Dooley, (1991). Becerra (1990) reports a relative risk of 18 for cardiovascular anomalies associated with IDDM, with an absolute risk of 8.5/100 live births. Others report a 2-4 times increased risk for CHD, with the severity and duration of the diabetes impacting on the rate. Rowland et al (1973) found as many as 4% of infants born to diabetic mothers have CHD. Mary C.M. Macintosh found CHD 3.4 times than in general population.

Rate of birth defect among women with poor control ranges from [4.5%-35.3%], However, with good glycaemic control. The study of Mary C M Macintoshet al[17] showed that it was similar to that of nondiabetic group. As diabetic embriopathy occurs at early gestational age [4-7 wks after conception], periconceptional blood sugar control is obligatory.

Referances

1. Arias F. Diabetes and pregnancy. In: Practical guide to high risk pregnancy and delivery. 2nd ed. USA: Mosby-Year Book Inc; 1993:23.

2. Cunningham F.G, Mac Donald P.C, Gant. N.F, Leveno K.J, Gilstrap E.C, Hankins G.V.D et al. Diabetes. In: William's Obstetrics. 20th ed. Stamford, CN: Appleton and Lange; 1993:1203.

3. Landon M.B. Diabetes and other endocrine disease. In: Gabbe S.G, Niebyl J.R, Simpson J.L. editors. Obstetrics (Normal and problem pregnancy 3rd Ed. New York: Churchill Livingstone Inc; 1996:1040-42.

4. Hawdon J.M, Green A.A. The infant of a diabetic mother. In: Rennie J.M, Robertson N.R.C. editors. Textbook of neonatology. 3rd ed. London: Harcourt Brace and company limited; 1999:404.

5. Platt MJ, Stanisstreet M, Casson IF, Howard CV, Walkinshaw S, Pennycook S, et al. St Vincent's declaration 10 years on: outcomes of diabetic pregnancies. Diabet Med. 2002;19:216-20.

6. Diabetes and Pregnancy Group. French multicentric survey of outcome of pregnancy in women with pregestational diabetes. Diabetes Care. 2003;26:2990-3.

7. Perinatal mortality and congenital anomalies in babies of women with type 1 or type 2 diabetes in England, Wales, and Northern Ireland: population based study. BMJ. 2006 22 July;333:177. doi:10.1136/bmj. 38856.692986. AE (published 16 June 2006).

8. Khoshnood B, De Vigan C, Vodovar V, Goujard J, Lhomme A, Bonnet D, et al. Trends in prenatal diagnosis, pregnancy termination, and perinatal mortality of newborns with congenital heart disease in France, 1983-2000: a population-based evaluation. Pediatrics. 2005;115:95-101.

9. Dutta D C. In: Text book of Obstetrics. 5thedn. Calcutta: New central book agency (P) Ltd; 2001:28-40.

10. Okley NW, Beard RW and Turner RC. Effect of carbohydrate in norma and diabet pregnancies. British Medical Journal. 1972;1:466-468.

11. Simpson, JL, Elias set al. Diabetes in pregnancy. Revised ADA criteria 2006.

12. Prospective study of anomalies in offspring of mothers with DM. AMJ ObstGynaecol. 1983;146:263.

13. Mary C M Macintosh, Kate M Fleming, Jaron A Bailey. BMJ. 2006 July 22;333:177 (doi:10.1136/bmj. 38856.692986. AE (published June 16, 2006)

14. Nagy G. Management of gestational diabetes. Journal Zentrabel Gynaecol. 1993;115(4):147-153.

15. Metzger BE, Coustan DR. Summary and Recommendations of the 4th International Workshop-Conference on Gestational Diabetes. Diabetes Care. 1998;3221 (Suppl.):161-167.

16. J.G. Ray, T.E O`Brien, W.S. Chan. Preconceptional care and the risk of congenital anomalies in the offspring of women with DM. Q J Med. 2001;94:435-444.

17. Thomas R Moore, Ylinen K, Aula P, Stenmen U-H, Kesaniemi-Kuokkanen T, Teramo K. Risk of minor and major fetal malformations in diabetics with high haemoglobin A1c values in early pregnancy. Br Med J. 1984;289:345-6.

Original Article

Coronary Angiographic Findings of Symptomatic Patients with Essential Hypertension

Ikbal AT[1], Ayub M[2], Salehuddin M[3]

Abstract

Essential hypertension is a common risk factor for ischemic heart disease. So the Objective of the present study was to find the different angiographic pattern among the symptomatic patients having essential hypertension. A total of 100 symptomatic patients with essential hypertension were evaluated in a one year period by coronary angiography (CAG) in a tertiary care hospital of Chittagong, Bangladesh. Standard protocol and procedure were followed during doing CAG. All data were compiled and were analyzed by SPSS-20. Among 95 patients evaluated male were more 76 (80%) and male to female ratio was 4:1. Most of the patients were involved in service 55(57%). Among all 77(81%) patients were at age group <60 years. Regarding risk factor analysis 39 (41%) patients had DM, 18 (19%) patients had different kinds of dyslipidemia, 66 (69%) patients had hypertension and 25(26.5%) were smoker. Angiographic study revealed 9(9.2%) had involvement of LMCA, 56(58%) had LAD, 29(30%) had LCX, 31(32%) RCA and 18(19%) patients had triple vessel disease. ETT is be a valuable screening tool before doing invasive CAG in our setting.

1. Corresponding Author:
Dr. Abu Tarek Ikbal
Associate Professor
Department of Medicine
Chattagram Maa O Shishu Hospital Medical College
Chittagong

2. Dr. Md Ayub
Consultant Medicine
Department of Medicine
Chattagram Maa O Shishu Hospital Medical College
Chittagong

3. Dr. Md Salehuddin
Assistant Professor
Department of Cardiology
Barishal Medical College

Introduction

Diagnosis and management of coronary artery disease represents major challenges to our health care system, affecting millions of patients each year. Until recently, the diagnosis of coronary artery disease was possible only through cardiac catheterization and invasive coronary angiography[1,2].

Coronary artery disease (CAD) is a leading cause of morbidity and mortality in hypertensive patients[3]. CAD are increasing in day by days in the developing country like Bangladesh[4]. But there are scarcity of studies in this context in our setting. So present study is aimed to see how coronary angiographic results among the symptomatic patients with essential hypertension.

Material and Methods

This was a prospective study done on 100 patients of symptomatic cases of ischemic heart diseases during a study period of one years from January 2016 to December 2016 in a tertiary care center with CCU facility in Chittagong, Bangladesh. Potential patients were initially evaluated who were presented with cardiac complaints. After initial evaluation consent was taken for further testing and CAG. History of hypertension was taken from drug history and on the spot measurement. Standard protocol of exercise test was followed during the test and patients were taken as study subjects thereafter. In these way a total of 100 patients were recruited. All patients were prepared for coronary angiogram and the test was done in a single center with the direct supervision of the researcher himself. All data were collected and analyzed by SPSS 20.

Results

Among 95 patients analyzed male were 76(80%) and female was 19(20%). Male to female ratio was 4:1. Most of the patients were involved in service 55(57%). 77(81%) patients were at age group <60 years and 55(57%) patients were from rural community. Among all 12(13%) patients were obese. Regarding risk factor analysis 39(41%) patients had DM, 18(19%) patients had different kinds of dyslipidemia, 25(26.5%) were smoker, 3(3%) patients had high total cholesterol, 66(69%) patients had hypertension, 2(2%) were taking jarda, 11(11%) patients had family history of coronary artery disease and one patients had history of alcoholism. Angiographic study revealed 9(9.2%) had involvement of LMCA, 56(58%) had LAD, 29(30%) had LCX, 31(32%) RCA and 18(19%) patients had triple vessel disease.

Table-I: Sociodemographic profile

Variables	Descriptions	Frequency	Percentages
Gender	Male	56	56%
	Female	44	44%
Occupation	Service	58	58%
	House wives	32	32%
	Retired	8	8%
	Others	2	2%
Age group	<60 years	57	57%
	>60 years	43	43%
Locality	Rural	58	58%
	Urban	42	42%
		100	

Table-II: Risk factors

Variables		Frequency	Percentages
BMI	<30 kg/m^2	87	87%
ETT positive cases		89	89%
	>30 kg/m^2	13	13%
		100	
DM		32	32%
Dyslipidemia		16	16%
Obesity		13	13%
High TC(>400mg/dl)		5	5%
HTN		100	100%
Smoking		23	23
Jorda intake		3	3%
Family history		14	14%
Alcohol		2	2%
		100	100%

Table-III: Angiographic findings

Variables	Frequency	Percentages
LMCA	15	15%
LAD	46	46%
LCX	22	22%
RCA	21	21%
Triple vessel	14	14%
No lesion	2	2%
	100	100%

Multiple response table

LMCA- Left main coronary artery, LAD-Left anterior descending, LCX- left circumflex, RCA- Right coronary artery.

Discussion

In this study patients without known coronary artery disease who underwent invasive angiography after finding positive exercise testing in a tertiary care hospital of Chittagong, Bangladesh during the period from January 2016 through December 2016. A majority of patients undergoing this invasive test had obstructive coronary artery disease (i.e., ≥50% stenosis of the left main coronary artery or ≥70% stenosis of a major epicardial vessel). Angiographic study revealed 15(15%) had involvement of LMCA, 46(46%) had LAD, 22(22%) had LCX, 21(21%) RCA and 14(14%) patients had triple vessel disease. Surprisingly 2(2%) patients were found to having no significant block during the procedures. A study done by Zeina et al[3] found in their study that CAD was present in 103 (82%) hypertensive and 164 (72%) normotensive patients (P < 0.0001). Obstructive CAD was twice as common in hypertensive patients, and they had more plaques per coronary segment than did normotensive patients. Patients with hypertension duration of at least 10 years had more segments with CAD.

Among 100 patients analyzed male were 56(56%) and female was 44(44%). Male to female ratio was 1.27:1. Most of the patients were involved in service 58(58%). 57(57%) patients were at age group <60 years and 58(58%) patients were from rural community. Among all 13(13%) patients were obese. These sociodemographic profile are consistent with a Bangladeshi study done by Islam and Majumder[4]. A higher prevalence of ischemic heart disease in male than female has been reported in a study from England[5]. Thus the present results are in agreement that male population is more prone to IHD which may be linked to genetic/ hormonal difference.

Regarding risk factor analysis other than hypertension revealed 32(32%) patients had DM, 16(16%) patients had different kinds of dyslipidemia, 5(5%) patients had high total cholesterol, 3(3%) were taking jarda, 14(14%) patients had family history of coronary artery disease and 2(2%) patients had history of alcoholism.

The results of present study with reference to risk factors were similar to those published earlier that diabetes and hypertension are two common risk factors of IHD. Dyslipidemia were also found more. H/O smoking, life style and family history of IHD were found as common risk factors. All of the above findings are consistent with the earlier study[6]. So, it can be concluded that, hypertension is an important risk factor for CAD and its CAG findings may be variable.

References

1. Cheitlin, Armstrong WF, Aurigemma GP. ACC/AHA/ASE 2003 guideline update for the clinical application of echocardiography: summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/ASE Committee to Update the 1997 Guidelines for the Clinical Application of Echocardiography). J Am Soc Echocardiogr. 2003; 16:1091-1110.

2. Klocke FJ, Baird MG, Lorell BH. ACC/AHA/ASNC guidelines for the clinical use of cardiac radionuclide imaging - executive summary: a report of the American College of Cardiology/ American Heart Association Task

Force on Practice Guidelines (ACC/AHA/ASNC Committee to Revise the 1995 Guidelines for the Clinical Use of Cardiac Radionuclide Imaging). J Am Coll Cardiol. 2003;42:1318-1333.

3. Zeina AR, Barmeir E, Zaid G, Odeh M. Coronary artery disease among hypertensive patients undergoing coronary computed tomography angiography. J Cardiovasc Med (Hagerstown). 2009 Mar; 10(3):252-6.

4. Islam IAKM, Majumder A.A.S. Coronary artery disease in Bangladesh: A review. Indian Heart J. 2013;65(4):424-435.

5. Ayub M, Waseem T. Risk stratification of patients presenting with first acute myocardial infarction with serum cardiac troponin T. Pak J Card. 1999;10:54-56.

6. Esteghamati A. Cardiovascular Prevalence of diabetes and other cardiovascular risk factors in an Iranian population with acute coronary syndrome. Diabetol. 2006;17:15.

Original Article

Short Term Outcome of Orchiopexy for Undescended Testis in Children

Pervez MMM[1], Enayet SMS[2], Narmeen T[3], Nooruzzaman M[4], Shahnaz M[5], Chowdhury ATMM[6]

Abstract

This prospective study was conducted in the department of pediatric surgery, BIRDEM General Hospital and other Private Hospital in Dhakato evaluate the morphological parameters after orchiopexy in Undescended testis (UDT). Fifty five children of cryptorchidism in the age group of 6 months to12 years were included in the study from September 2012 to March 2017. Patients' clinical characteristics, age at the time of orchiopexy, pre-operative ultrasonogram finding and intraoperative findings were recorded. On follow up postoperative complications and scrotal ultrasonogram findings were also recorded. Total 45 patients received regular ultrasound follow-up in next 6 months. Testicular length, width, position of the testes and any abnormal findings were documented. The testicular volume was then calculated with Hansen formula:Testicular volume= length (L) x width $(W)^2$ x 0.52. The mean age at operation was 4.15 years. Sixty eightpercent of undescended testes were palpable, 97% of which could be initially placed in the scrotal position by surgery. Ninety threepercent remained in the scrotum at 6-month follow up. In 32% of cases, the testes were impalpable, 47% were intra-abdominal and 15.7% were absent. Eighty seven percent of all impalpable testes could be placed in the scrotum. At 6 months follow up, only 69% were in the scrotal position. Eighteen percent of impalpable testes and 2.4% of palpable testes underwent atrophy. The volume of scrotalized testis increased significantly after orchiopexy though the volume of undescended testis was smaller than that of normal descended testis in all age subgroups and revealed a slow growing trend.

Keywords: Cryptorchidism, Orchiopexy, Testicular position, Testicular volume.

1. Corresponding Author:
Dr. M M Masud Pervez
Assistant Professor
Department of Pediatric Surgery
BIRDEM General Hospital & IMC, Dhaka.
e-mail: shaheensb25@gmail.com

2. Dr. S.M. Sabbir Enayet
Medical Officer
Department of Pediatric Surgery

3. Dr. Tamanna Narmeen
Assistant Professor
Department of Surgery
BIRDEM General Hospital & IMC, Dhaka.

4. Dr. Md. Nooruzzaman
Assistant Professor
Department of Pediatric Surgery
BSMMU, Dhaka.

5. Dr. Mahjib Shahnaz
Medical Officer
Khulna Medical College Hospital, Khulna.

6. Dr. ATM Mowladad Chowdhury
Professor
Department of Urology
BIRDEM General Hospital & IMC, Dhaka.

Introduction

Undescended testes (UDT) is one of the most common congenital urological diseases. The prevalence of cryptorchidism at birth varies from 1% to 9%. The majority of UDTs descend spontaneously, typically during the first 6 months of life[1,2]. Beyond the age of 1, the percentage of boys with congenital UDT remains relatively stable at 0.8% to 1.1%[1]. UDT has been linked to abnormal testicular development, semen motility, and morphology[3-5] and may lead to long-term infertility issues[6]. In addition, there is a three- to eightfold increased relative risk of testicular cancer in boys with UDT[7]. The mainstay of management for undescended testes is operative treatment. The first successful orchiopexy was described by Annandale in The British Medical Journal in 1879 and performed in a 3-year-old boy with an ectopic testis[8]. Today, operation is often performed within the first years of life. Though more evidence is needed, the argument for this strategy is preservation of testicular germ cell maturation[9]. Probably induced by the so called 'minipuberty', the neonatal gonocyte transforms into a type A spermatogonium at 3-12 months of age, a step that is now postulated to be crucial for subsequent fertility, as the stem cells for spermatogenesis are created in this structure[9,10]. This step may be blocked in undescended testis and, hence, to avoid this and hypothetically facilitate normal maturation orchiopexy is currently performed at 6-12 months of age[9,10]. At time of birth cryptorchid patients harbour germ cells in the testes, but

Anyway, the trend towards earlier surgery for minimizing the histopathological changes and preventing infertility is described in the literature[10]. The volume of the testes is significantly related to the semen profile and the testicular function, since 80-90% of the testes were composed of seminiferous tubules and germ cells. Bahket al reported that the testicular size reflects the degree of spermatogenesis, testosterone level, and semen profile[11]. Therefore, accurate measurement of the testicular size is crucial for evaluating the development of testes. Several kinds of tools were applied to evaluate the size of testes, such as orchidometer, use of rulers and calipers, and ultrasound. Ultrasound is more preferable and accurate means of measuring testicular volume[12]. We recorded the testicular position and volume after orchiopexy to determine the postoperative outcome of UDT.

Materials and Methods

Fifty five children of cryptorchidism in the age group of 6 month to12 years were included in the study from September 2012 to March 2017. All the children were admitted in the hospital. Informed consent was obtained from all parents. Patients' clinical characteristics, concomitant diseases, age at the time of orchiopexy, pre-operative ultrasonogram finding and intraoperative findings were recorded. On subsequent follow up postoperative complications and postoperative scrotal ultrasonogram findings were also recorded. Patients without pre- and postoperative scrotal ultrasound were not included in the testicular volume analysis. A total of 55 boys received preoperative testicular ultrasound and 45 of them received regular ultrasound follow-up in next 6 months. High-resolution ultrasound was applied. Testicular length, width, position of the testes, and any abnormal findings were well documented. The testicular volume was then calculated with Hansen formula:[13]

Testicular volume= length (L) x width $(W)^2$ x 0.52.

The pre and postoperative measured volume of the testes was calculated and analyzed with SPSS statistic software, version 22.0

Results

A total of 55 patients underwent surgery. Out of these, 50 patients were unilateral UDT and 5 patients were bilateral, so total number of UDT 60. Of these 60 testes 41 (68%) were palpable and 19 (32%) were not palpable before surgery. There were 34 (57%) undescended testes on the right side and 26(43%) on the left side. The median age at surgery was 4 years (range 0.6 --12years) and the mean age was 4.15 years. The highest number of orchiopexies were performed on children between age of 2-3 years (25%) and 22.9% at less than 2 years of age. The operative findings with respect to palpable testes correlated with the findings of clinical examination. The location of impalpable testes at surgery were canalicular 7(36.8%), intra-abdominal 9 (47.3%), and absent 3 (15.7%). The standard inguino-scrotalorchiopexies were performed in 56 undescended testis. Laparoscopy done in 4 children, of them one laparoscopic orchiopexy was performed and remaining 3 boys (impalpable group) the testes was absent. A total of 10 patients (18%) had other medical conditions or anomalies in addition to their cryptorchidism, where the most common was phimosis (4) followed by Hernia (3), hypospadias (2), Downs syndrome (1).

At the end of surgery, 90% (37) of the palpable and 56.2% (9) of the impalpable testes could be placed at the bottom of the scrotum. 31.2 %(5) of the impalpable and 7.3% (3) of the palpable testes mid-scrotal in position whereas 12.5 %(2) of the impalpable and 2.4% (1) of the palpable testes were in the suprascrotal position.

Total 10 patients including 3 patients with absent testes were not followed up postoperatively. 45 patients were under regular follow up in next 6 months. No perioperative complications occurred. Postoperative complications occurred in two patients. One of them came four days after the surgery due to a wound infection.The infection was successfully treated and no further complications followed. Another patient experienced moderate pain in his operation site two weeks after surgery which improved after conservative treatment. Of the children followed up at 6-months, 92.6% (38) of palpable testes and 69% (11) of impalpable testes were in the scrotal position. At 6 months follow up, 8.8% of all undescended testes, 18% (3) of impalpable testes and 2.4% (1) of palpable testes were atrophic. No recurrence was noted.

Of the 45 children followed up, in case of right undescended testes there was a highly significant increase in the mean testicular volume at 6-months follow up as compared to preoperative volume ($p<0.01$) (Table I). Left undescended testes there was alsohighly significant increase in the mean testicular volume at 6-months follow up ($p<0.01$) (Table I).The mean testicular volume showed significant increase($p<0.01$) in all the age groups.

Table-I: Comparison of mean preoperative testicular volume with postoperative testicular volume at 6-month follow up (n = 45).

	Preoperative	Postoperative 6-mo	p-value
	Volume (ml)	Volume (ml)	
Right UDT	0.304±0.114	0.381±0.120	P<0.01
Left UDT	0.317±115	0.419±0.121	P<0.01

Discussion

Orchiopexy is one of the most common operations performed in children with UDT. The mean age at operation in our series was 4.15 years, most being below 3 years of age. In our study, 68% of all operated undescended testes were palpable in the groin. Testes may be impalpable when they are intracanalicular, intraabdominalor absent[14,15]. In our patients, 32% of undescended testes were impalpable. Intraoperatively, we found that more than 47.3%, of our impalpable testes were intraabdominal and around 36.8% intracanalicular. Sixteen percent of all impalpable testes were absent.

Traditionally, the success of operative treatment of cryptorchidism is defined as the percentage of testes that remains in the scrotum and does not atrophy. In adulthood estimation of the fertility potential is an additional parameter, especially when comparing the results of early and late surgery[16,17]. The success rate of the operative treatment is related to the type of undescended testis (palpable and non-palpable), the choice of operative procedure and the age at time of surgery. It is generally accepted that the success rate in respect to atrophy and recurrent cryptorchidism in childhood cannot be estimated until 1-year postoperative follow-up. The success rate of the operative treatment at follow-up in childhood relies on clinical evaluation in most investigations.

In our study 92.6% of all palpable testes and 69% of impalpable testes were in the scrotal position. This corroborates closely with other studies[18,19]. Success rates by anatomical testicular position were 74% for abdominal, 82% for peeping and 87% for canalicular testes, and 92% for those located beyond the external ring[20]. Success rates by procedure were 89% for inguinal, 67% for Fowler-Stephens, 77% for staged Fowler-Stephens, 81% for transabdominal, 73% for 2-stage and 84% for microvascular orchiopexy. The significant failure rate for proximaltestes suggested that efforts to improve orchiopexy should be continued. In the past decade, success of orchiopexy for inguinal testes has been>95%. For abdominal testes, success for orchiopexy has been >85-90% in most series with single stage orchiopexy or two stage Fowler-Stephens orchiopexy, both with open surgical or laparoscopic technique[20]. Follow up at 6 months or later revealed that 18% of the impalpable and 2.4% of the palpable testes had atrophied.The cause for the postoperative atrophy could be the difficulty in mobilizing the undescended testes. The analysis of the available literature reveals an atrophy rate of up to 8% for palpable and of up to 25% for non-palpable testes[20,21]. In our study only 2% of cases had wound infection which healed with antibiotics and

Normal testicular volume is reported to beless than 2 ml up to 11 years of age rising to 5ml by 12 years and 12-14 ml by 15 years[22]. We measured the testicular volume preoperatively as well as at follow up by ultrasonogram and analyzed the outcome of orchiopexy in terms of testicular volume. It was seen that the mean testicular volume of the undescended testes showed a highly significant increase ($p<0.01$) when reviewed at 6 months. Chi-Shin et al observeda significant ($p= 0.001$) increase of UDT volume after orchiopexy at a median operative age of 1.25 years and with a mean follow-up of 2.5 years[23]. The testicular size grew from 0.228 mL to 0.356 mL. Kim et al reported that orchiopexy performed at least 2 years from birth showed significant recovery of testicular volume at follow-up 2 years after surgery[24]. Kollin et al reported an increase in testicular volume when orchiopexy was performed at the age of 9 months rather than at the age of 3 years[25]. This result also supports the beneficial effect of early orchiopexy from the viewpoint of testicular growth. A comprehensive literature review by Murphy et al revealed the morphology and ultrastructural changes in UDT as early as 36 months of age[26]. Cortes et al reported thatbetween the ages of 2-12 years the timing of unilateral orchiopexy might vary without effect on subsequent fertility potential[22]. Laparosocpy may be useful to identify the location of intra-abdominal or high testes, to confirm an absent testis (3out of 55 or 5.4% of our cases) thereby avoiding anunnecessary inguinal incision.

In conclusion, orchiopexy is essential and safeprocedure for the children of undescended testis. All undescended testis are targeted to make scrotal by surgery. The volume of testis increases significantly compared with the preoperative testicular volume along with the growth and development of child. It is worth noting that the volume of undescended testisis smaller than that of normal descended testis in all age subgroups and revealed a slow growing trend.

References

1. Berkowitz GS, Lapinski RH, Dolgin SE, Gazella JG, Bodian CA, Holzman IR. Prevalence and natural history of cryptorchidism. Pediatrics.1993; 92(1):44-49.

2. Ritzen EM. Undescended testes: a consensus on management. Eur J Endocrinol. 2008;159(suppl 1):S87-S90.

3. Trussell JC, Lee PA. The relationship of cryptorchidism to fertility. Curr Urol Rep. 2004;5(2):142-148.

4. Tasian GE, Hittelman AB, Kim GE, DiSandro MJ, Baskin LS. Age at orchiopexy and testis palpability predict germ and Leydig cell loss: clinical predictors of adverse histological features of cryptorchidism. J Urol. 2009; 182(2):704 -709.

5. Canavese F, Mussa A, Manenti M, Cortese MG, Ferrero L, et al. Sperm count of young men surgically treated for cryptorchidism in the first and second year of life: fertility is better in children treated at a younger age. Eur J Pediatr Surg. 2009; 19(6):388 -39.

6. Murphy F, Paran TS, Puri P. Orchidopexy and its impact on fertility. Pediatr Surg Int. 2007;23(7):625- 632.

7. Lee PA, Bellinger MF, Coughlin MT. Correlations among hormone levels, sperm parameters and paternity in formerly unilaterally cryptorchid men. J Urol. 1998; 160(3 pt 2):1155-1157, discussion 1178.

8. Annandale T. Case in which a testicle congenitally displaced into the perineum was successfully transferred to the scrotum. Br Med J. 1879; I: 7-8.

9. Hadziselimovic F, Herzog B. The importance of both an early orchidopexy and germ cell maturation for fertility. Lancet.2001; 358: 1156-7.

10. Capello LJ, Giorgi J, Kogan BA. Orchiopexy practice patterns in New York State from 1984-2002. J Urol. 2006; 176: 1180-3.

11. Bahk JY, Jung JH, Jin LM, Min SK. Cut-off value of testes volume in young adultsand correlation among testes volume, body mass index, hormonal level, and seminal profiles. Urology. 2010; 75:1318-23.

12. Hsieh ML, Huang ST, Huang HC, Chen Y, Hsu YC. The reliability of ultrasonographic measurements for testicular volume assessment: comparison of three common formulas with true testicular volume. Asian J Androl. 2009; 11:261-5.

13. Lin CC, Huang WJ, Chen KK. Measurement of testicular volume in smaller testes: how accurate is the conventional orchidometer? J Androl. 2009; 30:685-9.

14. Hutson JM. Undescended testis, Torsion and Varicocele. In: O'Neill JA, Rowe MI, Grosfeld JL, editors. Pediatric Surgery. 5th ed. Mosby Year Book, Inc; 1998: 1087-1090.

15. Levitt SB, Kogan SJ, Engel RM, Weiss RM, Martin DC, Ehrlich RMl. The impalpable testis: a rational approach toManagement. J Urol. 1978; 120: 515-520.

16. Cortes D. Cryptorchidism: aspects of pathogenesis, histology and treatment. Scand J Urol Nephrol. 1998; 32(Suppl 196): 1.

17. Taskinen S, Hovatta O, Wikstrom S. Early treatment of cryptorchidism, semen quality and testicular endocrinology. JUrol.1996; 156: 82-4.

18. Youngson GG, Jones PF. Management of the impalpable testes: Long term results of the preperitoneal approach. J Pediatr Surg. 1991; 26: 618-620.

19. Hazebroek FWJ, Molenaar JC. The management of the impalpable testis by surgery alone. J Urol. 1992; 148: 629-631.

20. Docimo SG. The results of surgical therapy for cryptorchidism: a literature review and analysis. J Urol. 1995; 154: 1148-52.

21. Zerella JT, McGill LC. Survival of nonpalpable Undescended testicles after orchiopexy. J Pediatr Surg. 1991; 26:618-620.

22. Cortes D, Thorup JM, Lindenberg S. Fertility potential after unilateral orchiopexy: an age Independent risk of subsequent infertility when biopsies at surgery lack germ cells. J Urol.1996; 156: 217-220.

23. Chi-Shin T, Kuo-How H, Yeong-Shiau P, I-Ni C. Volume alteration of undescended testes: before and after orchiopexy. Urological Science. 2016; 27:161-165.

24. Kim SO, Hwang EC, Hwang IS, Oh KJ, Jung SI, Kang TW, et al. Testicular catch up growth: the impact of orchiopexy age. Urology. 2011; 78:886-9.

25. Kollin C, Karpe B, Hesser U, Granholm T, Ritzen EM. Surgical treatment of unilaterally undescended testes: testicular growth after randomization to orchiopexy at age 9 months or 3 years. J Urol. 2007; 178:1589-93. Discussion 93.

26. Murphy F, Paran TS, Puri P. Orchidopexy and its impact on fertility. Pediatr Surg Int 2007; 23:625-32.

Review Article

FAHR'S Syndrome: A rare Neurodegenerative Disorder

Ahad MA[1], Kamal SM[2] , Salma U[3]

Abstract

Idiopathic Basal Ganglia Calcification, also known as Fahr disease or Fahr's Syndrome or Bilateral StriatoPallidoDentate Calcinosis (BSPDC) is a rare, genetically dominant, inherited neurological disorder characterized by abnormal deposits of calcium in areas of the brain that control movement, including the basal ganglia and the cerebral cortex. A rare idiopathic disease which manifests in middle age characterized by punctate areas of non-arteriosclerotic calcination in parts of the gray and dentate nuclei, particularly of smaller brain vessels. The symptoms include mental and growth retardation, dystonic movements, and athetosis. May be caused by a malfunction of the glandula parathyreoidea. The term Fahr triad consists of symmetrical calcification of the basal ganglia, neuropsychiatric symptoms, and hypofunction of the parathyroid gland. Treatment is directed toward minimizing symptoms. The prognosis for any individual with Fahr's Syndrome is variable and hard to predict. Progressive neurological deterioration generally results in disability and death.

1. Corresponding Author:
Dr. Md. Abdul Ahad
Professor
Department of Gastroenterology
Khulna Medical College, Khulna.
e-mail: drahadbd@yahoo.com
Mobile: 01711 184343

2. Dr. S.M. Kamal
Professor
Department of Medicine
Khulna Medical College, Khulna.

3. Dr. Umme Salma
Assistant Surgeon
OSD DG Health.
DMU, M D
Department of Nuclear Medicine, Phase-A (NINMAS)
BAEC, BSMMU Campus, Dhaka.

Introduction

It is a rare degenerative neurological disorder characterized by calcifications and cell loss within the basal ganglia. The disease was first noted by German neurologist Karl Theodor Fahr in 1930[1]. According to reports in medical literature, Fahr Disease is often familial[2]. It is believed to have autosomal dominant inheritance[3] but a few cases have been reported to have autosomal recessive inheritance and even some sporadic cases have been reported in literature[4]. Idiopathic calcification of the basal ganglia, also known as Fahr's disease, is a rare neurologic disorder of unknown etiology characterized by neuropsychiatric abnormalities,[5,6,7] Parkinsonian or choreoathetotic-type movement disturbance, and extensive symmetrical calcification of the basal ganglia and dentate nuclei in the cerebellum. These symptoms cannot be explained by any other particular disorder of the calcium phosphorus metabolism or any other disease. Dementia is a well-recognized neuropsychiatric manifestation of Fahr's disease[8]. In addition, a schizophrenia-like psychosis characterized by paranoia, hallucinations, and delusions has been reported[9]. There is no cure for Fahr's syndrome, which worsens over time, nor is there a standard course of treatment.

Discussion

Idiopathic Basal Ganglia Calcification, also known as Fahr disease or Fahr's Syndrome or Bilateral Striato Pallido Dentate Calcinosis (BSPDC) is a rare, genetically dominant[3], inherited neurological disorder characterized by abnormal deposits of calcium in areas of the brain that control movement, including the basal ganglia and the cerebral cortex. The calcium deposits in the brain may occur before the onset of the symptoms, usually in the third decade of life. Although it may also be evident in childhood[10,11] and with advancing age the amount of calcification increases. In Fahr's disease the mineral deposits tend to be selective for small capillaries and small vessels of white matter, which is different from that in atherosclerosis[12]. The calcification may include endothelial and stromal vascular cells as well as the interstitium.

However, the local circulatory disturbances such as regional ischemia have been regarded as the primary event precipitating the deposition of calcium as well as other minerals. Other contributed factors are abnormality in the calcium metabolism[13] or local inflammatory process[14]. Also, the calcification could be a primary event occurring without preceding circulatory dysfunction, since a significant familial type suggests either autosomal recessive or dominant inheritance[3]. Brain calcification without symptoms such as the small calcifications in the basal ganglia, and less commonly in the dentate nucleus of the cerebellum can occur in elderly patients. According to reports in medical literature, Fahr Disease is often familial. It is believed to have autosomal dominant inheritance but

a few cases have been reported to have autosomal recessive inheritance and even some sporadic cases have been reported in literature. The association between the abnormal phenotypes and abnormal genes remain unclear despite the recent mapping to chromosome 14q of a susceptible locus for Fahr Disease[15].

CT axial images show calcifications in the bilateral basal ganglia Symptoms may include motor function deterioration, dementia, mental retardation, spastic paralysis, dysarthria (poorly articulated speech), spasticity (stiffness of the limbs), ocular (eye) problems, and athetosis (involuntary, writhing movements) (figure-I).

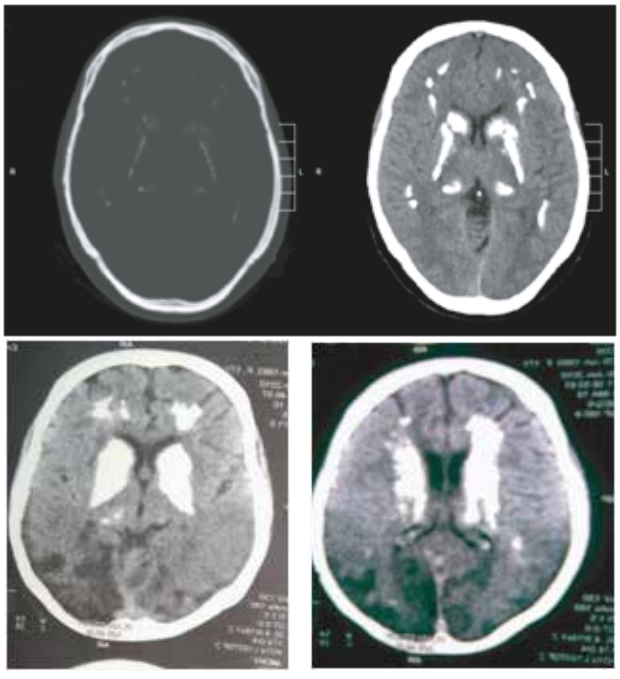


Figure-I: CT axial images

Features of Parkinson's disease[16] such as tremors, rigidity (resistance to imposed movement), a mask-like facial appearance, shuffling gait and a "pill-rolling" motion of the fingers may also occur in individuals with Fahr's syndrome. Other symptoms may include dystonia (disordered muscle tone), chorea (involuntary, rapid, jerky movements), and seizures[17]. Onset of the disorder may occur at any time from childhood to adulthood. Fahr syndrome thus involves abnormalities of the neurologic system (cerebral calcification, dementia, spastic paraplegia, athetosis), skull (microcephaly, i.e. an abnormally small head), eyes (glaucoma, optic nerve atrophy, retinitis pigmentosa) and a significant hormone problem, namely hypoparathyroidism (the parathyroid gland regulates calcium). The disease is inherited as an autosomal recessive trait in which both parents carry a Fahr gene and each of their children (boys and girls alike) stands a 1 on 4 (25%) risk of receiving both Fahr genes and therefore having this dread disease.

Idiopathic calcification of the basal ganglia, also known as Fahr's disease, is a rare neurologic disorder of unknown etiology characterized by neuropsychiatric abnormalities,[5] Parkinsonian or choreoathetotic-type movement disturbance and extensive symmetrical calcification of the basal ganglia and dentate nuclei in the cerebellum[18]. These symptoms cannot be explained by any other particular disorder of the calcium phosphorus metabolism or any other disease[14]. Dementia is a well-recognized neuropsychiatric manifestation of Fahr's disease[8].

In addition, a Schizophrenia-like psychosis characterized by paranoia, hallucinations, and delusions has been reported[9]. The pathophysiology of psychosis in Fahr's disease remains unknown, though previous studies have found a decreased cerebral blood flow matching the distribution of calcification or decreased perfusion in the cortex, which may reflect secondary deficits due to calcification.

There is no cure for Fahr's syndrome, which worsens over time, nor is there a standard course of treatment. The process of calcification cannot be stopped or reversed. Treatment is directed toward minimizing symptoms. Where possible, clinicians focus on alleviating its various mental and physical effects. These may vary to some degree depending on the individual, even among members of the same family. Case reports have suggested that haloperidol or lithium carbonate may help with psychotic symptoms,[19] while antidepressant medications are often used to combat depression. Ear infections associated with Fahr disease can be treated with antibiotics and pain medication.

The prognosis for any individual with Fahr's Syndrome is variable and hard to predict. There is no reliable correlation between age, extent of calcium deposits in the brain, and neurological deficit. Since the appearance of calcification is age-dependent, a CT scan could be negative in a gene carrier who is younger than the age of 55[18] The prognosis (outlook) for individuals with Fahr's syndrome is poor. Progressive neurological deterioration generally results in disability and death.

Radiological diagnosis could be the starting point to guide the clinician for possibility of Fahr's disease. The differential diagnosis includes but not limited to;[20] Parkinson's disease, Huntington's disease, Progressive supranuclear palsy, Wilson's disease, Spasmodic torticollis, Oligodendroglioma, Low-grade astrocytoma[21] and Arteriovenous malformation. Therefore Fahr's Disease or Bilateral Striato Pallido Dentate Calcinosis (BSPDC) is a diagnosis of exclusion.

References

1. T.Fahr: Idiopathische Verkalkung der Hirngefässe. Zentralblatt für allgemeine Pathologie und pathologische Anatomie. 2009;50:129-33.

2. Westenberger A1, Klein C.The genetics of primary familial brain calcifications. Curr Neurol Neurosci Rep. 2014;14(10):490.

3. Yamada N, Hayashi T. Asymptomatic familial basal ganglia calcification with autosomal dominant inheritance: a family report. No to hattatsu Brain and development. 2006;32(6):515-19.

4. Oliveira JR, Spiteri E, Sobrido MJ, Hopfer S, Klepper J, Voit T, et al. Genetic heterogeneity in familial idiopathic basal ganglia calcification (Fahr disease). Neurology. 2004;63(11):2165-67.

5. Cummings JL, Gosenfeld LF, Houlihan JP. Neuropsychiatric disturbances associated with idiopathic calcification of the basal ganglia. Biol Psychiatry. 2010; 18:591-601.

6. Nicolas G, Guillin O, Borden A, Bioux S, Lefaucheur R, Hannequin D. Psychosis revealing familial idiopathic basal ganglia calcification. Gen Hosp Psychiatry. 2013;35 (5):575.

7. Srivastava S, Bhatia MS, Sharma V, Mahajan S, Rajender G. Fahr's Disease: An Incidental Finding in a Case Presenting with Psychosis. German J Psychiatry. 2010;13(2):89-90.

8. Modrego PJ, Mojonero J, Serrano M, Fayed N. Fahr's syndrome presenting with pure and progressive senile dementia. Neurol Sci. 2005;26 (5):367-69.

9. Francis AF. Familial basal ganglia calcification and Schizophreniform psychosis. Br J Psychiatry. 2004;79: 360-62.

10. Abbitt DP, Tang T, Dobbs J, Berk R. Idiopathic familial cerebrovascular ferrocalcinosis (Fahr's disease) and review of differential diagnosis of Intracranial calcification in children (Eng). Am J Roentgenol Radium Ther Nucl Med. 2005 Feb; 10 (2):352-58.

11. Matsui K, Yamada M, Kobayshi T, Miyake S, Iwamoto H, Hara M, et al. An autopsy case of Fahr disease (infantile form) (Jpn). No to Hattasu. 2009 Jul;24 (4):358-63

12. Pilleri G. A case of Morbus Fahr (Nonarteriosclerotic, idiopathic intracerebral calcification of the blood vessels) in three generations. An clinico-anatomical contribution. (Eng) Psychiatr Neurol (Basel). 2007;152(1):43-58.

13. Beall SS, Patten BM, Mallette L, Jancovic J. Abnormal systemic metabolism of iron, porphyrin, and calcium in Fahr's syndrome.Division of Biology, California Institute of technology, Pasadena, 91125 (Eng). Ann Neurol. 2008 Oct;26(4):569-75.

14. Morgante L, Vita G, Meduri M. Fahr's Syndrome: Local inflammatory factors in the pathogenesis of calcification. (Eng) J Neurol. 2010 Feb; 233(1): 19- 22.

15. Geschwind, D.H. Loginov, M.Stern, J.M. Identification of a locus on chromosome 14q for idiopathic basal ganglia calcification (Fahr disease). Am.J.Hum.Genet. 2011;65:764-72.

16. Manyam BV. What is and what is not "Fahr"s disease". Parkinsonism Relat Disord. 2005;11:73-80.

17. Hoque MA, Siddiqui MR, Arafat Y, Khan SU, Rahman KM, Mondol BA, et al. Fahr's disease: a very rare cause of epilepsy. Mymensingh.

18. Brannan TS, Burgfr AA, Chaudhary MY. Bilateral basal ganglia calcifications visualized on CT scan. J Neurol Neurosurg Psychiatry. 2008;43:403-6. Med J 2010;19(1):127-29.

19. Munir KM. The treatment of psychotic symptoms in Fahr's disease with Lithium carbonate. J Clin Psychopharmacol. 2009 Feb;6 (1):36-38.

20. Ahad MA, Bala CS, Karim SR. Fahr's Syndrome - A Case Report. Bang. Med J, Khulna. 2012;45 (1& 2):33-35.

21. Ang LC, Rozdilsky B, Alport EC, Tchang S. Fahr's disease associated with astrocytic proliferation and astrocytoma. Department of Pathology, University of Saskatchewan, Canada Surg Neurol. 2013;39:365-69.

Case Report

The Emotional-Psychological Consequences of Infertility and Its Treatment

Nahrin NE[1], Ashraf F[2], Nessa K[3], Alfazzaman M[4], Anwary SA[5], Abedin SAMA[6], Rahman MMM[7]

Abstract

Infertility is a major public health concern accounting for 10%-15% all over the world. In Bangladesh about 24.51 million patients receive infertility advice or treatment. The emotional consequences of an infertility diagnosis can be devastating. One study in Taiwan diagnosed anxiety in 23% and major depression in 17% of the women seeking assisted reproductive infertility treatment. The aim of this case presentation is to addressing the psychological consequences of infertility and its treatment. The findings of this case study are: 1. Understanding the reactions of infertility (*mental engagement; psychological turmoil*)*. 2. Consequences of therapy process* (*reduced self-esteem; feelings of failure, economic burden*)*. 3. Emotional-affective reactions to therapy process* (*fear, anxiety and worry; fatigue and helplessness; grief and depression; hopelessness*)*. This case study revealed that infertile women seeking treatment face several psychological-emotional problems with devastating effects on the mental health and well-being of the infertile individuals and couples, while the infertility is often treated as a biomedical issue with less attention on the mental-emotional, social and cultural aspects.*

Key words: Infertility, Treatment-seeking, Psychological, Consequences.

1. Dr. Noor - E - Nahrin
Assistant Professor
Department of Obs & Gynae
MH Samorita Hospital & Medical College, Dhaka.

2. Dr. Fatema Ashraf
Professor
Department of Gynae & Obst
Shaheed Suhrawardi Medical College & Hospital, Dhaka.

3. Dr. Khairun Nessa
Assistant Professor
Department of Gynae& Obst
Ibn Sina Medical College and Hospital, Dhaka.

4. Corresponding Author:
Dr. Md. Alfazzaman
Associate Professor
Department of Surgery
MH Samorita Hospital & Medical College, Dhaka.

5. Dr. Shaheen Ara Anwary
Assistant Professor
Infertility unit
Department of Gynae & Obst
Bangabandhu Sheikh Mujib Medical University
Shahbagh, Dhaka.

6. Dr. Syed A. M. Asfarul Abedin
Assistant Professor
Department of ENT
Dhaka Central International Medical College & Hospital, Dhaka.

7. Dr. M M Mafizur Rahman
Associate Professor
Department of Surgery
ZH Sikder Women's Medical College and Hospital, Dhaka.

Introduction

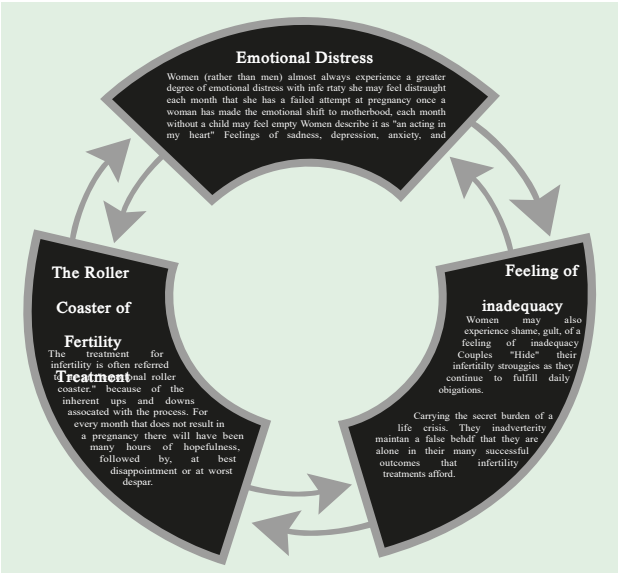
Infertility is a life time crisis with a wide range of socio-cultural, emotional, physical and financial problems[1,2]. Most infertile people on the globe live in developing countries and having children in these settings is often the only way for women to enhance their status in the community[3]. The emotional consequences of infertility can be devastating. In Bangladesh about 3 million couples are infertile[4]. The overall prevalence of psychological problems of the infertile couples is estimated to be 25-60%, which is caused by a complexity of factors such as gender, the cause and duration of infertility, treatment methods, and culture[2,5 & 6].

Case Report

A couple Mr. A (Age 35 years) and Mrs. B (Age 32 years) consulted with doctors with the complaint of non conception even after having active sexual life and non use of contraceptives. They married for 10 years. The couple did not have a positive family history of infertility in their respective families and had no consanguinity. They were physically healthy and following an apparently healthy life style. They were residents of urban area and did not report a consistent exposure to any specific pollutants.

At a secondary care centre after all evaluation they were diagnosed as a case of unexplained infertility and female partner was treated by ovulation inducing drugs for 6 months without any monitoring but no positive result. As a result of failed treatment she became worry, helpless and depressed. Her husband eternally loves and supports her and her family was also supportive. After one year of initial treatment the couple had undergone treatments for infertility from a renowned tertiary center in Bangladesh. Where they were treated by ovulation inducing drugs with monitoring and IUI for two times four months apart, but were not successful. Now she became more depressed and felt loneliness and guilt. She expressed, "I fear that I can never have a child and ask Almighty, don't disappoint me in this way". This time she experienced sadness due to express worries by the family members and bitter reactions of their community. They were become so psychologically depressed that they decided not to take any treatment. After two years again they had undergone treatment for infertility at "Fertility Center" from a neighbor country and IVF was done. Two weeks after embryo transfer they came back to home and biochemical pregnancy test was positive, but TVS showing "Blighted Ovum". After two weeks a repeat TVS was done and showed the same result. The event was heart breaking and D & C was done. This time they were losing control over their emotions and actions. She declared her feeling in this way: "I was so distracted while driving home that I had an accident and actually cried. I was frustrated and asked almighty "I'm really tried. What should I do?" Already they had spent a lot for treatment purpose and become economically looser, took loan from their relatives.

After six months again the couple had undergone second IVF cycle at the same fertility center and unfortunately again the result was negative. This time they completely depressed and can't bear no more. They kept themselves isolated from the community. She expressed, "My home is silent from morning to night so that sometimes I am talking to myself in the fear of not becoming dumb"



Discussion

Reproduction is one of the highest values and when the childbearing seems impossible, probable psychological crisis sets in[7]. In my case couple had experienced some psychological consequences due to both infertility and medical interventions like psychological turmoil, fear and anxiety and worry, grief and depression, but consequences like mental engagement, loneliness, guilt, and regret were only reported as infertility consequences. The consequences like difficulty in self-control, reduced self-esteem, feelings of failure and helplessness, and hopelessness were experienced following treatment process. A similar result was shown by Grill et al in their study[2]. In a cross-sectional study of 585 couples who had been reported in women's using hormone injections, 53% reported discomfort on the treatment that failed, and 44% expressed anxiety while being treated. Two of the most common negative feelings were hopelessness and impatience. 49% of respondents reported they felt uncomfortable when they were around pregnant women or couples with children[8]. The dramatic advances in the ART have acted as a double-edged sword, itself causing mental, social, moral, financial and legal concerns. In this case the stresses stem from the unaffordability of the infertility treatment costs. In an Iranian study it is shown that participants were concerned about how to cover the costs[9].

Cognitive and emotional reactions of infertility and its therapy process

Emotional Distress

Women (rather than men) almost always experience a greater degree of emotional distress with infertility. She may feel distraught each month that she has a failed attempt at pregnancy. Once a woman has made the emotional shift to motherhood, each month without a child may feel empty. Women describe it as "an aching in my heart." Feelings of sadness, depression, anxiety, and

Feeling of Inadequacy

Women may also experience shame, guilt, or a feeling of inadequacy. Couples "hide" their infertility struggles as they continue to fulfill daily obligations, carrying the secret burden of a life crisis. They inadvertently maintain a false belief that they are alone in their struggle. They also may not hear of the many successful outcomes that infertility treatments afford[10].

The Roller Coaster of Fertility Treatment

The treatment for infertility is often referred to as an "emotional roller coaster," because of the inherent ups and downs associated with the process. For every month that does not result in a pregnancy there will have been many hours of hopefulness, followed by, at best, disappointment or, at worst, despair[10].

In conclusion, this case study revealed that infertile couple with their journey to achieve a baby faces psychological-emotional problems that immense service itself and was of service delivery, affects the physical and mental health of the couple specially the women part.

References

1. Slade P, O'Neill C, Simpson AJ, Lashen H. The relationship between perceived stigma, disclosure patterns, support and distress in new attendees at an infertility clinic. Hum Reprod. 2007;22:2309-2317.

2. Greil AL, Blevins KS, McQuillan J. The experience of infertility: A review of recent literature. Sociol Health Illn.

3. Van Balen F, Gerrits T. Quality of infertility care in poor-resource areas and the introduction of new reproductive technologies. Hum Reprod. 2001;16:215-219.

4. Chavarro J. E. Use of multivitamins, intake of B vitamins and risk of ovulatory infertility. Fertil Steril. 2008 March; 89(3):668-676.

5. Guerra D, Llobera A, Veiga A, Barri PN. Psychiatric morbidity in couples attending a fertility service. Hum Reprod. 1998;13:1733-1736.

6. Lechner L, Bolman C, Van Dalen A. Definite involuntary childlessness: Associations between coping, social support and psychological distress. Hum Reprod. 2007;22:288-294.

7. Wiersema NJ, Drukker AJ, Dung MT, Nhu GH, Nhu NT, Lambalk CB. Consequences of infertility in developing countries: Results of a questionnaire and interview. Survey in the South of Vietnam. J Transl Med. 2006;4:54.

8. Domar AD, Gordon K. The Psychological Impact of Infertility: Results of a national survey of men and women. Fertil Steril. 2011;95:S17.

9. Hasanpoor-Azghdy SB. The Emotional-psychological Consequences of Infertility Among Infertile Women Seeking Treatment: Results of a Qualitative Study. Iran J Med. 2014 Feb; 12(2):131-138.

10. Pressman PF. Psychological aspect of infertility, WWW. Obgyn-Infertility-Nurse.com. 2009 Dec;1(2);21.

Case Report

Fahr's Syndrome: A rare case- Presented as Acute Ischaemic Stroke

Sarkar DN[1], Sarkar D[2], Zahin AKM[3], Ohab MA[4], Miah MS[5], Haque MM[6]

Abstract

Fahr's syndrome refers to a rare syndrome characterized by symmetrical and bilateral intracranial calcification. We present a 65-year-old female with Fahr disease, presenting with headache with acute ischaemic stroke with left sided hemiplegia. CT scan of brain reveals irregular variable size hyperdense areas are noted in both basal ganglia regions and in both cerebellar hemisphere.

1. Corresponding Author:
Prof. Dr. Devendra Nath Sarkar
MD, MCPS, FCCP, FRSM, FACP
Professor
Department of Medicine
Rangpur Medical College Hospital, Rangpur.
e-mail: dnathsarkar@yahoo.com

2. Dr. Devavrata Sarkar
Medical Doctor
Enam Medical College Hospital, Savar, Dhaka.

3. Dr. A K M Zahin
Assistant Register
Department of Medicine
Rangpur Medical College, Hospital, Rangpur.

4. Dr. M A Ohab
MD
Assistant Professor
Department of Medicine
Rangpur Medical College Hospital, Rangpur.

5. Dr. Md. Shahin Miah
Register
Department of Medicine
Rangpur Medical College Hospital, Rangpur

6. Dr. Md. Mahmudul Haque
Assistant Register
Department of Medicine
Rangpur Medical College Hospital, Rangpur.

Introduction

Fahr's disease (FD) is a rare, degenerative, neurological condition characterized by idiopathic calcification of the basal ganglia. This condition has been known since the middle 1800s. The clinical manifestations of Fahr's disease vary. One definition proposed by, requires bilateral calcifications with neuropsychiatric and extrapyramidal disorders with normal calcium and phosphorus metabolism[1]. Another definition which had seizures, rigidity and dementia with characteristic calcification of the basal ganglia[2]. Others opined that radiologists may view basal ganglia calcification (BGC) as an incidental finding so clinical findings associated with Fahr's disease are important[3].

The basal ganglia and dentate nucleus are the most common site of involvement and most cases present with extra pyramidal symptoms. This disease is mostly associated with a phosphocalcic metabolism disorder, especially to hypoparathyroidism. Defective iron transport and free radical production may damage tissue, initiating calcification[2]. In adult-onset FD, calcium deposition generally begins in the third decade of life, with neurological deterioration two decades later[4]. Reduced blood flow to calcified regions correlates with clinical signs.

Case Report

Our patient, 65 years old normotensive, non diabetic woman presented with headache for last three months which is diffuse, mostly occur throughout the day without any history of nausea, vomiting, aura or altered level of conciousness. She has no history of trauma convultion or fever. Before the day of admission patient had a history of sudden fall on the ground with vomiting and altered level of conciousness. On clinical examination pulse 80 b/min, BP: 140/90 mm of Hg, temperature: 99 degree farenhite, respiratory rate 18 breath/min. Neurological examination reveals. GCS: 9 out of 15. Bulk and tone of muscle is normal. Power of muscle of both left upper and lower limb is 2/5. Jerks are exaggerated of both left upper and lower limb. Planter is extensor on left side. All modalitys of sensation is intact, co ordination is not possible. Sign of meningeal irritation was absent. Fundoscopy shows no abnormality.

Laboratory tests including serum calcium, phosphorus, and parathyroid hormone (PTH) levels are within normal limits. CT scan of brain reveals irregular variable size hyperdense areas are noted in both basal ganglia regions and in both cerebellar hemisphere which suggestive calcification. So ischemic stroke due to FD is diagnosed and treated conservatively with physiotheraphy.

CT scan of brain showing irregular variable size hyperdense areas are noted in both basal ganglia regions and in both cerebellar hemisphere (figure-I).

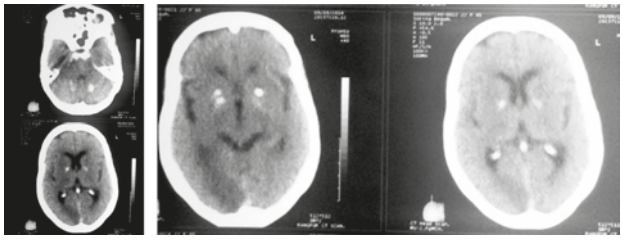


Figure-I: CT scan of brain

Discussion

Fahr's syndrome is a very rare disease with unknown prevalence, characterised by symmetrical intracranial calcification with a predilection for the basal ganglia and dentate nuclei. As the basal ganglia and dentate nuclei are always involved in a symmetrical pattern, the term Bilateral Striopallidodentate Calcinosis (BSPDC) was suggested[5]. Typical age of presentation is in middle-age between the 4th - 6th decades of life (as seen in our case), although an early onset type may also occur[6]. Symptoms of this disorder may include-deterioration of motor function, dementia, seizures, headache, dysarthria, spasticity, visual impairments, and athetosis. Fahr's syndrome can also include symptoms of Parkinson's disease such as tremors, muscle rigidity, mask-like facial appearance, shuffling gait, and a "pin-rolling" motion of the fingers. Our case presented with headache with acute ischemic stroke. The brain metabolism in a person with Fahr's disease who presented with predominant frontal lobe syndrome and dementia[7]. There was a massive reduction in the glucose metabolism in both the basal ganglia and frontal lobes which correlated with the clinical picture of disinhibition and personality change. The involvement of frontal-subcortical circuits provides a hypothetical framework for the interpretation of cognitive and psychotic problems in Fahr's disease. Making a clinical diagnosis of Fahr's syndrome relies on the combination of clinical features, brain imaging and exclusion of other causes of intracranial calcification. Symmetrical and extensive calcification of basal ganglia, dentate nuclei and centrum semiovale are typical and conspicuous of Fahr's syndrome. Normal serum levels of calcium, phosphorus, alkaline phosphatase and parathormone can help in differentiating it from the endocrine disorders like hyperparathyroidism, pseudo-hypoparathyroidism and pseudo-pseudo-hypoparathyroidism. Other rare causes of scattered basal ganglia and dentate nuclei calcification are tuberous sclerosis, toxoplasmosis, syphilis and inflammatory illness such as systemic lupus erythematosus and all these must be ruledout in suspected cases. There is no cure for Fahr's syndrome, nor is there a standard course of treatment. Treatment targets symptomatic support. The response to Levodopa in those with Parkinson's features is reportedly poor. Antipsychotics may be indicated in those with psychotic symptoms and behavioural problems, and anticonvulsants for the control of seizures.

In conclusion, though Fahr's syndrome is a rare idiopathic neurodegenerative disorder, yet, with proper knowledge of its clinical manifestations and more vigilant approach, a diagnosis can be made in time. More research is required to locate and understand the action of the genes involved in this disorder. Finding these genes could lead to effective ways to treat and prevent Fahr's syndrome.

References

l. Trautner RJ, Cummings JL, Read SL. Idiopathic basal ganglia calcification and organic mood disorder. Am J Psychiatry. 1988;145:350-353.

2. Beall SS, Patten BM, Mallette L. Abnormal systemic metabolism of iron, porphyrin and calcium in Fahr's syndrome. Ann Neurol. 1989;26:569-575.

3. Flint J, Goldstein LH. Familial calcification of the basal ganglia: a case report and review of the literature. Psychol Med. 1992;22:581-595.

4. Manyam BV, Bhatt MH, Moore WD. Bilateral striopallidodentate calcinosis: cerebrospinal fluid, imaging and electrophysiological studies. Ann Neurol. 1992;31:379-384.

5. Manyam BV. Bilateral strio-pallido-dentate calcinosis: a proposed classification of genetic and secondary causes. Mov Disorder. 1990;5 (supl): 94S.

6. Lam JSP, Fong SYY, Yiu GC, Wing YK. Fahr's disease: a differential diagnosis of frontal lobe syndrome. Hong Kong Med J. 2007;13:75-7.

7. Benke T, Karner E, Sappi K. Subacute dementia and imaging correlates in a case of Fahr's disease. J Neurol Neurosurg Psychiatry. 2004;75:1163-5.

Isolated Fetal Ascites

Tasmin KS[1], Begum F[2], Sarwar MG[3], Nasreen S[4]

Abstract

When foetal ascites is found alone (i.e., without other signs of hydrops), it may represent a separate problem requiring a different management strategy, leading to a different outcome. A 24-year-old primigravida was referred to our institution at 27 weeks of gestation with a diagnosis of isolated foetal ascites. No other pathology was detected on ultrasonography or a laboratory examination. The patient delivered a male infant weighing 3020 g at 38 weeks of gestation with Apgar scores of 7 and 9 at 1 and 5 minutes, respectively. The newborn was operated on by a paediatric surgery team with an indication of intrauterine extra-hepatic bile duct perforation in the first post-partum week, and was subsequently discharged from the hospital without any complications. Isolated foetal ascites is a rare and separate situation from foetal hydrops. The perinatal outcome for isolated ascites is much better than that for hydrops foetalis.

Keywords: Intrauterine bile duct perforation, Isolated foetal ascites.

1. Corresponding Author:
Dr. Khandaker Shehneela Tasmin
Feto-maternal Medicine Unit
Department of Obs. & Gynae
Bangabandhu Sheikh Mujib Medical University
Shahbagh, Dhaka.

2. Dr. Firoza Begum
Feto-maternal Medicine Unit
Department of Obs. & Gynae
Bangabandhu Sheikh Mujib Medical University
Shahbagh, Dhaka.

3. Dr. Mirza Golam Sarwar
Department of Haematology
Bangabandhu Sheikh Mujib Medical University
Shahbagh, Dhaka.

4. Dr. Shammi Nasreen
Senior Consultant
MFSTC & 100 bedded Maternal & Child Hospital
Aurangajeb Road, Mohammadpur, Dhaka.

Introduction

Foetal ascites is most often seen in association with foetal hydrops or as one of the early manifestations of hydropic decomposition. When ascites is first identified, it is important to determine whether it is isolated or whether other signs of hydrops are present, including skin oedema, scalp oedema, pleural effusions, pericardial effusion, and tricuspid regurgitation. The prognosis and therapy for a foetus with hydrops depends on the aetiology. However, when foetal ascites is seen alone (i.e., without other signs of hydrops), it may represent a separate problem requiring a different management strategy, leading to a different outcome[1].

A careful search for underlying causes should be undertaken in all cases of apparently isolated ascites. A systematic protocol for the diagnostic work up of foetal ascites should be followed, as an aetiology or associated disorder can be identified in 92% of cases[2,3].

Numerous mechanisms have been implicated in the generation of ascites, including abnormal lymphatic drainage; obstruction of venous return, as observed for any space-occupying lesion in the thorax; cardiac failure; decreased plasma oncotic pressure, as in foetal anaemia; hepatic insufficiency (storage disease) or congenital nephrosis; increased capillary permeability; urinary tract obstruction; or meconial peritonitis[4].

Infections such as congenital syphilis, cytomegalovirus (CMV), varicella, toxoplasmosis, and hepatitis A can uncommonly cause foetal ascites[1].

Here, we present a case of prenatally diagnosed isolated foetal ascites secondary to perforation of the extra-hepatic bile duct.

Case Report

Mrs. Fatema, 28 Yrs old fifth gravida, married for 10 yrs, mother of 02 healthy children, Para-2VD+2MR, hailing from Narayangonj, Bangladesh was referred to Fetomaternal Medicine Dept. BSMMU at 35^{+3} weeks gestation with a diagnosis of isolated fetal ascites and got admitted on 11.09.14. It was her planned pregnancy, she was a regularly menstruating women with average flow and duration, her LMP was on -07.01.14 and accordingly EDD will be on 14.10.14 which was also dated by early USG.

She was on regular ante-natal checkup. Her pregnancy was uneventful up to 32 wks. During her ante-natal checkup all routine investigations were normal along with two USG scan (In local center) at about 13th and 24th wks of gestation which also revels no abnormality. At her 32 wks of gestation she rescan her pregnancy by USG as per advice of her obstetrician which reveled gross fetal ascites. She is normotensive, nondiabetic, nonsmoker, denied any H/O fever, skin rash, or any teratogenic drug consumption, no H/O consanguineous marriage, has no H/O extra marital sexual exposure.

She has no family H/O of DM or delivery of congenitally malformed baby. With due consent and maintaining adequate privacy we examined her on 11.09.14 & found. Patient was anxious, Mildly anaemic, non icteric, no edema, Pulse- 84 bpm, BP - 120/75 mm of hg. Her other general and cardio-respiratory clinical parameters were normal. Per abdominal examination revels -Abdomen is uniformly enlarged with presence of stria graviderum and linea nigra, SFH : 36 cm, Lie - Longitudinal, Presentation - Cephalic, Liquor volume- Seems to be adequate, FHR : 146 bpm.

Anomaly scan after admission showed -Severe isolated fetal ascites but no peritoneal calcification or any echogenic debris with in the fluid. AFI- 13 cm, Gastrointestinal or genitourinary or other structural anomalies were not found. The patient has an AB-Rh positive blood group. Tests for Rubella (IgG), CMV (IgG), HSV (1,2) (IgG) all are positive. Hepatitis B , Toxoplasmosis, Syphilis were all negative.Other routine investigations -Normal. After assessing all the factors we terminate the pregnancy by vaginal delivery at her $36+^{3}$ wks of gestation. she delivered a male infant weighing 3.3 kg with Apgar scores of 7/10 and 9/10 at 1 and 5 minutes, respectively (In presence of a neonatologists), Then the baby was transferred to the Dept. of Neonatology for further management. The baby was managed conservatively with a course of antibiotic, F/U on day 3 of birth his abdomen size was reduced and at day 7 the baby was completely alright and there was no ascites as documented by negative USG report, possibly the baby is a benign variant of Prune belly syndrome. Further evaluation and investigation was needed to conclude the diagnosis.

Discussion

Isolated ascites is diagnosed by demonstrating fluid surrounding the liver, spleen, bowel, extra-hepatic portion of the umbilical vein, falciform ligament, or greater omentum. When discovered on an initial sonogram, ascites should be followed by an ultrasound approximately 1 week later to determine whether progression to foetal hydrops has occurred. If the ascites remains isolated to the foetal abdomen, then progression to hydrops is much less likely[1].

Isolated ascites is most often secondary to an intra-abdominal disorder, rather than a generalized condition. It is most often secondary to obstructed uropathy; however, 20% of cases are due to gastrointestinal disorders[4-8]. Of these, meconium peritonitis is the most common cause, which results from a bowel obstruction[5].

The work-up for any case of ascites should include a detailed ultrasound examination to exclude the presence of any associated foetal abnormalities. The mother should be screened for the presence of viral infections such as parvovirus, CMV, hepatitis, varicella, herpes simplex, rubella, syphilis, and toxoplasmosis[1,2]. Additionally, the blood rhesus factor and blood antibody titres of the mother should be identified.

An amniocentesis for foetal karyotyping should be considered, as the incidence of chromosomal abnormalities could be up to 15%[9]. Other than a cytogenetic analysis, evaluating for a possible foetal infection (TORCH titres, antigen-specific IgM/IgG) and a prenatal diagnosis of inherited metabolic diseases are helpful[1,2]. These data could also be obtained from foetal blood sampling.

A foetal paracentesis can be performed to evaluate the meconium, protein/lymphocyte counts, TORCH titres, and the foetal karyotype[1]. Massive compression of the chest caused by intra-abdominal ascites before 24 weeks of gestation may lead to pulmonary hypoplasia, but it is uncertain whether foetal paracentesis is helpful in this situation[1,10]. A foetal echocardiogram is also warranted to rule out a cardiac anomaly or arrhythmia[1].

Bishry reported a series of twelve cases with isolated foetal ascites without any other anomalies detected antenatally, and ten survived postnatally. Only one of the ten cases had ileal atresia detected postpartum, which was repaired. The other nine cases had no abnormalities that could be detected either antenatally or postnatally. The two cases of foetal loss were diagnosed before 20 weeks of gestation and one had laryngeal atresia, which was terminal[2].

A larger series reported by Favre et al. detected approximately the same survival rate (8/8) for idiopathic isolated foetal ascites, in which no cause could be demonstrated during the foetal and neonatal periods[4]. They documented a significant relationship between survival rate and gestational age at diagnosis.

Furthermore, Bishry could detect the cause of isolated foetal ascites in 26 of 28 cases antenatally[2], whereas Favre et al. could detect the cause in only 8 of 25 cases[4].

In our case, we could not identify any cause using data from the work-up we performed antenatally.

In conclusion, Isolated foetal ascites is a rare and separate condition from foetal hydrops. The perinatal outcome for isolated ascites is much better than that for hydrops

foetalis. An extensive work-up should be conducted to demonstrate the cause, since most cases are associated with other abnormalities.

References

1. Ulreich S, Gruslin A, Nodell CG, Pretorius HD. Fetal Hydrops and Ascites. In: Nyberg DA, McGahan JP, Pretorius DH, Pilu G, editors. Diagnostic imaging of fetal anomalies. New York: Lippincott Williams and Wilkins; 2003: 713-745.

2. El Bishry G. The outcome of isolated fetal ascites. Eur J Obstet Gynecol Reprod Biol. 2008;137(1):43-46.

[Medline] [CrossRef]

3. Schmider A, Henrich W, Reles A, Kjos S, Dudenhausen JW. Etiology and prognosis of fetal ascites. Fetal Diagn Ther. 2003;18(4):230-236.

[Medline] [CrossRef]

4. Favre R, Dreux S, Dommergues M, Dumez Y, Luton D, Oury JF, et al. Nonimmune fetal ascites: a series of 79 cases. Am J Obstet Gynecol. 2004;190(2):407-412.

[Medline] [CrossRef]

5. Agrawala G, Predanic M, Perni SC, Chasen ST. Isolated fetal ascites caused by bowel perforation due to colonic atresia. J Matern Fetal Neonatal Med. 2005;17(4):291-294.

[Medline] [CrossRef]

6. Ohno Y, Koyama N, Tsuda M, Arii Y. Antenatal ultrasonographic appearance of a cloacal anomaly. Obstet Gynecol. 2000;95(6 Pt 2):1013-1015.

[Medline] [CrossRef]

7. Persutte WH, Lenke RL, Kropp KA. Atypical perentation of fetal obstructive uropathy. J Diagn Med Sonogr. 1989;1:12-15.

8. Mahony BS, Callen PW, Filly RA. Fetal urethral obstruction: US evaluation. Radiology. 1985;157(1):221-224.

[Medline]

9. Jauniaux E, Van Maldergem L, De Munter C, Moscoso G, Gillerot Y. Nonimmune hydrops fetalis associated with genetic abnormalities. Obstet Gynecol. 1990;75(3 Pt 2):568-572.

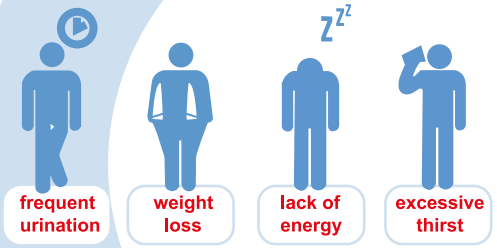
[Medline]

10. Benacerraf BR, Frigoletto FD, Jr., Wilson M. Successful midtrimester thoracentesis with analysis of the lymphocyte population in the pleural effusion. Am J Obstet Gynecol. 1986;155(2):398-399.

[Medline]

Dialina 5

Linagliptin INN 5 mg Tablet



...the ultimate power to ensure proper glycemic control

Glucium-D

Glucosamine Sulfate 750 mg & Diacerein 50 mg Tablet

Add Extra Cushion to Joints

BIOPHARMA LIMITED

Committed to Serving Mankind

www.biopharmabd.com

Mexclav

250 mg Tablet
500 mg Tablet

Cefuroxime & Clavulanic Acid

Extra power to KILL Lethal Bacteria

- *Powerful antibiotic against ß-lactamase induced resistance*
- *Offers maximum coverage (up to 100%) of bacteria*
- *Successful treatment option for common infections*
- *Ideal for switch over therapy from I.V to ORAL*
- *FDA approved pregnancy category B medicine*
- *Well tolerated & safe for all aged group*

BESTCEF

Cefixime trihydrate

A strategic move to treat all types of Infections

- 200 mg Capsule
- 400 mg Capsule
- 37.5 ml PFS
- 50 ml PFS
- 50 ml Forte PFS

Esocon

Esomeprazole

Superior to all other PPIs in PUD

- 20 mg Capsule
- 40 mg Capsule
- 40 mg IV Injection

ISO 9001:2008
an ISO 9001:2008 Company

BIOPHARMA LIMITED
Committed to Serving Mankind

www.biopharmabd.com