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Instruction to Authors

Original Article

Review Article

Case Report

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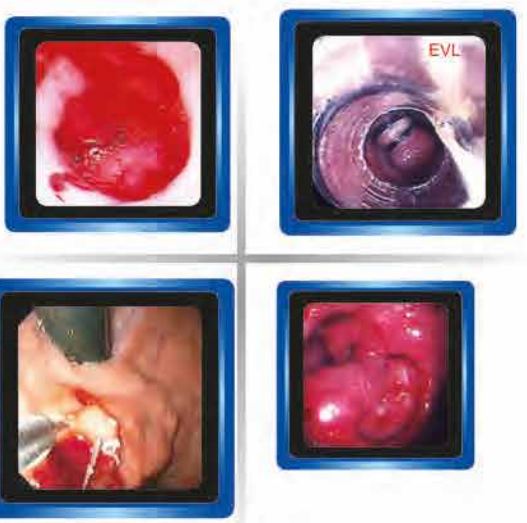

Cyanoacrylate Glue Injection in Fundic Varix

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- **Fulminant Hepatic failure**
- **Acute Pancreatitis**
- **Acute Abdomen**
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Original Article

Audio Visual Aids-Quality Use in Lecture Classes of Undergraduate Medical Education in Bangladesh

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Abstract

This descriptive type of cross sectional study was conducted to explore the use of AV aids in undergraduate medical education in 7 government & 5 non-government medical colleges of Bangladesh by convenient sampling. Sixty (60) lecture classes were observed to estimate the proportion of the uses of different AV aids & to identify the quality use of different types of AV aids by observation checklists. Views were also taken from 20 teachers regarding the quality use of different types of AV aids by open ended questions. Study revealed that 20% teachers used CB/WB, 15% used OHP and 65% used PPT. Most of the CB/WB & PPT users maintained the quality use of these media but not OHP. Readability and legibility of handwriting or text of all media were acceptable in 78% lectures but it was 33% in OHP lectures. Students' attention was also less in OHP. Regarding number of words per acetate sheet/slide, only 33% OHP lectures met the standard criteria & 72% PPT slides met this criterion. In open ended questions, 25% teachers choose CB/WB, 10% Choose OHP and 65% choose PPT. Study recommended that use of clean, multi-color and good quality chalk/marker & board/screen are essential for effective teaching learning session. Adequate lighting, AC lecture class/gallery, proper sound systems & training on different AV aids are also needed to standardize the quality use of AV aids in lecture classes.

Key words: *CB/WB (Chalkboard/Whiteboard), OHP (Over Head Projector), PPT (Power Point Presentation), AV (Audio Visual) aids & Lecture.*

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Introduction

Lectures have been the most common form of teaching and learning since ancient times. It can be traced as far back as the Greeks of the fifth century BC[1]. Students learn from lectures by listening, observing, summarizing and note taking[2]. A lecture has its own merits, otherwise this form of teaching would have ceased. It is almost inevitable that the medical students will experience lectures, as the number of students attending is too large in comparison to the teaching staff available[3]. Modern teaching aids like OHP, multimedia, models were facilitating the classes of MBBS course. A good number of teachers are also trained on modern teaching and assessment methods[4]. Lectures can be supplemented with AV aids for better illustrations, clarity and learning[2]. The oral communication may be accompanied by occasional demonstrations, pictures, or diagrams; and these may be presented in various media, including the chalkboard[5]. During lecture, both the visual and auditory senses are available to absorb information and here assistance in the form of a visual aid is useful[6]. The effective lectures are supported by AV aids such as black board or white board, use of overhead projector (OHP), recently a popular electronic presentation Microsoft Power Point Presentation (PPT) is being used[7]. About 80% of the information which we assimilate through the senses is visual[8]. AV aids, now-a-days, are integral parts of classroom activities of medical institutions[9]. The blackboard was introduced into the US education system in 1801[10-11]. A chalkboard is uniquely effective as a medium of class-room instruction and has been used commonly in the lectures, while the use of overhead projector (OHP) is also popular[7]. Recently, the use of electronic presentations is now common in medical colleges, as in other colleges and universities. Microsoft Power Point Presentation (PPT) is the most popular package used out of all electronic presentations[12]. In Bangladesh, the teachers of different government and non-government medical colleges prefer lecture classes due to large number of students and to lack of adequate teaching staffs available. They use different AV aids like chalkboard, white board, OHP, PPT and occasionally combined in their lectures to make it effective, attractive and memorable to the students. It was found that most of the teachers of medical colleges of Bangladesh use AV aids during their teaching learning session. About all of the teachers of medical colleges are using blackboard and microphone, and majority of the teachers are using OHP

in their lecture classes. Few teachers used slide projectors, epidiascope and video clips in their lectures[13].

Considering the diverse views about the use of teaching aids, we want to observe the situation and quality use of these AV aids in lecture classes. We also want to find out the reasons of use & their suggestions about the improvement of the quality use of different AV aids.

Materials and Methods

This descriptive type of cross sectional study was conducted from July'2012 to June'2013 among the teachers from assistant professor to professor of different disciplines of 7 governments and 5 non-governments medical colleges in Dhaka and outside Dhaka. Data were collected by two types of research instruments named 1) Observational checklist and 2) Open ended questions. Data were collected in lecture classes to explore the use of audio visual aids (CB/WB, OHP & PPT) in undergraduate medical education of Bangladesh by convenient sampling. Sixty (60) lecture classes were observed by preformed observation checklists. Views were also taken from 20 teachers (assistant professor to professor) to find out the reasons for use, suggestions about the improvement of the quality use of different types of AV aids by open ended questions. Inclusion criteria was the teachers those who were willing to participate in this study.The investigator himself collected all the data anonymously with prior permission of the principal, vice principal and head of the departments of the respective medical colleges and some where permission was taken from ethical committee. All the collected data were checked and identification number was put. Data entry, editing, processing and analysis were done by using SPSS 11.5 version. Interpretation of data was presented by graphs, tables and description.

Results

A total 60 lecture classes were observed to find out the use of AV aids from 1st year to 5th year in seven governments and five non-governments medical colleges of Bangladesh.

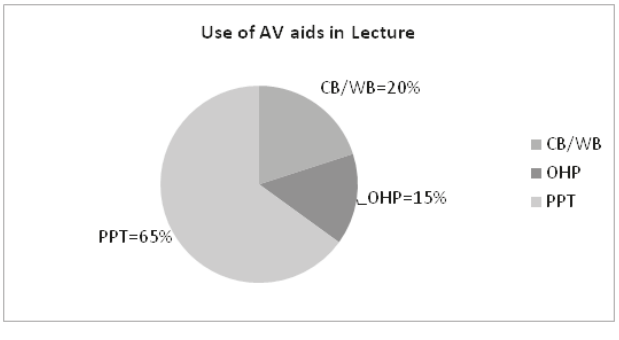

Figure-I: Distribution of respondents in respect to AV aids used in lecture classes

Figure-I shows the distribution of respondents in respect to AV aids use in lecture classes. It was observed that CB/WB was used in 20%, OHP were 15% and PPT was 65% lecture classes. PPT was used in highest percentage among the other audio visual aids.

In Table I, five criteria or rubrics were set for readability and legibility of handwriting or text of CB/WB, OHP and PPT. Regarding readability and legibility of handwriting or text of all media were excellent in 53.3% lectures, good in 25% lectures, fair in 13.3% lectures, not fair in 6.7% & not fair at all in 1.7% lectures. It was not acceptable in 67% OHP (fair, not fair, not fair at all) lectures.

Table-I: Distribution of readability and legibility of handwriting/text in CB/WB or screen.

Readability & legibility of handwriting or text	Different types of AV aids used in lecture classes				
	CB/WB	OHP	PPT	All media	Percent
Not fair at all	0 (0)	0 (0)	1 (2.5)	1	1.7
Not fair	0 (0)	3 (33.3)	1 (2.5)	4	6.7
Fair	2 (16.6)	3 (33.3)	3 (7.7)	8	13.3
Good	4 (33.3)	2 (22.2)	9 (23)	15	25.0
Excellent	6 (50)	1 (11.1)	25 (64)	32	53.3
Total	12 (100)	9 (100)	39 (100)	n=60	100.0

Table II has shown about 50% handwritings or texts of CB/WB were well visible, 56% were hardly or not visible in OHP & 62% were well visible in PPT. Considering all media, 82% handwritings or texts were well and fairly visible and 13.3% were hardly or not visible.

Table-II: Distribution of visibility of handwriting or text of CB/WB, OHP & PPT from the back of the gallery or class room.

Visibility of handwriting/text	Different types of AV aids used in lecture classes				
	CB/WB	OHP	PPT	All media	Percent
Hardly visible	1(8.3)	5(55.6)	2(5.1)	8	13.3
Visible	0	1(11.1)	2(5.1)	3	5.0
Fairly visible	5(41.7)	2(22.2)	11(28.2)	18	30.0
Well visible	6(50)	1(11.1)	24(61.5)	31	51.7
Total	12(100)	9(100)	39(100)	n=60	100.0

In table III, 41-50 words were found in 67% acetate sheets, 31-40 words were found in 22% of OHP. In PPT, 31-40 words were found in 23% slides, 41-50 words were found in 23% slides, 10-20 words or >50 words were found in 13% slides.

Table-III: Distribution of number of words in per acetate sheet of OHP/PPT slide.

No of words per acetate/slide	Different types of AV aids used in lecture classes			
	OHP	PPT	All Media	Percent
11-20 words	0 (0)	3 (7.7)	3	6.2
21-30 words	1 (11.1)	16 (41.0)	17	35.4
31-40 words	2 (22.1)	9 (23.1)	11	22.9
41-50 words	6 (66.7)	9 (23.1)	15	31.2
>50 words	0 (0)	2 (5.1)	2	4.2
Total	9 (100.0)	39	48	(100.0)

In table IV, 5-8 lines were found in 11% acetate and more than 20 lines were found in 33% acetate sheets of OHP. In PPT, 5-8 lines were found in 49% slides & 9-16 lines were found in 51% slides.

Table IV: Distribution of number of lines in acetate sheet or PPT slide (on Average)

No of lines in per acetate/slide	Different types of AV aids used in lecture classes			
	OHP	PPT	All Media	Percent
5-8 lines	1 (11.1)	19 (48.7)	20	41.7
9-12 lines	1 (11.1)	17 (43.6)	18	37.5
13-16 lines	2 (22.2)	3 (7.7)	5	10.4
17-20 lines	2 (22.2)	0	2	4.2
>20 lines	3 (33.3)	0	3	6.2
Total	9 (100.0)	39 (100.0)	48	100.0

Table V has shown Font size of headings were >40 in 33% slides, 36-40 in 28% slides and 32-36 in 26% slides in lectures. Font size of sub-headings were 36-40 in 5% slides, 32-36 in 31% slides, 28-32 in 39% slides. Font size of texts were 32-36 in 26% slides, 28-30 in 33% slides and 24-26 in 33% slides in lecture classes.

Table V: Distribution of Font size of Headings, Sub-headings and Text in the slides of PPT

Font size	Heading	Sub-heading	Text
24-26	2 (5.1)	4 (10.3)	13 (33.3)
28-30	1 (2.6)	15 (38.5)	13 (33.3)
32-36	10 (25.6)	12 (30.8)	10 (25.6)
36-40	11 (28.2)	2 (5.1)	0
>40	13 (33.3)	0 (0)	0
Others	2 (5.1)	6 (15.4)	3 (7.7)
Total	39 (100.0)	39 (100.0)	39 (100.0)

Result of open ended questions:

Total twenty teachers from assistant professor to professor were included in this study. Questionnaires were distributed to the teachers who were willing to answer the questions and data were collected timely. Answers of the respondents were written down in a broad sheet and content analysis was done. Then themes of the contents were arranged accordingly.

In Figure II, 25% respondents had chosen CB/WB, 10% OHP and 65% PPT.

1. Preference of AV aids:

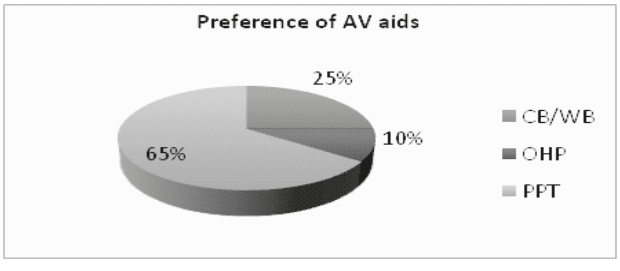

Figure-II: Distribution of respondents according to the preference of AV aids answered in open ended questions.

2. Reasons for choosing CB/WB, OHP & PPT are as bellow:

A. Reasons for choosing CB/WB by respondents in lecture classes:

1) Student can follow & understand the track of writing and drawing (60%)

2) It helps to give more lessons within short time and thus save time (60%).

3) Teachers have to be prepared very strongly & confidently (20%)

4) It is available in every class & can be used when power off (20%)

B. Reasons for choosing OHP by respondents in lecture classes:

1) OHP is available in every institution (50%)

2) It is available in every class, easy to use & less expensive (50%)

C. Reasons for choosing PPT by respondents in lecture classes:

1) Exact colors, complicated pictures or 3-D pictures, figures, structures & illustration video can be shown and understand easily (62%)

2) It is easy to change, modification & editing (7.7%)

3) Detailed lecture can be given by PPT (15%)

4) It is modern, most efficient method of teaching (23%)

5) Good visualization from the back of the gallery (15%)

Discussion

In this study, CB/WB was used in 20%, OHP were in 15% and PPP were in 65% lecture classes (Figure-I). PPT was used in the highest percentage among all other AV aids. This study was supported by Seth et al[14]. Selection of sans serif font is needed for clarity and readability of the text [9, 16, 17]. In this study, readability and legibility of handwriting or text of all media was excellent in 53.3% lectures, good in 25% lectures, fair in 13.3% lectures, not acceptable in 8.5% lectures. In respect to all media, 18.3% handwritings or texts were hardly visible which support the finding of Asaduzzaman[13] & it was 17.7%.Use of pointer is a standard rule during lecture by OHP and PPT [9,18]. Pointer was always & occasionally used in 55% lectures & not used in 45% lectures. The legibility of lettering on a transparency/slide depends upon individual handwriting WHO[15]. In OHP, 33.3% handwritings were not legible. Illustration was used in 64.6% lectures. Power interruption was found in 11% lectures of OHP and in 8% lectures of PPT which was found in this continent[14]. In printing terms, the smallest letters should be at least[24] point bold & for heading the size may be 30 point bold[9], [17]. Only 33% handwritings/texts met the standard (font size >20) & 67% fonts were <20 size. Text color should be complement, and be distinguishable from, the color background[16, 17, 20]. Slide master was used in 49% respondents. Font color was consistent in 62% lectures. Classrooms > 200 seats, Headings: 42 point, Main text: 36

point. Classrooms < 200 seats Headings: 36 point, Main text: 28 point. Rooms seating < 50 Headings: 32 point, Main text: 24 point[16, 17]. Standard font size of heading (≥ 36), sub-heading (≥32) & text (≥28) was gradually in 61.5%, 36% & 59% PPT slides in lectures. In open ended questions,25% teachers answered on CB/WB,10% on OHP and 65% on PPT (Figure-III). This finding completely supports a study where CB/WB was 23.8%, OHP was 9.5% and PPT was 66.7% [14, 19].

In conclusion, this descriptive type of cross sectional study was conducted to explore the use of audio visual aids in undergraduate medical education of Bangladesh from 1st year to 5th year by convenient sampling. Sixty (60) lecture classes were observed by checklist &views were taken from 20 teachers by open ended questions. In this study, 20%used CB/WB, 15% used OHP & 65% used PPT in lecture classes. PPT was used in the highest percentage among the other AV aids. In open ended questions, 25% teachers answered on CB/WB, 10% on OHP and 65% on PPT.

Due to time constraint and location of medical colleges, only 60 lecture classes were observed in 12 medical colleges & 20 open ended questions were collected and included in this study. The result would be better & more refined if this study would cover all government (23) and non-government (51) medical colleges.

References

1. Brown, G & Atkins, M 1988, 'Effective teaching in higher education, London, Routledge'.

2. Brown, G &Manogue. M. AMEE Medical Education Guide No.22: Refreshing lecturing: a guide for lecturer, Medical Teacher.2001; 23(3):231-44.

3. Cannon, R. Lecturing, Kensington (N.S.W.). Higher Education Research and Development Society of Australia; 1988.

4. Talukder MHK, Hossain MZ, Hanif MA, Akter N, Pervin IA. Reviewing and Updating of MBBS Curriculum 2002: Intern Doctors views. Bangladesh Journals of Anatomy.1992; 9(1): 35-40.

5. Gagne Robert M, Briggs Leslie J, Wager Walter W. Principles of Instructional Design. 4thedition. Harcourt Brace Jovanovich College Publishers; 1992.

6. Sahu DR, Supe. The art and science of presentation: 35-mm slides. J. Postgrad. Med AN. 2000; 46:280-85.

7. Estes A, Ressler S, Welch R, Hanus. 'Seminar on communication skills', Exceed teaching workshop. J 2009. Retrieved (http://www.asce.org/files/ppt/exceed/USMA-09-Seminar-VIChalkboard. ppt.).

8. Khouw, N n. d. 'Color matters: the brain: the meaning of color for gender', Retrieved October 16, 2008, from www.colormatters.com/knouw.html.

9. Shamim, KM. 'The impact of different arrangements and forms of power point Textual presentation on the recall-level short term learning in adults', Thesis; 2008, 2.

10. Wikipedia."Blackboard - Dictionary.com". "Chalkboard - Dictionary.com". "The Cato Education Market Index"."About Blackboards - Blackboard Technology and Chalkboard History Advances".

11. Wikipedia. Who Invented the Chalkboard? Full text of "Alberuni's India. An account of the religion, philosophy, literature, geography, chronology, astronomy, customs, laws and astrology of India about A.D. 103.

12. Sharma R, Verma U, Kapoor B, Chopra.Novel teaching approaches in Pharmacology. JK Sci.VS.2004;6(3):172-3.

13. Asaduzzaman, AKM. Use of Audio Visual Aids my medical teachers in teaching & its effects in learning - Perception of students. Dissertation in CME; 2003.

14. Seth V, Upadhyaya P, Ahmed, M & Kumar. 'An assessment of teachers' preference for lecture delivery methods in medical education'. Educational Research and Review.1997; 5(9):533-537.

15. World Health Organization (WHO). Media development in health professions education: Designing, producing and using OHP transparencies; 1997.

16. Holzi J. Twelve tips for effective PowerPoint presentations for the technologically challenged. Medical Teacher.1997; 19 (3):175-179.

17. World Health Organization (WHO). Media development in health professions education: Designing, producing and using Instructional Text; 1997.

18. Essex-Lopresti M. How to use an Overhead Projector. Medical Teacher.1979; 1(1):9-15.

19. Choudhary R, Dullo P & Gupta U. A prospective study on MBBS students about different visual aids. J Bangladesh Soc Physiol. 2009; (2): 58-63.

20. Laidlaw JM. 'Twelve tips for Designing Instructional Text using Desktop publishing', Medical Teacher.1989; 11(2):139-143.

Original Article

Oral Azithromycin Pulse Therapy and Daily Topical Adapalene in the Treatment of Acne Vulgaris: An Open Randomized Noncomparative Study

Chowdhury MAH[1], Mamun SA[2], Uddin MJ[3], Khan RM[4], Hoque MM[5], Shikder MA[6]

Abstract

The safety and efficacy of oral azithromycin and topical adapalene are well documented. In this study, concomitant use of oral azithromycin pulse therapy and daily topical adapalene in the treatment of acne vulgaris is assessed. A total of 37 patients fulfilled the inclusion criteria were enrolled. Azithromycin, 500 mg orally once daily first 3 days of 10 days' cycle for 9 cycle & topical Adapalene (0.5%) at night. Patients evaluated at 4 weeks' interval by using Michaelsson acne severity index. The overall assessment was made by percent reduction of acne lesions and severity score. At the end of 12 weeks' treatment 99.8% of comedones, 98.7% papular lesion, 94.3% pustular lesion and 88.8% infiltrated lesion were cleared. Only 2.9% cystic lesion responded to the regimens. Percent reduction of Michaelsson acne severity index was 87%, which was statistically highly significant. Overall assessment revealed acne lesion cleared in 22% cases, excellent improvement observed in 65% and 13% showed good response. Adverse effect was minimal. So, azithromycin pulse therapy and topical adapalene is indeed effective and safe in the treatment of acne vulgaris.

Key words: *Acne Vulgaris, Azithromycin, Adapalane & Michaelsson acne severity index.*

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Introduction

Acne vulgaris is the most common skin disease seen by physicians. It is a disease of the adolescent with 90% of all teenagers being affected to some degree. It may begin in the twenties or thirties or may persist in adults for many years. Like other countries a quite number of adolescents and young adults both male and female suffer from acne vulgaris in our country and many suffer from high degree of morbidity and psychological trauma due to post acne scar that develop due to lack of proper and adequate treatment. Conventional therapy for acne vulgaris includes topical agents, which act against Propionibacterium acnes or has direct effect on comedogenesis and anti - inflammatory activities. For the last one decade, topical agents mainly erythromycin, benzoyl peroxide and tretinoin and more recently cliandamycin have assumed main role in the management of acne. Resistance of P.acnesto erythromycin has been reported,[1-2] benzoyl peroxide is a strong oxidizer often irritant and topical tretinoin, which bind to retinoic acid receptors (RARs) and cytosolic retinoic acid binding protein is less stable to light and more irritant with the potential problem of patient noncompliance. Adapalene is a naphthoic acid derivative, which selectively interacts with only the b and g subtypes of nuclear RARs recently introduced in Bangladesh as a 0.1% gel (Fona®). Due to selectivity, it has lesser capacity to cause irritation and is well accepted[3]. Systemic antibiotic most commonly used in acne vulgaris to act against P.acnesare tetracycline, erythromycin and doxycycline. They often required frequent and or long-term administration. Therefore, they failed to gain acceptance, more over they are sometimes associated with side-effects contributing to reduced compliance. Azithromycin is the prototype of a group of antibiotics known as azalides, is structurally related to the macrolide erythromycin by the insertion of methyl -

substituted nitrogen at position 9a in the lactone ring. It is more tissue stable, penetrates deeply into tissue and has higher terminal life than erythromycin. Azithromycin is approved mainly for the treatment of uncomplicated upper respiratory tract and skin infection, gonococcal and genital chlamydial infection but it appears to have a broad spectrum of activity with enhanced activity in vitro against P.acnes. The efficacy and safety of azithromycin therapy in acne vulgaris has been reviewed in many Western journals[4-7]and articles on clinical trials has been published. The effect of azithromycin 3 days oral dose lasts for 10 days, which gave rationale to use as pulse therapy. So, combination of oral azithromycin pulse therapy and daily topical adapalene at night might be a good option for the treatment of acne vulgaris.

This open randomized noncomparative trial was done to evaluate the efficacy and safety of oral azithromycin pulse therapy (500 mg orally once daily during the first 3 days of a 10 days cycle for 9 cycle) and topical adapalene in the treatment of acne vulgaris.

Materials and Methods

The study required 12 months for its successful completion. A total of 30 patients having moderate to severe acne on the face as proposed by a Consensus Conference for the classification of acne[8] were needed. Considering 30% drop out in follow up visit we needed a minimum of 39 cases. A total of 48 patients who met the enrollment criteria were approached to participate in the study among them 39 (81.25%) patients agreed to participate. Two patients (5.1%) lost during follow-up. Age below 15 years and above 60 years of either sex, patients who had received topical anti-acne regimen within 2 weeks and systemic anti-acne drug within 4 weeks before the study and patients refused to give consent were excluded. Pregnant and lactating mothers, women planned for pregnancy, patient having liver and kidney function test beyond normal limit, patient with terminal illness, serious cardiac disease and any other condition which may preclude the patient from completing the study, known hypersensitivity to azithromycin or adapalene, concurrent treatment with drugs that may cause drug interaction, chronic diarrhoea, or any gastrointestinal condition which may affect absorption of trial drug were not included in the study.

All participants were randomly assigned to the treatment regimens Tab. Azithromycin 500 mg. orally once daily for 3 days of each 10 days cycle and topical Adapalene daily at night.

Assessment

Acne lesions graded according to the severity index described by Michaelsson et al[9]. Five point scaled used; 0.5 for comedone, 1 for papule, 2 for pustules, 3 for infiltrated lesions and 4 for cystic lesions. Multiplying each type of lesion with its severity index and adding them together calculate the total severity score of acne.

Patients clinically assessed at 4 weeks interval. At all follow -up visits all parameters examined and graded. Both the total scores and number of each type of acne lesions compared to the baseline scores and number and all p values calculated by Wilkinson's sign ranked test using SPSS windows version10.1.

Overall assessment

The overall evaluation made by the percent reduction of baseline total scores. Five comparative categories generated i.e. cleared, when 100% resolution occurred ; excellent improvement, when 75% or greater reduction observed ; moderate improvement, when 50% -74% reduction in total score occurred ; poor, when <50% reduction observed and worse, if exacerbation of disease occurred.

Results

Socio-Demographic Data

Table-I: Distribution of study patients with acne vulgaris.

Socio-Demographic Data	Total		Mean ± SD
	N	(%)	(Range)
Age Group			
< 15 years	7	(18.9)	10.4 ± 3.1 years
16 – 20 years	24	(64.9)	(3 - 15 years)
21 – 25 years	3	(8.1)	
26 – 30 years	3	(8.1)	
Gender			
Female	28	(75.7)	
Male	9	(24.3)	
Years of Education			
1 – 5 years	3	(8.1)	10.4 ± 3.1 years
6 – 10 years	17	(45.9)	(3 - 15 years)
11 – 15 years	17	(45.9)	
Occupation			
Student	30	(81.1)	
Business	1	(2.7)	
Service	4	(10.8)	
Worker	1	(2.7)	
Dependent	1	(2.7)	

Socio-demographic data of patients with acne vulgaris are presented in Table-1. The youngest patient was of 13 years while the oldest one aged 30 years. The average age was 18.7 ± 4.0 years and most of the patients were belonged to 20 years age groups (83.8%). Among the Study population 28 (75.7%) were female and 9 (24.3%) were male. Nearly half i.e. 45.9 % of the evaluated patients attended college level education, the average years of education was 10.4 ± 3.1 years. More than three quarter of the patients evaluated was Student (81.1%). Most of the patients (45.9%) came from upper middle socioeconomic class followed by 37.8% from lower middle socioeconomic class. None from poor socioeconomic class agreed to participate in the study.

Clinical Data

Age at Onset of Acne Vulgaris

Table-II: Distribution of study patients by age at onset of acne vulgaris

Age Group	Total		Mean ± SD
	N	(%)	(Range)
< 15 years	19	(51.4)	15.8 ± 2.5 years
16 – 20 years	16	(43.2)	(11 - 21 years)
21 – 25 years	2	(5.4)	
Total	37	(100.0)	

Distributions of patients by age at the onset of acne vulgaris are presented in Table-II. The lowest age was of 11 years while the highest age was 21 years. The average age was 15.8 ± 2.5 years when most of the patients experienced acne vulgaris.

Site of Involvement

Table-III: Site of involvement of acne lesion in patients with acne vulgaris

Site of Acne Involvement	Yes		No		Total	
	N	(%)	N	(%)	N	(%)
Cheek	37	(100.0)	0	(0.0)	37	(100.0)
Chin	34	(91.9)	3	(8.1)	37	(100.0)
Forehead	34	(91.9)	3	(8.1)	37	(100.0)
Nose	19	(51.4)	18	(48.6)	37	(100.0)
Back of the neck	2	(5.4)	35	(94.6)	37	(100.0)
Shoulder	5	(13.5)	32	(86.5)	37	(100.0)
Chest	3	(8.1)	34	(91.9)	37	(100.0)
Upper back	9	(24.3)	28	(75.7)	37	(100.0)

Most of the patients had Cheek, chin and forehead involvement. More than half of the patient showed nose involvement and only few patients had upper back, shoulder, chest and back of the neck involvement.

Assessment

Reduction in the number of acne.

Table-IV: Reduction in the number of different type of acne lesion in response to study regimens

Site of Acne Involvement	Number of Lesion Mean ± SD			
	$Week_0$	$Week_4$	$Week_8$	$Week_{12}$
Comedones	41.0 ± 18.0	16.8 ± 9.8	4.6 ± 5.1	0.6 ± 1.5
Papular lesion	30.7 ± 10.9	20.2 ± 9.1	9.8 ± 5.6	1.8 ± 1.6
Pustular lesion	22.1 ± 10.9	7.6 ± 5.0	0.8 ± 1.3	0.2 ± 0.5
Infiltrated lesion	9.2 ± 4.9	7.8 ± 4.0	4.4 ± 3.2	1.3 ± 1.8
Cystic lesion	4.1 ± 5.3	4.1 ± 5.3	3.5 ± 4.8	3.3 ± 4.7

At the end of first four weeks there was significant reduction in the number of comedones (95% CI of the difference= 20.7-27.8, P=0.000) and these reduction remained significant throughout the treatment period (week8: 95% CI of the difference=30.8-42.5, P=0.000 and week12: 95% CI of the difference=34.2-47.3, P=0.000). Similarly Papular acne significantly reduced in number throughout the treatment period (week4: 95% CI of the difference=8.2-12.7, P=0.000, week8: 95% CI of the difference=18.1-24.7, P=0.000 and week12: 95% CI of the difference=25.4-33.1, P=0.000). Treatment regimen also reduced the number of pustular acne in same fashion (week4: 95% CI of the difference=12.4-17.3, P=0.000, week8: 95% CI of the difference=18.3-25.7, P=0.000 and week12: 95% CI of the difference=18.9-26.7, P=0.000). In case of infiltrated lesion the reduction was gradual but significant in all follow-ups (week4: 95% CI of the difference=0.9-1.9, P=0.000, week8: 95% CI of the difference=3.6-5.6, P=0.000 and week12: 95% CI of the difference=6.2-9.3, P=0.000), but cystic lesion showed no improvement through out the treatment period (week4: P=1.000, week8: P=0.325 and week12: P=0.161).

Percent reduction in the number of acne

Percent reduction in the number of acne lesion showed highly significant improvement in case of comedones, papular and pustular lesion throughout the treatment period(Fig I) Infiltrated lesion also showed significant response to the treatment regimen but cystic lesion showed no significant improvement.

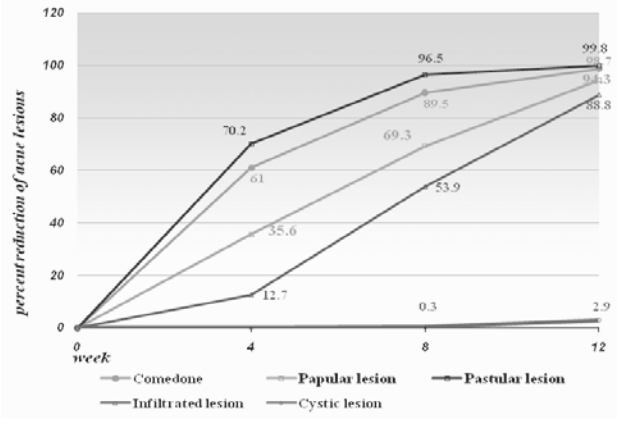
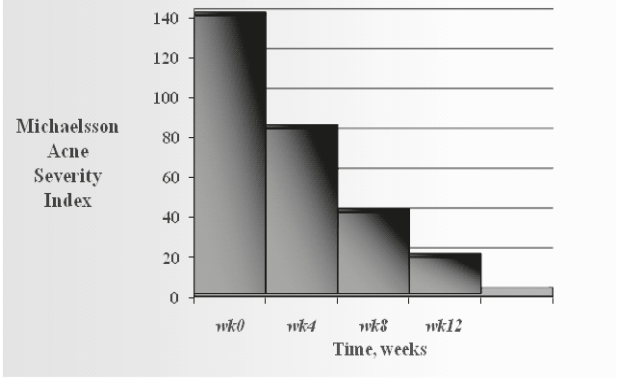


Figure I: Percent reduction in the number of different type acne lesion in response to study regimen.

Michaelsson Acne Severity Index

The study regimens showed significant reduction in the severity score throughout the treatment period.(Fig II)



Time of assessment	Mean difference	95% CI of difference	P value
Week0 vs. Week4	56.5	50.0 - 62.9	0.000
Week0 vs. Week8	97.8	87.1 - 108.2	0.000
Week0 vs. Week4	118.8	107.6 - 130.0	0.000

Figure-II: Changes in the Michaelsson Acne Severity Index during treatment with study regimens.

Michaelsson Acne Severity Index

The study regimens showed highly significant percent reduction of Michaelsson Acne Severity Index throughout the treatment period.(Fig III)

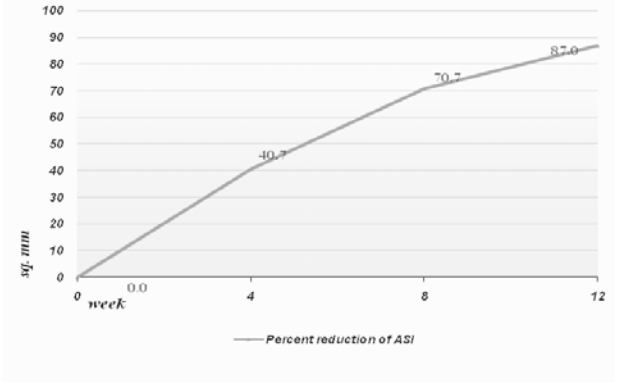


Figure-III: Changes in the Michaelsson Acne Severity Index and its percent reduction during treatment.

Overall Assessment

Presented in Figure-IV. Investigator's evaluation carried on 32 patients who have completed the study with compliance. Among them Acne lesion cleared in 22.0% cases, excellent improvement observed in 65% cases and 13% showed good response.

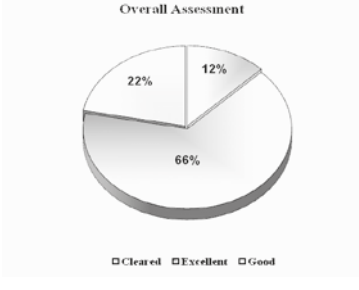


Figure-IV: Overall Evaluation of Acne Vulgaris at the End of 12 Weeks treatment with study regimens. Adverse Effects

Adverse effects of two drug regimens observed during treatment period illustrated in Figure-V. Of 32 patients 8 (25%) complained of heart burn during treatment period, 5 patients (15.6%) reported abdominal cramp, 4 patients (12.5%) reported tinnitus and 2 reported headache. Nine patients (6.7%) complained of mild burning sensation (irritation) on facial skin.

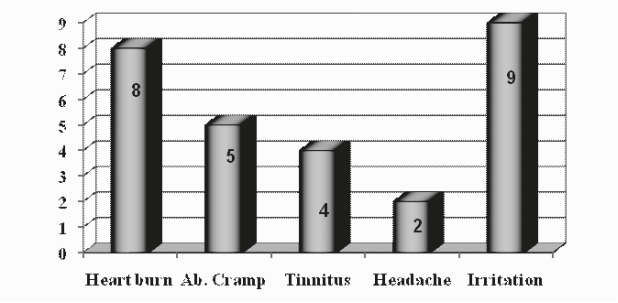


Figure-V: Adverse effects of study regimens observed during treatment period.

Discussion

The number of patient enrolled in the study is not sufficient to describe the epidemiology of Acne vulgaris. However the socio- demographic characteristics observed among the patient is similar to those described in different textbook. Topicalretinoides have been a mainstay of acne therapy for approximately a quarter of century. Their clinical effectiveness in treating comedones and micro-inflammatory acne remains unequalled by other topical retinoides in the treatment of acne has been the typical irritation that accompanies their use. The development of adapalene signifies the onset of a new era in topical retinoid therapy an era of "low irritancy retinoides[3]".

Systemic antibiotic most commonly used are tetracycline, erythromycin and doxycycline. They often required frequent or long- term administration. Therefore they failed to gain acceptance. In many Western journals, the efficacy and safety of azithromycin in treatment of acne have been reviewed and articles on clinical trials published [4,5,6,7].

Adapalene affect keratinization and differentiation of epithelial tissues. It also possesses anti-inflammatory and comedolytic properties. On the other hand, Azithromycin has bactericidal activity against P. acne. So, concomitant use of these two drugs might have synergistic effect in the management of acne vulgaris. As these two drugs have two different route of administration, there is no possibility of drug antagonism. These facts suggest that the use of oral azithromycin and topical adapalene at the same time may improved the cure rate of acne vulgaris.

In our study, the treatment regimens showed highly significant improvement from the first follow- up visit. At the end of 12 weeks treatment 87% improvement observed in term of percent reduction of MichaelssonAcne Severity Index. These findings are more superiortothose observed in different studies by using azithromycin[4,5,7] and topicaladapalene[3,1011,12,13] alone.

Nearly 90% of comedones and popular lesion and more than half of the pustular and infiltrated lesion healed after 8 weeks.

At the end of 12 weeks nearly all of the comedones, papules and pustular lesion were cleared, but only few infiltrated lesion persist. On the other hand, the number of cystic lesion remained almost unchanged.

Therefore, the study regimen failed to show any efficacy against cystic type of acne, which is usually recalcitrant to topical and oral anti-acne drugs. It often requires surgical intervention. So, treatment failure in cystic acne doesn't mean that the regimen is not effective against acne vulgaris.During the period of study patients developed various side-effects as heart burn, abdominal cramp, tinnitus and mild irritation on the facial skin. None of these reaction were severe and most occurred within the first week of initiation of therapy and was observed to resolve with continued use of the drugs adding Ranitidine and anti-spasmodic in some patient.

In conclusion, this study revealed that combination regimen of azithromycin and adapalene is indeed more efficacious and safe in the management of acne vulgaris. Study with larger group of patients for longer period may result in superior out comes and assess the relapse rate in clinical practice through improved compliance.

References

1. Eady EA, Parmery MR,Ross JI,Cove JH. Effect of benzoyl peroxide and erythromycin alone and in combination against antibiotic- sensitive and resistant skin bacteria from acne patients. Br J Dermatol.1994;131:331-6.

2. Eady EA, Cove JH. Erythromycin resistant propionibacteria in antibiotic treated acne patients: Association with therapeutic failure. Br J Dermatol.1989;121:51-7.

3. Baker M, Tuley M, Busdiecker FL, Herndon JH, Jr. Slayton RM. Adapalene gel 0.1% is effective and well tolerated in acne patients in a dermatology practice setting. Cutis.2001;68:41-7.

4. Gurber F, Gribisic-Greblo H, Kastelen M. Azithromycin compared with minocycline in the treatment of acne comedonica and papulo-pustulosa. J Chemother.1998;10:269-73.

5. Adolfo C, Fernandez-Obregon. Azithromycin for the treatment of acne. Int. J Dermatol.2000; 39(1):45.

6. Singhi MK, Ghiya BC, Dhabhai RK. Comparison of oral azithromycin pulse with daily doxycycilne in the treatment of acne vulgaris. Ind. J DermatolVenereol and Leprol.2003;69 (4):274-6.

7. Kapandia N, Talib A. Acne treated successfully with azithromycin. Int. J Dermatol.2004;43 (10):766 .

8. Pochi PE, Shalita AR, Strauss JS, Webster S. Report of the Consensus Conference on Acne Classification. Washinton DC, March 24 and 25,1990. J Am Acad Dermatol.1991;24(3):495-500.

9. Michaelsson G, Juhlin L, Vahlquist A. Effect of oral zinc and vitamin A in acne. Arch Dermatol. 1997;113:31-6.

10. Leyden JL, Shalita AR. Rational therapy for acne vulgaris: An update on topical treatment. J AM AcadDermatol.1986;15:907.

11. Shalita A,Weiss JS, Chalker DK. A comparison of the efficacy and safety of Adapalene gel 0.1% and Tretinoin gel 0.025% in the treatment of acne vulgaris. A multicenter trial. J AM Acad Dermatol.1996;34(3):482-487.

12. Shroot B Adapalen. Presented at Dermatology update: 95 Montreal, Canada; October, 1995.

13. Bernard BA. Adapalene, A new clinical entity with Retinoid activity. Skin Pharmacol.1993;

(Suppl) :61-9.

Original Article

Comparative Study of Topical Oxiconazole Cream (1%) Versus Ketoconazole Cream (2%) in the Treatment of Inguinocrural Dermatophytoses

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Abstract

A clinical trial was carried out for the duration of six months from September' 2012 to February' 2013 in the Department of Dermatology and Venereology, Shaheed Monsur Ali Medical College, Uttara Dhaka and patients attending private clinical chamber. To evaluate the effectiveness of oxiconazole cream in comparison to the ketoconazole cream for the treatment of inguinocrural dermatophytoses.A total number of 60 patients with inguinocrural dermatophytoses were included in the study of which 30 patients were treated with oxiconazole (Group A) and the rest 30 patients were treated with ketoconazole (Group B)once daily for 21 days and weekly the outcome of lesions were clinically evaluated and recorded.In group A, male and female were 17 (56.7%) cases and 13 (43.3%) cases respectively. In group B, male and female were 16 (53.3%) cases and 14 (46.7%) cases respectively.The mean age with SD in group A and group B were 28.93 ± 8.29 years and 31.36 ± 8.36 years respectively. The mean scoring with SD in group A and group B were 6.26 ± 2.22 minutes and 6.53 ± 1.81 minutes respectively at the time of observation and 4.23 ± 1.50 minutes and 5.13 ± 1.45 minutes respectively after 1 week and 2.00 ± 1.22 minutes and 3.25 ± 1.07 minutes respectively after 2 weeks. The difference between the mean score of the two group is significant (p=0.006). The mean scoring with SD in group A and group B were 0.00 ± 0.00 minutes and 1.75 ± 0.95 respectively after 3 weeks.Sotopical treatment oxiconazole has revealed itself to be as efficient as ketoconazole and it seems more effective and better tolerated than ketoconazole.

***Key words** : Inguinocrural dermatophytoses, Oxiconazole, Ketoconazole.*

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Introduction

Dermatomycoses is the most common mycotic infections caused by dermatophyte infecting humans across the world, with widely varying frequency and epidemiology.[1] Although not life threatening, they may produce significant symptoms which interfere with the quality of life.[2] They are particularly widespread in tropical countries because of warm and humid climate, crowded living conditions, and other socio-economic factors.[3] There has been a steady rise in the incidence of cutaneous fungal infections and an increasing rate of treatment failure or relapse among mycotic patients undergoing treatment.[2] Many factors are responsible for this development. Certain conditions and habits closely related to the modern way of life together with some endogenous predisposing influences play a major role in raising the incidence rate.[4] Nonetheless, treatment methods are similar across the world, and modern antifungal medications can provide effective treatment for most presentations of dermatophytosis.A wide variety of topical agents is available, in cream, gel, lotion, and shampoo formulations for dermatophyte infection.[1] Most agents remain within the two main antifungal drug families like the azoles and the allylamines; another class, the echinocandins, is used only for systemic Candida or Aspergillus infection.[5] A majority of the agents are of the 'azole' antifungal family like clotrimazole, miconazole, econazole, oxiconazole,

tioconazole. Terbinafine and naftifine represent the 'allylamine' family of agents. Innovation in dermatophyte treatment has involved marketing of wide-spectrum topical agents, use of topical agents with anti-inflammatory as well as antifungal actions, and use of a combination of existing oral antifungal agents, or oral/topical anti-fungal agents, in attempts to improve on monotherapy cure rates[6]. Both families of drugs are known for their high efficacy against the dermatophytes. In addition, amorolfine and butenafine are popular antifungals classed as morpholine derivatives. Cure rates of tinea corporis, tinea cruris and tinea pedis are high, with infections resolving with 2-4 weeks of topical therapy. Safety of therapy is less of a concern for topical medications than oral medications, as serum absorption tends to be minimal with topical dermatophytosistherapy[1]. In India, superficial infections of the skin, nails and hair account for 8-10% of all skin outpatient attendance[7]. Tinea cruris and corporis are the commonest varieties seen in India, followed by tinea pedis, capitis, barbae, unguium and manum in adescending order of frequency[2]. Several antimycotic agents, including the imidazoles and triazoles, have been used for topical treatment of dermatomycoses. Oxiconazole nitrate is an imidazole antifungal agent intended for topical treatment of superficial fungal infections. Results of in-vitro and in -vivo studies have indicated that oxiconazole nitrate has a broad spectrum of activity against infections caused by dermatophytes, yeast like fungi, moulds and mixed infections due to fungi and Gram-positive bacteria[8,7]. The aim of the present study, therefore, will attempt to evaluate the efficacy and safety of oxiconazole cream over Ketoconazole cream in the treatment of inguinocrural dermatophytoses.

Materials and Methods

This clinical trial was conducted in the Department of Dermatology and Venereology, Shaheed Monsur Ali Medical College, Uttara, Dhaka and patients attending private clinical chamber. Study was conducted between the periods of September' 2012 to February 2013 for duration of 6 months. Patients of inguinocrural dermatophytoses with no identifiable cause who attended in the outpatient department of Dermatology & Venereology at Shaheed Monsur Ali Medical College, Uttara Dhaka and private clinical chamber were undertaken as study population.

A total number of 60 patients with inguinocrural dermatophytoses were recruited of which 30 patients were treated with oxiconazole and the rest 30 patients with inguinocrural dermatophytoses were treated with ketoconazole. The preliminary screening for each patient was done by taking complete history and physical examination. The skin scraping for dermatophytes was examined by wet mount microscopy with 10% KOH to confirm the diagnosis. All patients presented with inguinocrural dermatophytoses who gave the consent and wanted to comply with the study, were included in the study. Pregnant women, severely ill patients and Patients excluded from the study. All inguinocrural dermatophytoses patients were recruited as per inclusion criteria which were divided into two groups. Group A were treated with oxiconazole and Group B were treated with ketoconazole once daily for 21 days and weekly the out come of lesions were clinically evaluated and recorded.

All the relevant collected data were compiled on a master chart first and then statistical analysis of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-17) (SPSS Inc, Chicago, IL, USA). The data was analyzed using Chi square test and paired 't' test. The results have been presented in tables, figures, diagrams. Significant value of 'p' was decided to be at a level of 0.05 in two tailed tests.

Results

Table I shows the distribution of patients according to sex. In group A male was predominant than female which was 17 (56.7%) cases and 13 (43.3%) cases respectively. In group B male was predominant than female which was 16 (53.3%) cases and 14 (46.7%) cases respectively. The difference between these two group was not statistically significant (p=0.795)

Table-I: Distribution of patients according to sex

Sex	Group		p value
	Group A (Oxiconazole)	Group B (Ketoconazole)	
Male	17 (56.7)	16 (53.3)	0.795
Female	13 (43.3)	14 (46.7)	
Total	**30 (100.0)**	**30 (100.0)**	

Chi-square test was done to measure the level of significance

Figure within parentheses indicates in percentage

Table II shows the distribution of patients according to age group. In group A majority of the patients were in the age group of 21 - 30 years which was 13 (43.3%) cases followed by >30 years and <21 years which were 11 (36.7%) cases and 6 (20.0%) cases respectively. In group B majority of the patients are in the age group of >30 years which was 15 (50.0%) cases followed by 21 - 30 years and <20 years which were 12 (40.0%) cases and 3 (10.0%) cases respectively. The mean age with SD in group A and group B were 28.93 ± 8.29 years and 31.36 ± 8.36 years respectively. The difference between the age of the two group was not significant (p=0.262).

Table-II: Distribution of patients according to age group

Age	Group		p value
	Group A (Oxiconazole)	GroupB (Ketoconazole)	
<21	06(20.0)	03(10.0)	
21 - 30	13(43.3)	12(40.0)	
>30	11(36.7)	15(50.0)	
Total	**30(100.0)**	**30(100.0)**	
Mean ± SD	28.93 ± 8.29	31.36± 8.36	0.262

T test was done to measure the level of significance

Figure within parentheses indicates in percentage.

Table-III shows the distribution of patients according to occupation. In group A and group B service was the most common occupation which were 13 (43.3%) cases and 10 (33.3%) cases respectively. In group A, other occupations were housewife, student, business, loabourer which were in 4 (13.3%) cases, 4 (13.3%) cases, 2 (6.7%) cases, 2 (6.7%) cases and 5 (16.7%) cases respectively. In group B, other occupations were housewife, student, business, loabourer which are in 7 (23.3%) cases, 6 (20.0%) cases, 3 (10.0%) cases, 2 (6.7%) cases and 2 (6.7%) cases respectively.

Table-III: Distribution of patients according to occupation

Occupation	Group		p value
	Group A (Oxiconazole)	Group B (Ketoconazole)	
Service	13(43.3)#	10(33.3)	0.685'
Housewife	04(13.3)	07(23.3)	
Student	04(13.3)	06(20.0)	
Business	02(06.7)	03(10.0)	
Labourer	02(06.7)	02(06.7)	
Others	05(16.7)	02(06.7)	
Total	**30(100.0)**	**30(100.0)**	

*Chi-square test was done to measure the level of significance

#Figure within parentheses indicates in percentage

Table-IV shows the distribution of patients according to clinical findings of integumentary system, In group A, Erythema was present in 29 (96.7%) cases, Scaling was present in 28 (93.3%) cases, Central clearing was present in 22 (73.3%) cases, Papule was present in 22 (73.3%) cases, Vesicles was present in 14 (46.7%) cases, Maceration was present in 5 (16.7%) cases, Pruritus was present in 30 (100.0%) cases. In group B, Erythema was present in 30 (100.0%) cases, Scaling was present in 30 (100.0%) cases, Central clearing was present in 29 (96.7%) cases, Papule was present in 25 (83.3%) cases, Vesicles was present in 17 (56.7%) cases, Maceration was present in 5 (16.7%) cases, Pruritus was present in 28 (93.3%) cases.

Table- IV: Distribution of patients according to clinical findings of integumentary system

Clinical findings of integumentary system	Group		p value
	Group A (Oxiconazole)	Group B (Ketoconazole)	
Erythema	29(96.7) #	30(100.0)	0.313
Scaling	28(93.3)	30(100.0)	0.150
Central clearing	22(73.3)	29(96.7)	0 011
Papule	22(73.3)	25(83.3)	0.347
Vesicles	14(46.7)	17(56.7)	0.438
Maceration	05(16.7)	05(16.7)	1.000
Pruritus	30(100.0)	28(93.3)	0.150

*Chi-square test was done to measure the level of significance

#Figure within parentheses indicates in percentage

Table-V shows the distribution of patients according to side effect. In group A, burning was absent in all cases but in group B, burning was present in 7 (23.3%) cases and burning was absent in the rest 23 (76.7%) cases. The difference between these two group was statistically significant (p=0.011).

Table-V: Distribution of patients according to side effect

Burning	Group		p value
	Group A (Oxiconazole)	Group B (Ketoconazole)	
Yes	0(0.0)#	07(23.3)	0.011
No	30(100.0)	23(76.7)	
Total	**30(100.0)**	**30(100.0)**	

*Fisher's exact test was done to measure the level of significance

#Figure within parentheses indicates in percentage.

Table-VI shows the distribution of patients according to scoring. The mean scoring with SD in group A and group B were 6.26 ± 2.22 minutes and 6.53 ± 1.81 respectively at the time of observation. The difference between the mean score of the two group is not significant (p=0.613). The mean scoring with SD in group A and group B were 4.23 ± 1.50 minutes and 5.13 ± 1.45 respectively after 1 week. The difference between the mean score of the two group is significant (p=0.022). The mean scoring with SD in group A and group B were 2.00 ± 1.22 minutes and 3.25 ± 1.07 respectively after 2 weeks. The difference between the mean score of the two group is significant (p=0.006). The mean scoring with SD in group A and group B were 0.00 ± 0.00 minutes and 1.75 ± 0.95 respectively after 3 weeks. The difference between the mean score of the two group is significant (p=0.011).

Table- VI: Distribution of patients according to scoring of follow up & observation

Follow up & observation	Group		p value
	Group A (Oxiconazole)	Group B (Ketoconazole)	
Base line	6 26 ± 2.22	6.53 ± 1.81	0.613
After 1 week	4.23 ± 1.50	5.13 ± 1.45	0.022
After 2 week	2.00 ± 1.22	3.25 ± 1.07	0.006
After 2 week	0.00 ± 0.00	1.75 ± 0.95	0.011

*t- test was done to measure the level of significanc

Figure-I: Graph shows the distribution of patients according to scoring of follow up and observation

Discussion

Dermatomycoses, the most common of mycotic infections, occur worldwide. Although not life threatening, they may produce significant symptoms which interfere with the quality of life. They are particularly widespread in tropical countries because of warm and humid climate, crowded living conditions, and other socio-economic factors[2]. The management of dermatophytosis begins with topical agents. These agents should penetrate the skin and remain there in order to suppress the fungus. In the last 50 years numerous drugs have been introduced for the treatment of superficial infections. The choice of treatment is determined by the site and extent of the infection, the species involved as well as by the efficacy and safety profile, and kinetics of the drugs available. For localised non-extensive lesions caused by dermatophytes topical therapies with an imidazole, allylamines, tolnaftate, morpholine derivates, etc is generally used[14]. There has been a steady rise in the incidence of cutaneous fungal infections and an increasing rate of treatment failure or relapse among mycotic patients undergoing treatment. Many factors are responsible for this development. Certain conditions and habits closely related to our modern way of life together with some endogenous predisposing influences play a major role in raising the incidence rate. The clinical efficacy and safety of once daily topical administration of 1% oxiconazole cream and lotion was assessed in an open label, non comparative trial in tinea cruris, tinea corporis and tinea pedis patients[2]. Oxiconazole is an imidazole antifungal agent with a broad spectrum including yeasts and dermatophytes in vitro[2].

The present study was conducted in the Department of Dermatology and Venereology, Shaheed Monsur Ali Medical College, Uttara Dhaka and patients attending private clinical chamber between the periods of September' 2012 and February 2013 for duration of 6 months. The study was conducted to find out the effectiveness of Oxiconazole cream to compare with Ketoconazole cream for the treatment of inguinocrural dermatophytoses. A total number of 60 patients with inguinocrural dermatophytoses were recruited of which 30 patients were treated with oxiconazole (group A) and the rest 30 patients were treated with ketoconazole(group B) .

In the present study in group A, male and female were 17 (56.7%) cases and 13 (43.3%) cases respectively. In group B, male and female were 16 (53.3%) cases and 14 (46.7%) cases respectively. The difference between these two group was not statistically significant (p=0.795) (Table I). Abanmi et al[15]. (2008) in their study reported that the prevalence of SFI was twofold greater in females than males and clearly shows that SFIs are of concern in both genders and in all age groups. Adefemi et al[16]. (2010) in their study found male to female ratio of clinical lesions was 1: 1.5. Abia-Bassey and Utsalo[17] (2006) in their study reported that the prevalence was significantly higher in women (14.7%) than in men (1.4%) (P < 0.05). Zaini et al[18]. (2009) studied 549 patients where 359 were females and 190 males. In group A majority of the patients were in the age group of 21 to 30 years which was 13 (43.3%) cases followed by >30 years and <21 years which were 11 (36.7%) cases and 6 (20.0%) cases respectively. In group B majority of the patients are in the age group of >30 years which was 15 (50.0%) cases followed by 21 to 30 years and <20 years which were 12 (40.0%) cases and 3 (10.0%) cases respectively. The mean age with SD in group A and group B were 28.93 ± 8.29 years and 31.36 ± 8.36 years respectively. The difference between the age of the two group was not significant (p=0.262) (Table II). Abia-Bassey and Utsalo[17] (2006) in their study the age group 2130 years recorded the highest prevalence of yeast infection (65.2%) followed by age group 11-20 years (16.9%) and > 40 years (9.0%). Zaini et al[18]. (2009) studied 549 patients with age ranging in from 1 to 83 yr with a mean age 39.32±15.6. in their study the commonest affected age group was 31-50 year followed by 21-30year and 51-60 year respectively.

In group A and group B service was the most common occupation which were 13 (43.3%) cases and 10 (33.3%) cases respectively. In group A, other occupations were housewife, student, business, loabourer which were in 4 (13.3%) cases, 4 (13.3%) cases, 2 (6.7%) cases, 2 (6.7%) cases and 5 (16.7%) cases respectively. In group B, other occupations were housewife, student, business, loabourer which are in 7 (23.3%) cases, 6 (20.0%) cases, 3 (10.0%) cases, 2 (6.7%) cases and 2 (6.7%) cases respectively (Table V). In earlier clinical trials by Konzelmann and Graber,[19] (1982) and Parisar and Pariser[20] (1994) oxiconazole cream and lotion have proven to be well tolerated and highly effective against dermatomycoses caused by dermatophytes and or yeasts. Jerajani et al[2]. (2000) in their study reported that oxiconazole cream and lotion have shown statistically significant decline in the symptom scores of erythema, pruritus, scaling and burning in patients treated for T.cruris,T. corporis and T pedis. Tolerance to oxiconazole cream and lotion was found to be good in all the treated patients. No side effects were reported during the conduct of the trial. On the basis

of the results presented, it can be concluded that once daily topical administration of oxiconazole cream and lotion are highly effective in the treatment of dermatomycoses. This formulation was well tolerated by patients for fungal infections. Kalis et al[11]. (1996) in their study concluded that after 3 weeks of topical treatment oxiconazole has revealed itself to be as efficient as ketoconazole, but it seems more rapidly efficient and better tolerated than ketoconazole.

In conclusion, In the present study it has been found that the difference between the mean score of the two groups is significant (p=0.006). Topical treatment oxiconazole has revealed itself to be as efficient as ketoconazole and it seems more effective and better tolerated than ketoconazole.

References

1. Gupta AK, Cooper EA. Update in Antifungal Therapy of Dermatophytosis. Mycopathologia. 2008;166:353-367.

2. Jerajani HR, Amladi ST, Bongale R, Adepu V, Te. Evaluation of Clinical Efficacy and Safety of Once Daily Topical Administration of 1% Oxiconazole Cream and Lotion in Dermatophytosis : an Open Label, Non Comparative Multicentre Study. Indian J DermatolVenereolLeprol. 2000;66:188-192.

3. Rippon JW. In: Medical Mycology. The pathogenic fungi and actinomycetes. 2nd ed. Philadelphia: WB Saunders Co; 1982: 110 - 135.

4. Gip L. Comparison of oxiconazole (Ro 13-8996) and econazole in dermatomycoses. Mykosen. 1984; 27: 295-302.

5. Loo DS. Systemic antifungal agents: an update of established and new therapies. AdvDermatol. 2006;22:101-24.

6. Lecha M, Effendy I, Feuilhade de Chauvin M, Di Chiacchio N, Baran R. Treatment options-development of consensus guidelines. J EurAcadDermatolVenereol. 2005;19(Suppl 1):25-33.

7. Canizares 0. Dermatology in India. Arch Dermatol. 1976;112:93-97.

8. Polak A. Oxiconazole, a new imidazole derivative. Evaluation of antifungal activity in vitro and in vivo. Arzneimittelforschung. 1982;32(1):17-24.

9. Rotta I, Otuki MF, Sanches ACC, Correr CJ. Efficacy of topical antifungal drugs in different dermatomycoses: a systematic review with meta-analysis. Rev. Assoc. Med.Bras. 2012aMay/June;58 (3).

10. Gugnani HC, Ideyi C, Gugnani MK. Oxiconazole in the treatment of tropical dermatomycoses. Current Therapeutic Research. 1993; 54(1):122-125.

11. Kalis B, Grosshans E, BinetO, Garrel JB, Grossetete G, Jeanpierre G, et al. Oxiconazole cream versus ketoconazole cream. A prospective, randomized, double-blind, multicenter study in the treatment of inguinocrural dermatophytoses. Annales de Dermatologie et de Venereologie. 1996;123(8):447-452.

12. Porto JA. Comparative study between oxiconazole and miconazole in the treatment of dermatophytoses. FolhaMedica. 1988;241-245.

13. Lakshmipathy DT,Kannabiran K. Review on dermatomycosis: pathogenesis and Treatment. Natural Science. 2010;2(7):726-731.

14. Weinstein A, Berman B. Topical Treatment of Common Superficial Tinea Infections. Am Earn Physician. 2002;65:2095-102.

15. Abanmi A, Bakheshwain S, El Khizzi N, Zouman AR, Hantirah S, Al Harthi F, et al. Characteristics of superficial fungal infections in the Riyadh region of Saudi Arabia. Int J Dermatol. 2008 Mar;47(3):229-35.

16. Adefemi SA, Abayomi MA, Abu JM. Superficial fungal infections seen at a tertiary health centre: clinical and mycological studies. West Afr J Med. 2010 Jul-Aug;29(4):267-70.

17. Abia-Bassey LN, Utsalo SJ. Yeast associated with human infections in southeastern Nigeria. Mycoses. 2006 Nov;49(6):510-5.

18. Zaini F, Mahmoudi M, Mehbod ASA, Kordbacheh P, Safara M. Fungal Nail Infections in Tehran, Iran. Iranian J Publ Health. 2009;38(3):46-53.

19. Konzelmann M, Graber W. Untersuchungubeewirkung and vertraglichkeitvon oxiconazole - creame an 100 mykosepatienten. Acta Therap. 1982;8:361365.

20. Parisar DM, Pariser RJ. Oxiconazole nitrate lotion, 1%: effective treatment for tinea pedis. Cutis. 1994;54:43-44.

Original Article

Incidence of Complications of Thyroid Surgery

Haque GHMS[1], Farid N[2], Islam SS[3]

Abstract

During the period of July 2009 to June 2012 the study was conducted on 200 cases of thyroid swelling in the Department of ENT and Head- Neck surgery, Rangpur Medical College Hospital, Rangpur. The age range of the study population was from 10 years to 75 years. Female to male ratio was 3.14:1. Diagnosis of all cases was established preoperatively by clinical examination, thyroid function tests, fine needle aspiration cytology (FNAC) and ultrasonogram (USG). Most of the patients were suffering from multinodular goiter. Maximum operations were done in the form of subtotal thyroidectomy followed by hemithyroidectomy. 16.5% patients were developed complications. Postoperative haemorrhage and recurrent laryngeal nerve paralysis (5% each) were the most common complications. Among recurrent laryngeal nerve paralysis (4%) were unilateral and 1% was bilateral paralysis. In the study 1.5% deaths were reported due to massive haemorrhage and respiratory obstruction. Considering the above findings, it is mentionable that complications of thyroid surgery can be minimized by sound knowledge of normal and pathologic anatomy and an unhurried, gentle operation technique.

Key words: *Thyroidectomy, Postoperative complications.*

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Introduction

The thyroid gland is located immediately below the larynx on each side of anterior to the trachea which is highly vascular and largest endocrine gland in the body. It secretes hormones which are responsible for both physical and mental growth[1]. The normal gland is impalpable. The term goiter (Latin, gutter = the throat) is used to describe generalized enlargement of thyroid gland[2]. Thyroid swelling is common clinical problem throughout the world[3]. These are also common clinical problem in Bangladesh. In our country the national prevalence is 10-15%, which indicates that the whole country is endemic. The endemically varies from one place to other[4]. Thyroid swelling is prevalent predominantly in females particularly in adult life. The average incidence of endemic in our country including all age and sex groups is 10.5%. The percentage in male and female are 7.21% and 12.37% respectively[5].

Enlargement of the thyroid gland may be due to different conditions. The majority of patients with thyroid enlargement have benign thyroid diseases. Neoplastic, inflammatory and endocrine abnormalities of the thyroid gland are common, affecting approximately 11% of the general population[6]. As such, surgery of the thyroid gland abnormalities is quite common[7]. Once a decision for thyroid surgery has been made, the extent and type of the operation depends on a number of factors including; patients age, size of the nodule, the suspected preoperative diagnosis including the result of the fine needle aspiration cytology, presence or absence of involved lymph nodes in the neck[8].

Potential complications of thyroid surgery includes haemorrhage, recurrent laryngeal nerve injury, damage to the parathyroid glands etc. Thyroidectomy is one of the commonest operations for the otolaryngologist and head-neck surgeons. Several surgical procedures have been used in the treatment of thyroid disease such as i) Lobectomy or hemithyroidectomy. ii) Subtotal thyroidectomy. iii) Near total thyroidectomy. iv) Total thyroidectomy. v) Total thyroidectomy with neck dissection[9].The complications which is most feared is trauma to the recurrent laryngeal nerve, estimated to occur between 1 and 10% of operations[10,11]. Hypocalcaemia is uncommon after subtotal thyroidectomy but is common in the total thyroidectomy. Hypothyroidism developing gradually over a period of months or year after operations

is a common though acceptable complication of subtotal and total thyroidectomy and is readily treated with thyroxin[12]. As in Bangladesh prevalence of thyroid disease is high and the scope of thyroid surgery is increasing day by day, the study was conducted with the aim to find out the rate of complications of thyroid surgery and to see the different modalities of thyroid surgery performed for thyroid swelling.

Materials and Methods

The study was conducted at Rangpur Medical College Hospital, Rangpur during the period of July 2009 to June 2012. The diagnosis of thyroid swelling was based on detailed history, thorough clinical examination and relevant investigations such as thyroid function tests (serum T_3, T_4, TSH level), Ultrasonogram, Isotope scanning and fine needle aspiration cytology (FNAC). All the data were compiled and tabulated in order o obtained a statistical and comprehensive results of the study.

Results

Age of the patients ranged from 10 years to 75 years. Most of the patients were 3rd and 4th decades.Out of 200 patients, 76% were female and 24% were male. Female to male ratio was 3.14:1. Most of the patients (54%) were from middle socio-economic status. (Table-I)

Table-I: Age, sex and socio-economic condition of the patients (n=200)

Parameter	Distribution	Number of patients	Percentage
Age	10- 20 years.	34	17%
	21- 30 years.	56	28%
	31- 40 years.	49	24.5%
	41- 50 years.	37	18.5%
	>50 years.	24	12%
Sex	Female	152	76%
	Male	48	24%
Socio economic status	Very poor	30	15%
	Poor	42	21%
	Middle class	108	54%
	Rich	20	10%

All the patients presented with visible or palpable swelling in front of the neck. Total 34 (17%) patients were presented with other associated symptoms.(Table-II)

Table-II: Presenting symptoms (n=200)

Symptoms	Number of patients	Percentage
Thyriod swelling	200	100%
Cervical lymph adenopathy	06	03%
Hoarseness of voice	06	03%
Pain in swelling	10	05%
Weight loss	12	06%

Clinically most of the patients, 48.5% were multinodular goitre followed by simple nodule 28%.(Table-III)

Table-III: Clinical diagnosis (n=200)

Diagnosis	Number of patients	Percentage
Simple nodule	54	28%
Toxic nodule	08	04%
Colloid goitre	21	10.5%
Multinodular goitre	97	48.5%
Thyroiditis	05	2.5%
Carcinoma of thyroid	15	7.5%

High resolution ultrasonography is anunique tool for diagnosing physical characteristics of thyroid gland. In this study most of the findings showed solid mass in the thyroid gland (44.5%).Cytological diagnosis is highly accurate, minimally invasive pre-operative diagnostic tool. In our study it was not conclusive in 10% cases. Other diagnosis was conclusive.(Table-IV)

Table-IV: Ultrasound and FNAC findings (n=200)

Type of investigations	Findings	Number of patients	Percentage
Ultrasound	Solid	89	44.5%
	Cystic	21	10.5%
	Mixed	90	45%
FNAC	Negative for malignancy	145	72.5%
	Suspicion of malignancy	20	10%
	Positive for malignancy	15	7.5%
	Unsatisfactory	20	10%

In this series subtotal thyroidectomy carried out in 40% patients and occupied the top of the list followed by hemithyroidectomy 28%.(Table-V)

Table- V: Types of operation performed (n=200)

Name of operation	Number of patients	percentage
Lobectomy	24	12%
Hemithyroidecomy	56	28%
Subtotal thyroidecomy	80	40%
Near total thyroidecomy	18	09%
Total thyroidecomy	18	09%
Total thyroidecomy with neck dissection	04	02%

In this study highest number of complications were hemorrhage and recurrent laryngeal nerve paralysis 5% each followed by wound infection 3%.(Table-VI)

Table-VI: Post operative complications (n=200)

Name of complications	Number of patient	Percentage
Haemorrhage/Haematoma	10	05%
Recurrent laryngeal nerve paralysis	Unilateral=8	04%
	Bilateral =2	01%
Hypoparathyroidism	04	02%
Wound infection	06	03%
Death	03	1.5%

Discussion

About 7% of the world population has goitre[7]. In our country, national prevalence of goitre is 17%, which indicates that the whole country is endemic, nodular goitre is more prevalent than defuse goitre. In a report from thyroid clinic, BSMMU, Dhaka, 32.67% of all thyroid patients has solitary nodules. Carcinoma thyroid usually present as solitary cold nodule or as multinodular goitre. Age ranged in this study from 10 to 75 years. The highest number of cases (28%) belongs to the age group of 21 to 30 years followed by 24.5% in the age group of 31 to 40 years (Table-I). Lalidaet al. in his study of 361 patients found that age ranged from 25- 82 years[13] and Siddique found maximum incidence in 4th and 5th decades in our country[14]. In this series, 152 patients (76%) were female and 48 patients (24%) were male with female to male ratio 3.14:1 (Table-I). There was a female preponderance in this series but it was lower than the studies of Lalida and Siddique[13,14].Though there is no close relation between patients with thyroid diseases and socio-economic status, the average socio-economic group having higher incidence 54% followed by poor group 21% (Table-I). The cause is not exactly known, itmight be related to illiteracy, superstition and fear of surgery. Regarding presenting symptoms, all the patients presented with thyroid swelling in variable durations. Here 12 patients (6%) presented with gradual weight loss and 10 patients(5%) presented with pain (Table-II). Multinodular goitre or simplenodulargoitre with large swelling may be associated with difficulty in respiration or difficulty in deglutition which is mostly due to pressure on trachea or oesophagus[15].

Regarding clinical diagnosis, most of the patients 48.5% suffered from multinodular goiter followed by simple nodular goitre 28%, colloid goitre 10.5%, carcinoma of thyroid 7.5%, toxic nodule 4% and thyroiditis 2.5% (Table-III). This result is close to the observation of Ashraf and Matin (1984)[16].

Investigations are essential to establish pre-operative physical, functional status and cytopathological nature of the thyroid swelling[17]. All patients had done thyroid hormone profile and most of them showed values within normal limit. Ultrasonography was used to establish physical characteristics and to exclude clinically undetectable nodule of a dominant nodular goitre[18]. Ultrasonography showed 44.5% solid, 10.5% cystic and 45% mixed echo textured goitre, (Table-IV) which was similar to operative findings. Fine needle aspiration cytology (FNAC) is very important, highly specific, most sensitive, minimally invasive preoperative diagnostic tool [12,19]. In our study 90% were conclusive and 10% were not conclusive (Table-IV). Most of the operations were done in the form of sub-total thyroidectomy 40% followed by hemithyroidectomy 28% and lobectomy 12% (Table-V). Total thyroidectomy and near total thyroidectomy were done in 9% cases. Total thyroidectomy with modified radical neck dissection done in 2% cases of papillary carcinoma with neck node metastasis.

Out of 200 cases, 16.5% patients developed post-operative complications (Table-VI). This findings nearly consistent with the study R. Moulton et al[20]. (14.2%) but not with the study Asaduzzaman[21](12.5%). Among the post-operative complications 5% developed post-operative haemorrhage/ haematoma, due to oozing from remaining thyroid tissue and wound surface which were managed by cauterization and ligation after exploration of the wound. In our series, 10 patients (5%) developed recurrent laryngeal nerve paralysis of which 8 were unilateral paralysis and 2 were bilateral (Table-VI). Among 8 patients of unilateral paralysis 6 patients showed gradual improvement of voice in subsequent follow-up and after 3 months, voice were almost normal by compensation of the opposite vocal cord. Other 2 patients do not show significant improvement even after an average period of 3 months follow up. Among 2 patients of bilateral recurrent laryngeal nerve paralysis, one patient was managed by emergency tracheostomy with subsequent follow up and another patient was managed by medical treatment. Transient paralysis may result from pressure on the nerve by edema in which cases recovery can be anticipated. Iqbal et al. found only one recurrent laryngeal nerve damage out of 111 cases of thyroidectomy (0.9%)[22]. Another Bangladeshi study by Rahman revealed a 4% incidence of recurrent laryngeal nerve injury[23]. Lalidaet al. found the incidence of recurrent laryngeal nerve paralysis among 361 patients was 6.09%.The incidence of hypoparathyroidism is as high as 20 percent when total thyroidectomy and neck dissection is performed and as low as 0.9% for subtotal thyroidectomy[24]. But in this series only 4 patients (2%) developed transient parathyroid insufficiency (Table-VI) on 3rd postoperative day, which was improved later on. Out of 200 patients, 3% patients developed wound infection which were managed by exploration and removal of unabsorbed catgut followed by secondary stitch. There were 2 deaths in our series, due to massive hemorrhage on the postoperative period and respiratory obstruction.

In conclusion, a considerable number of various complications were observed during the procedure of thyroid surgery.The mentionable postoperative complications like haemorrhage, recurrent laryngeal nerve damage, hypoparathyroidism and also mortality depends on the extent of surgery. But these crucial postoperative

complications could be minimized if surgery of thyroid gland performed safely in the majority of patients. A thorough knowledge of various thyroid surgery and potential surgical complications are mandatory for the thyroid surgeon. Successful surgical management of thyroid disease is also based on a sound knowledge of normal and pathologic anatomy and an unhurried, gentle operative technique. Long-term follow up is essential to assess the recurrence and development of hypothyroidism.

References

1. Guyton AC, Hall JE. Textbook of medical physiology. 11thed. Philadelphia: W.B. Saunders company; 2006.

2. Rains AJH, Charles VM. Bailey and Love's short practice of surgery. 23rded. London: ELBS; 2000.

3. Way LW.Current Surgical Diagnosis and Treatment. 11thed. London: 2003.

4. Mahmood S, Hossain GA, Rahman MU. Awareness of general population regarding goiter.Mym, Med, Journal. 1995;4 (2):86-91.

5. RahamanMd, Taibur. Study of incidence of malignancy in cold solid nodule of thyroid in 40 cases. Dissertation BCPS. 1990: 909-910.

6. Conaris GJ, Manowitz NR, Mayor G.The Colorado thyroid disease prevalence studying. Arch Intern Med. 2000;160:526-534.

7. Harness JK, Organ CHJ, Thompson NW. Operative experience of US general surgery residents in thyroid and parathyroid disease surgery. 1995;118:1017-1063.

8. Clain A. The thyroid gland, Hamilton bailey's Demonstration of physical sign in clinical surgery. 17thed. 1986; 155-164.

9. Watkinson J, C Gaze M, N and Janet A, Wilson. Tumors of the thyroid and parathyroid glands, Stell and Maran's Head and Neck surgery. 4thed. 2000; 459-485.

10. Wade JSH, The morbidity of subtotal thyroidectomy. British journal of surgery. 1960;48:25-42.

11. RiddelV.Thyroidectomy: Prevention of bilateral recurrent nerve paralysis. British journal of surgery. 1970;57:1-11.

12. Hedley AJ, Michie W, Duncan T, Herms G, Crooks J.The effect on remnant size in the outcome of subtotal thyroidectomy for thyrotoxicosis. British journal of surgery. 1972;59: 559-563.

13. Kasemsewan L, Nubthuenetr S. Journal of Otolaryngology. 1997;26(6):32-35.

14. Siddique M. Study of the incidence of complications in thyroid surgery, Analysis of 60 cases operated during Jan 92 to Jan 93 [Dissertation FCPS (surgery)], Dhaka; Bangladesh College of physicians and surgeon. 1994; 46-62.

15. Cady B, Sedgwick CE, Meissner WA. Risk factor analysis in differentiated thyroid cancer. Caner. 1979.

16. Ashraf SA, Matin ASMR. Review of thyroid disease in Bangladesh; Analysis of personal series of 91 cases. JBCPS. 1984;2:5-10.

17. Dudley H, Pories WJ (eds). General principles, Breast and Extracranial endocrines in Rob and Smiths operative surgery. 4thed. London: Butterworth scientific; 1986.

18. Cady B, Cotin K, Rossi RL. The effect of thyroid hormone administration upon survival in patients with differentiated thyroid carcinoma. Surgery. 1983;94:978-983.

19. Block MA, Dailey GE, and Robb JA. Thyroid nodule indeterminate by needle biopsy. Am J Surg. 1983;20:113-203.

20. Moulton-Barrett R,Crumley R, Jalilie S, Segino D, Allison G, Marshak D. Chan Int. Surgery. 1997;82:63-66.

21. Asaduzzaman AKM. Surgical management of thyroid swelling- A prospective study of 40 cases. Dissertation, FCPS (ENT), Dhaka, Bangladesh College of physicians and surgeons. 2006; 69-75.

22. Iqbal M, Rasool MI, Khan M, Malik S, Barkat W. Prospective study of 111 cases of thyroid surgery for postoperative morbidity and mortality. J Pak Med Assoc. 1989;39:201- 204.

23. Rahaman ML. Follow-up study of thyroidectomy. Analysis of 50 cases operated during January 1983 to march 1987 [Dissertation, FCPS (surgery)], Dhaka, Bangladesh College of physicians and surgeons. 1988;88-110.

24. Kaplan EL.Thyroid and parathyroid. In: Schwartz SI, Shires GT, Spinner FC, Hussar WC (eds). Principles of surgery. 6th ed. MC Graw Hill Inc. New York: 1994; 1611-80.

Original Article

Clinical Study of 100cases of Caesarean Section in Tairunnessa Memorial Medical College & Hospital. Gazipur

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Abstract

To find out the common indications of caesarean section and complications of this operation, both for mother and baby. This observational study was carried out on 100 cases of caesarean sections, who were operated in the Department of Obstetrics & Gynaecology, Tairunnessa Memorial Medical College & Hospital. Previous caesarean section and oligohydroamnios with fetal distress contribute the major causes of caesarean section. Contribute the major causes of caesarean section. Common complications are UTI, wound infection. Indications of caesarean section should be properly identified to decrease the unnecessary operation, which ultimately decrease indication of previous caesarean section. Maintenance of proper asepsis would avoid the complications of this operation.

Key words: *Caesarean section, Indication, Complication*

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Introduction

Caesarean section is an operative procedure where a baby is delivered by giving incision on anterior abdominal wall and uterus after 28 weeks of pregnancy[1]. Caesarean section was introduced in clinical practice as a life saving procedure both for mother and baby. As other procedures of some complexity, its use follows the health care inequity pattern of the world: under in low income setting and adequate or even unnecessary use in middle and high income setting[2-5]. There are many reasons why a doctor might feel that patient needs to have caesarean section. Some caesarean section occur in critical situation& some are elective. The first modern caesarean section was done by German gynecologist Ferdinand Adlof Keher 1881[6]. The name of the procedure is said to derive from a Roman legal code "Lex Caesaren" which allegedly contained a law prescribing that the baby be cut out of its mother's womb in the case that she dies before giving birth[7]. It is necessary to find out the common indications and complications of caesarean section, because it is associated with high maternal and neonatal risk. It is important to set up a regular protocol and profile for accurate indications for caesarean section which can reduce the unnecessary caesarean section.

Materials and Methods

This prospective study was carried out is the Department of Obs & Gynae, Tairunnessa Memorial Medical College & Hospital, during the period of November 2013 to April 2014 among 100 cases of caesarean sections. The aim of this study is to find out the indications of caesarean section& complications of it. For which 100 cases were selected for the study. Cases were selected in predesigned proforma. Preterm pregnancies were excluded due to lack of NICU facility in this institution. Indications of caesarean sections were detected antenataly, intranataly and it was compared with the findings of operation. Operation findings were noted, any complication was also noted. Puerperal period up to the end of the day of discharge was observed. Patient came again for post natal check up after seven days. Any complications in this period were noted.

Result

A total of 100 cases were obtained in the department of Obs & Gynae, Tairunnessa Memorial Medical College & Hospital, during six months period (Nov 2013-April

Majority of the patients were between 26-30 yrs (31%). Most of them were multipara (49%). Commonest cause of caesarean section in this study was oligohydroamnios (36%) followed by history of previous caesarean section (27%). Most of the babies were healthy (74%). Maternal complication after caesarean section was mainly UTI (17%), followed by wound infection 11%.

Table-1 shows that caesarean section were done most commonly among patients of age group 26-30years, next was 20-25 years.

Table -I: Distribution of patients according to age (n=100).

Age Group(years)	No. of pt	Percentage
< 20	12	12%
20-25	26	26%
26-30	31	31%
31-35	18	18%
36-40	13	13%

Table-II shows multi gravid were under went caesarean section commonly, probably due to previous caesarean section.

Table-II: Distribution of patients according to number of parity (n=100):

Parity	No. of pt	Percentage
Primi gravid	43	43%
Multi gravid	49	49%
Grand multi gravid	8	8%

Table-III shows that previous caesarean section about 27% & amount of amniotic fluid contribute major indications for caesarean section. Some patients underwent caesarean section due to their desire.

Table-III: Distribution of patients according to indication of caesarean section (n=100)

Indications	No. of pt	Percentage
Oligohydroamnios	3 6	36%
Previous caesarean section.	27	27%
Fetal distress.	23	23%
Mal presentation	1 7	17%
Failed Progress of labour including failed induction.	16	16%
Severe pre eclampsia	15	15%
Obstructed labour	11	11%
Elective caesarean section	9	9%
Abruptio placenta	9	9%
Placenta praevia	7	7%
Eclampsia	6	6%

Table-IV shows that majority of the babies delivered by caesarean section are healthy, but the rate of still birth is 2%.

Table- IV: Distribution of patients according to fetal outcome (n=100)

Condition of the baby	No. of case	Percentage
Healthy	74	74%
Low birth weight	13	13%
Birth asphyxia	7	7%
Early neonatal death	4	4%
Still Birth	2	2%

Table-V shows UTI is a common post operative complication in caesarean section, 2nd one is wound infection.

Table-V: Distribution of patients according maternal complication after caesarean section (n=100)

Complications	No. of pt	Percentage
UTI	17	17%
Wound Infection	11	11%
P.P.H	8	8%
Post partum Eclampsia	4	4%
Wound Dehiscence	1	1%
Maternal death	1	1%

Table VI shows maximum patient leave hospital within normal time limit.

Table-VI: Distribution of patients according to hospital stay (n=100)

Hospital stay(Days)	Percentage
<5 days	86%
5 — 10 days	12%
>10 days	2%

Discussion

Caesarean section is the most common obstetrical operation, the rate of caesarean section is gradually increasing throughout the world due to modern fetal monitoring technique with the advent of modern anesthesia and antibiotics. Obstetricians, fear of litigation may have made the changing rate and indications for caesarean section seem more acceptable. But caesarean section result in a small overall increase in bad outcomes in low risk pregnancies[8] . Analysis of the age group of the patients showed that 82% are at the age group of maximum fertility and lowest 12% in late fertility group. Caesarean section occurring more in multipara, usually with the history of previous caesarean section & lowest in grand multipara In this institution maximum indication of caesarean section is due to fetal distress with severe oligohydroamnios, of which maximum babies were

meconium stained with birth asphyxia and the lowest indication was elective caesarean section, most of them under went caesarean section to avoid stress of vaginal delivery. This Fetal outcome of study was very good, only

2% were still birth. Most of the patients leave hospital with healthy baby. The incidence of maternal morbidity following caesarean section was very minimum, of all the morbidity conditions, UTI was 17%.One patient expired after caesarean section due to DIC, her caesarean section was done for abruption Placenta. As the incidence of 1stcaesarean section due to any cause is gradually rising. So subsequently, the incidence of repeat caesarean section is increasing in a double manner, because majority of obstetricians do not like trial of labour in a patient of previous caesarean section, doing straight a repeat caesarean section in patients with previous caesarean section. The rising trends in caesarean section rates should, therefore, be checked by studies. WHO recommends to put a limit to the rate of caesarean section at 10%[9]. This study was carried out with the objective to evaluate various aspect, such as incidence, indication, age, parity, maternal & fetal complications of caesarean section. Though this study is not representative of whole population, it has provided certain data& information of a particular institution. From this study we can take the information that judicious& accurate decision & early decision is to be taken in performing caesarean section because late decision may put the mother & baby in moribund condition, inspite of caesarean section. Same type of study was done in BSSMMU on 2004 and showed that the common indication of caesarean section was previous caesarean section and second one was fetal distress.[10]

Recommendations

To reduce the post operative complications with caesarean section, some definitive measures should be taken during & after caesarean section:

1. To improve the health status of the mother during pregnancy by antenatal care.

2. To maintain proper asepsis measure.

3. Catheterization should be avoided if possible.

4. To educate the patient& her relative about the importance of cleanliness.

References

1. D.C Dutta. Text book of Obstetrics. 7th edition.

2. Althabe F, Belizan JM. Caesarean section: the paradox. Lancet.2006;368:1472-3.

3. Betran AP, Merialdi M, Lauer JA, Bing- Shun W. Rates of caesarean section: analysis of global, regional & national estimates. Paediator Perinat Epidemiol.2007;21(2):98113.

4. Althabe F, Sofa C, Belizan JM, Gibbas L, Jacquerioz F. Caesarean section rates maternal, neonatal mortality in low, medium & high income countries: an ecological study. 2006;33(4):270-7.

5. C,Holtz S, Staqnton C. Socioeconomic differentials in cesarean section rates in developing countries: a retrospective analysis. Lancet.2006;368:1516-23.

6. Wikipedia, the free encyclopedia. http://en.wikipedia.org/wiki/c- section

7. Cesarean section -A brief history, part-1http;//www.nlm.nih.gov/exhibition/ cesarean / part-1.

8. Safe prevention of the primary cesarean delivery---American congress of Obstetrician & Gynecologist& the society of Maternal &Fetal Medicine: March2014.

9. WHO statement on cesarean section rates, 2015.

10. Dr. Sultana N, A clinical study of common indications of caesarean section in BSMMU, 2005.

Original Article

Visual Outcome of Keratoplasty on Vascularised Cornea- A Prospective Study

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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 .

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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

Thislongitudinal type descriptive study was conducted from January to December in 2007 at Dhaka Medical College and 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. 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	33	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
Undernutrition	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 approach. 5thEdn.Butterworths:2003.

2. Bhuiya MSI, Faruk TIMA. A study of the success rate of Keratoplasty. Bangladesh Medical Journal. 2001; 30(1).

3. Buxton JN, Apison JH, 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. Cornea. 2003;22(6):552-556.

7. Soong H K. Penetrating keratoplasty in focal points, Clinical modules for Ophthalmologists. American Academy of Ophthalmology, San Francisco. 2006;10:6.

8. Roper-Hall M J. Stallard's Eye Surgery. 7thEdn. Butterworth-Heinemann Ltd;2003.

9. Walter J. Stark, Hugh R. Taylor, Manuel Datiles, Elaine young, Pamela Klein. Clinical & Experimental Ophthalmology. 2007;3(4):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, LansbergenQ, 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

Fetal Renal Obstruction is Early Detected during Pregnancy by Ultrasonography at Urban Hospital (Narayngan j)

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Abstract

Over the last 3years (September 2012 to September 2015) for the period of 36 months after searching of all gravid uterus ultrasonography report only 40 patients having hydronephrosis detected during antenatal checkup both Narayngan j General Hospital Radiology and Imaging department and Private Clinic, primary finding is oligo hydraminos between 10 weeks to 16 weeks of gestation. All the patients of our study population were subjected to imaging by ultrasonography. This was a prospective study. Out of 40 fetus hydronephrosis were graded according to sonographic grading system. There were two fetus of grade 0, eight fetus of grade-1, eleven fetus grade-2, are nineteen fetus of grade 3 hydronephrosis on advance pregnancy.

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Introduction

Hydronephrosis is an aseptic dilatation of the whole or part of the kidney due to a partial or intermittent obstruction to the outflow of urine[1]. The term hydronephrosis was first described by Rayer in 1842[2]. It is derived from three parts each has its own meaning "Hydro" stands for water. "Nephrosis" stands for kidney and "osis" means condition[3]. Hydronephrosis is a well known and common pathological condition in fetus presenting with oligo hydraminos with the increasing use of fetal ultrasonography hydronephrosis are detected before symptoms to develop are signs of renal mass become apparent. Among the hydronephrosis, pelvic ureter junction anomaly is the cause of 40% foetal hydronephrosis with an incidence of in 1250 birth[4]. Bilateral obstruction is present in 5% to 10% of cases, detected at mid and late pregnancy[5].

Materials and Methods

Prospective study done on special group of patient having oligo hydronephrosis intra uterian growth retardation, mal-presentation in antenatal checkup. As sexes are detected easily 24 weeks to 30 weeks of gestation, female fetus having single pelvic ureter junction obstruction either left or Right, however, bilateral hydronephrosis is more commence on male fetus due to bladder outlet obstruction such as posterior urethral valve.

A 3.5 MHz curvilinear transducer is routinely used. No preparation is required only patient should be in full bladder in early pregnancy, patients are in supine position and transducer placed transverse and longitudinally, fetal liver serves as an acoustic window for imaging of the Right kidney. Fetal stomach and spleen as an acoustic window for imaging of the left kidney. A patient are selected those amniotic fluid index are less than normal and intra uterian growth retardation.

Result

Bilateral hydronephrosis was higher than unilateral hydronephrosis; cause of bilateral hydronephrosis was posterior urethral valve which is more common. Valve is not detected by ultrasonography during pregnancy even after birth. It should be detected by other radiological procedure like micturation cystourography after birth. Usually pelvic ureter junction obstruction is commonly unilateral and on left side.

Table-I: Ultrasonography demonstrates and measures the degree of pelvis dilatation[6].

Grade	Size of Renal pelvis	Calyceal dilatation
i	< 10 mm	Physiological
ii	10 - 15 mm	Normal calyces
iii	> 15 mm	Slight dilatation
iv	> 15 mm-20mm	Moderate dilatation
V	> 20 mm	Sever dilatation

Less than 10mm size of renal pelvis was grade-i (physiological) 10mm to 15mm of renal pelvis was grade-ii (normal calyces) higher than 15mm was grade-iii and iv (slight dilatation and moderate dilatation) and higher than 20mm size of renal pelvis was grade-v (sever dilatation). Mild pelviectasis (defined mild fetal renal pelvis dilatation) measuring renal pelvis antero posterior diameter of 4mm or greater at 15 to 20 weeks, 5mm of greater between 20 and 30 weeks and 7mm or greater between 30 and 40weeks)[7]

Hydronephrosis is identified as separation of the walls of the collecting system by fluid urine ultrasound grading system of hydronephrosis[8].

Table- II: Hydronephrosis of 40 patients (our study population).

Grade	No of Patient	Percentage %
Grade 0	2	5
Grade 1	8	20
Grade 2	11	27.5
Grade 3	19	47.5
	40	100

Grade-0 Homogenous central renal sinus complex without separation.

Grade-1 Separation of central sinus echoes of ovoid configuration continuous echogenic sinus periphery. 52% predictive valve for obstruction.

Grade-2 Separation of central sinus echoes of rounded configuration, dilated calcyces connecting with renal pelvis, continuity of echogenic sinus periphery.

Grade-3 Replacement of major portion of renal sinus, discontinuity of echogenic sinus periphery.

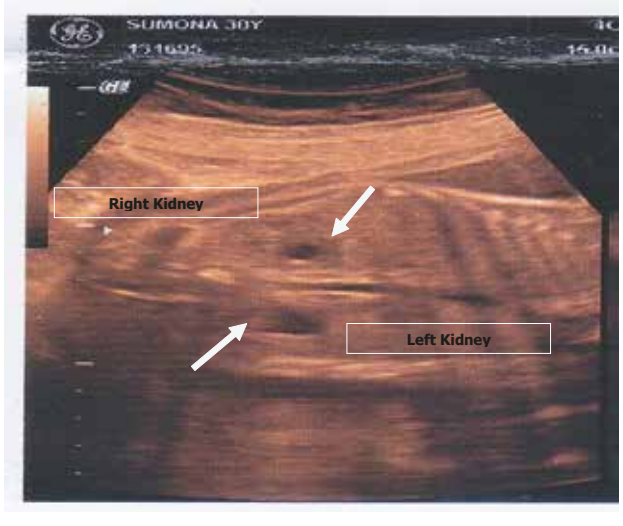

Fig - I : Longitudinal ultrasonography scan of 34 weeks gravid uterus shows sonolucent area (Black Spot) is dilated renal pelvis over both kidney

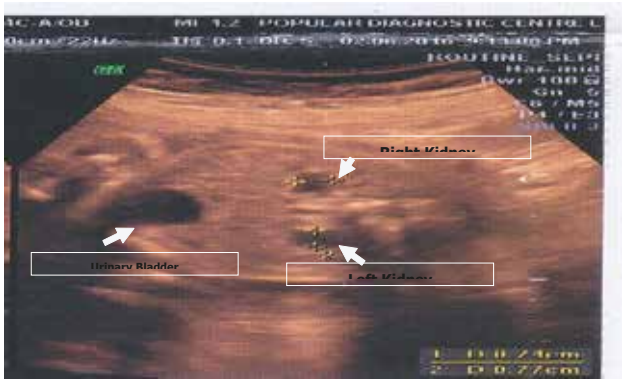

Fig - II: Same patient of figure 01 with transverse scan sonolucent area (Black Spot) diameter is right is 7.4mm and left is 7.7mm. Mild dilated both renal pelvis

Discussion

Ultrasonography plays a crucial role in the evolution of the fetal urinary tract by detecting, locating and characterizing the severity of anomalies in an attempt to predict prognoses and to optimize prenatal management[8]. Antenatal check up ultrasonography has become the most commonly performed examination for evaluating the urinary tract[9]. This is a because of its speed and safety, relatively low cost, wide spread availability, non invasiveness and lack of ionizing radiation and high accuracy in identifying anatomical abnormalities, dilatation of renal pelvis. Pelvic ureter junction obstruction producing unilateral hydronephrosis involves the left kidney (two third)[10]. In our study out of seven pelvic ureter junction obstruction hydronephrosis, six (85.7%) fetus presented with left side hydronephrosis. Ultrasonography demonstrate and measures the degree of renal pelvic and calcyceal dilatation. Pelvic dilatation less than 12mm (anterior-posterior diameter) is considered minimal between 12 and 20mm moderate and greater than 20mm sever form of pelvic ureter junction obstruction. Intra uterian ultrasonography can also show important negative sign, such as absence of dilatation of ureters.

The study performed on basis of fetal renal pelvis and oligohydrominos. Amniotic fluid measure about 50ml at 12wks, 400ml at 20wks and 1000ml at peek (36 to 38wks). Our study is based on amount of fluid as well as by amniotic fluid index. Clinically uterus size is smaller than period of amenorrhea. Less fetal movement, uterus is full of fetus evidence of intra uterian growth retardation (IUGR) and mal-presentation (breech).

There are so many causes of oligohydraminos like fetal chromosomal anomalies, intra uterian infection, drug, renal agenesis and obstruction of the urinary tract like pelvic ureter junction or posterior urethral valve. In our study grade-3 hydronephrosis was 19 (47.5%). This represented greater number of patient with severe hydronephrosis. This was due to delayed referral from primary and secondary health care centre or lack of health awareness 11(27.5%) patient was of grade-2

hydronephrosis. This represented moderate to severity of the disease in almost ¼ of the study population. There were 9 patients of grade-1 hydronephrosis. The rest 2 (5%) were of grade-0 hydronephrosis. This gives an excellent diagnostic value of antenatal check up ultrasonography, early detection of fetal hydronephrosis by the modern imaging technique. Specially 3D/4D ultrasonography would be able to salvage most of the kidney, when intra uterian hydronephrosis is diagnosed a post partum sonogram and other radiological imaging model is indicated to confirm the diagnosis.

References

1. Tiptaft R.C. The kidneys and Ureters. In: Baily and Love's short practical of surgery. 21st edition. ELS; 1991: 31.

2. Charies M.M, Dick G. Ureters pelvic junction obstruction. In: Asheraft KW, eds. Pediatric Surgery 2nd ed. Sanders Company ;1993: 582-587.

3. Tabers cyclllo pedic medical diction any PUB-System. 17th ed. 925.

4. Mouriquarl P. Congenital anomalies of pyelo urethral junction and the uretes. Pediatric surgery. 5th ed. 1591-1604.

5. Willian DL, Kenawl M. M, Synder, HMIII Lebowitz RI, Colodny AH. 1980.

6. Callen. Urinary tract dilatation in utero classification and clinical application Radiology. 1986 : 645-647.

7. Callen. Ultrasound evaluation of the fetal genito-urinary system, ultrasonography in obstetrics and gynecology. 3rd ed. 399.

8. Mandelli J. Biyth BR. Reters CA. Structural genitourinary defects detected in utero Radiology. 1991:178-193.

9. Rao, Heptin Stall R-H Experimental hydronephrosis investigation urol. 1968;6:188.

10.Tip laft R.C. The kidneys and ureters. In : Baily and love's short practices of surgery. 21st ed. ELKS; 1991: 1331.

Original Article

Short-Term Postoperative Outcome of Laparoscopic Total Mesorectal Excision in Rectal Carcinoma

Roy S[1], Mondal SK[2]

Abstract

Despite the proven benefits, laparoscopic colorectal surgery is still under utilized among surgeons. Aim of this study is to determine the feasibility and morbidity after laparoscopic Total Mesorectal Excision(TME), implementing a standardized operative technique and recovery protocol. The first 30 patients treated laparoscopically were included. Standardized oncological clearance ensured by early central vascular ligation, medial to lateral approach, and complete mesorectalexcision. Recovery parameters, short-term outcomes, morbidity and mortality have been assessed.Total number of patient was 30. In 26 patients anterior resection was done, in 4 patients Abdominoperineal resection was done.Overall mean operating time was 224(242-137) minutes. In anterior resection Mean operating time was 187(236-137) minutes, whereas in lap APR operating time was 210(242-178) minutes. In total 4 patients(13%) were converted to open procedure. Average bleeding in anterior resection group was 120 ml(50-200ml), in Lap APR 210 ml(115-350ml). Mean number of lymphnodes removed in AR 16. In APR1, Mean time to flatus was 1.5 days. Mean time to stool 4.2 days, mean length of hospital stay in AR 8.6 days, in APR 11.5 days. Overall morbidity 23%(7), major morbidity 10%(3). There is no mortality, no anastomotic leak, and no 30 days readmission.laparoscopic Total Mesorectal Excision is safe and leads to excellent results in terms of recovery and short term outcomes. Key factors for better outcomes is adoption of a standardized technique and training model.

Key words: *Total Mesorectal Excision, Anterior resection, Abdominoperineal resection.*

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Introduction

Laparoscopic surgery is now well established as a treatment of choice for several malignant and benign colon and rectal disease. Even though laparoscopic Gallbladder surgery has been well established as gold standard, it took several years and many clinical trials to establish the role of laparoscopic surgery in colorectal malignancy. The oncologic clearance and outcome, being the main issue under evaluation and formed the main basis of many international clinical trials investigating rigorously the feasibility of laparoscopic colorectal surgery, cancer risk, morbidity, and recovery benefits. Several large prospective Randomized Controlled trial have been completed and have reported on both short and long term outcomes confirming the efficacy and oncological safety of lap colorectal surgery[1-9].Despite proven benefits of laparoscopic colorectal surgery, it is still underutilized among general & colorectal surgeons. The aim of this present study is to determine the feasibility and safety of laparoscopic surgery in rectal malignancies in a learning curve setting. A well-structured training model is adopted. Standardized postoperative recovery protocol followed. Short-term outcome has been recorded including operativedata, recovery parameters and 30 days mortality morbidity.

Material & Methods

A prospective database is maintained for first 30 consecutive patients attending our unit with rectal malignancy who does not have the exclusion criteria were registered for this study. Exclusion Criteria were T_4 and bulky tumor, BMI>35, previous abdominal surgery, Severe cardiopulmonary compromised patient(ASA III), emergency patients with intestinal obstruction or perforation (in an attempt to take colonoscopic biopsy-one patient).Study period was from February 2010 to September 2013 (32months).

Operative data included- Operating time, amount of bleeding, number of lymph node removed with specimen, oncological clearance of resection margins, conversion rate and reason of conversion. Following recovery endpoints are considered to asses short term post operative outcome- Mean time to -passage of flatus, passage of solid stool, start of oral feeding, removal of catheter, removal of drain,independent walk, quit injectable analgesics, days of hospital stay.30 days

wound infection, deep vein thrombosis, respiratory complication, cardiac complication, urinary complication, anastomotic failure evident by pelvic drain, Need to readmit within 30 POD or reopen due to complication.

Our series: 30 patients of rectal malignancy have been operated laparoscopically. Among them 9 female & 21 Male patient. 12 patients were<50 years of age(19-49), 18 were>50(50-78) years. 10 patient had BMI <25(2 female, 8 male), others had BMI 25-35(7female, 13 male). BMI more than 35 were not selected for laparoscopic TME.

11 patients had growth near rectosigmoid junction and were selected for laparoscopic anterior resection(AR). 15 patient had growth in rectum>4 cm from dentate line, they were also selected for anterior resection. 4 patient had growth<4cm from dentate line, they underwent laparoscopic Abdominoperineal resection (APR).

Results

The overall mean operating time was 224(242-137) minutes. In anterior resection Mean operating time was 187(236-137) minutes, whereas in lap APR operating time was more 210(242-178) minutes. In total 4 patient was converted to open procedure, among them 3 in anterior resection group and 1 in Lap APR group. Reason of conversion was omental adhesion and bleeding in 2, bleeding from inferior mesenteric artery1, tumor adherent to prostate capsule in 1 patient in lap APR. Average bleeding in anterior resection group was 120 ml(50-200ml), in Lap APR 210 ml(115-350ml).Post operative recovery period data showed, in anterior resection first flatus passed within 1-3 days, whereas in APR group colostomy bag inflated with bowel gas in 2±1days.Overall mean time to passage of flatus was 1.5 day.Passage of solid stool in AR 6±2 (4-8POD) days, in APR stool in colostomy bag in 2±1(1-3POD).Mean time to passage of solid stool was 4.2 days.Sips of water allowed to all patients from 1st POD. Solid food was given in AR group on 4th-6thPOD(5+/-1days) as abdominal conditions permit, in APR group solid oral diet was given earlier as there was no anastomosis, which was as early as 2nd POD. Drain was taken out once oral diet started and stool passed in AR group which was 6±2 days. In APR drain removed when it was <20 ml in 24 hour, which was 5±1 days.Urinary catheter was removed in all AR patients on 2nd POD to allow early mobilization,in APR group Catheter was kept longer(7±3 POD) as it was difficult to mobilize early with the perineal wound.In AR group patient could walk around independently in 2nd-4thPOD(3+1 days), in APR group it was

6th-12thPOD(9±3 days). Patients were discharged when they were taking solid food, has passed solid stool, could walk independently, and free of injectable analgesics. In AR group mean hospital stay was 9.6 days(8-11 days) after surgery, in APR group it was 13days(10-16days) after surgery. 30 days post operative mortality and morbidity was recorded during theirfollow up. 2 patients and improved with chest physiotherapy and mobilization, 1 patient with pre-existing ischemic heart disease developed heart failure and pulmonary edema due to fluid overload and was treated with medication. 2 patients developed minor wound infection and improved with bedside dressing. 2 patient developed urinary incontinence after removal of catheter. There was documentedurinary tract infection, and antibiotic given according to culture sensitivity. Detrusor muscle stabilizer also used in one case to control the situation.There was no incidence of DVT, readmission, reoperation, and no mortality.

Table- I: Patient Profile

Gender	Number of case (%)	Age <50yrs	Age >50yrs	BMI <25	BMI 25-35
Male	21 (70%)	7	14	8	13
Female	9 (30%)	3	6	2	7

Table-II: Diagnosis

Site of lesion	Number	Stage* (number of cases)	Operation
Growth near rectosigmoid junction	11	PT_2N_0(4) P T_2 N_1(3) P T_3 N_1(4)	Anterior resection
Growth in rectum >4cm from dentate line	15	PT_1N_0(2) P T_2N_0 (5) P T_2 N_1(6) P $T_{3a}N_1$(2)	Anterior resection
Growth<4cm from dentate line	4	P T_3 N_0(1) P T_2 N_1(3)	Abdominoperineal resection

* Staging is done as per American Joint Committee on Cancer (AJCC) TNM Staging .

Table-III: Operative data

	Time(minutes)	Number of lymphnodes removed	Conversion	Bleeding (ml)
Over all	224(242-137)	13(11-17)	4	150(50-350)
Anterior resection	187(236-137)	16(13-17)	3	120(50-200)
Abdominoperineal resection	210(242-178)	15(11-16)	1	210(115-350)

Table-IV: Post operative recovery

Recovery end points	Anterior resection Mean + SD* (days)	Abdominoperineal resection Mean + SD (days)
Passage of flatus	2±1	2±1
Oral feeding	5±1	2±1
Independent movement	3±1	9±3
Catheter removed	2nd POD	7±3
Drain removed	6±2	5±1
I/V analgesics stopped	4±1	5±2
Passage of solid stool	6±2	2±1
Discharge	9.6±1.4	13±3

SD- Standard Deviation.

Table-V: Mortality & morbidity

Complication	Number(30)	Percent 100%
Pulmonary	2	6.6%
Cardiac	1	3.3%
Wound infection		6.6%
Perianal wound in APR	1	
Abdominal wound in AR	1	
Urinary incontenence	2	6.6%
Death	0	0%
Re admission/ reoperation	0	0%

Discussion

The technique of TME for the treatment of rectal carcinoma is increasingly recognized as the new benchmark of quality. One of the most controversial areas of laparoscopic surgery has been laparoscopic resection of rectal cancer, the main concerns being adequate oncological clearance ie quality of TME inlaparoscopic technique. The driver of laparoscopic surgery in the setting of carcinoma rectum, was clearly the possibility of gaining patient benefits. It was presumed, but not proven, that a shorter incision would result in less pain, short duration of ileus, and shorter hospital stay and post operativerecovery. Data on recovery endpoints are now available, demonstrating the main advantages of laparoscopic approach: length of hospital stay, duration of ileus and duration of analgesic use or postoperative pain. Short-term complications, morbidity and mortality were investigated and found to be very similar between groups in all the trials.[1-9]

Our study regarding feasibility of starting laparoscopic total mesorectal excision in carcinoma rectum in a learning curve of laparoscopic colorectal surgery shows encouraging results. We have been selective in choosing patients for laparoscopic surgery in our initial phase, to avoid too much difficulty per operatively and thus surgeon's frustration. The mean operating time was 224 minutes in our study, which is acceptable but slightly more than other studies showing results of laparoscopic TME.[10] Per operative bleeding in APR group was more due to perineal dissection, which remains same in open surgery. So no additional bleeding was encountered due to adopting laparoscopic technique. But in AR group per operative bleeding was very small 50-200 ml.[11]The number of lymphnodes removed with the specimen was 13-17 in anterior resection group, average 16. In APR group number of lymphnodes were 11-16, average 15. This is an indirect evidence of adequacy of laparoscopic mesorectal excision. Postoperativerecoverieswere prompt. Less ileus resulted in early return of bowel sound, so oral diet could be started as early as 1st POD in APR group. Less injectable analgesics were required as incision was smaller. Patients of anterior resection could walk with out support as early as 2nd POD. There was no mortality, no readmission or necessity of reoperation in 30 days postoperative. 2 patient developed chest complication, but nothing major. 2 minor wound infection occurred one in perineal wound that cannot be attributed to laparoscopic surgery, and one in the abdominal wound through which AR resected specimen was delivered. 2 patient (6.6%)developed incontinence due to urinary tract infection after laparoscopic TME, which was comparable to standard of such complication in open TME in standard colorectal centers.[12]

In conclusion, the potential advantageof laparoscopic TME in rectal carcinoma is less bleeding and magnified view allowing precise dissection of pelvic autonomics. Post operative benefits being less pain, less metabolic response to trauma, early return of gut activity, and improved cosmesis. Potential disadvantages are crowding of instruments in pelvis, fume can obscure the vision, retraction of rectum can be difficult, division of rectum can be difficult, steep learning curve, and increased operating time. The true assessment of safety of Laparoscopic TME in malignancy must come from long termfollowup studies of patients operated by this technique. Currently ongoing such studies will provide evidence-based data on cancer free survival in near future.

Reference

1. Lacy AM, Garcia-Valdecasas JC, Delgado S. Laparoscopy-assisted colec-tomy versus open colectomy for treatment of non-metastatic colon cancer: a randomised trial. Lancet. 2002;359(9325):2224e9.

2. Lacy AM, Delgado S, Castells A. The long-term results of a randomized clinical trial of laparoscopy-assisted versus open surgery for colon cancer. Ann Surg. 2008;248(1):1e7.

3. A comparison of laparoscopically assisted and open colectomy for colon cancer. N Engl J Med.2004;350(20):2050e9.

4.FleshmanJ,SargentDJ,GreenE.Laparoscopiccolectomyfo rcancerisnot inferior to open surgery based on 5-year data from the COST study group trial. Ann Surg. 2007;246(4):654-5.

5.Veldkamp R, Kuhry E, Hop WC. Laparoscopic surgery versus open surgery for colon cancer: short-term outcomes of a randomised trial. Lancet Oncol.2005;6(7):477-84.

6.Buunen M, Veldkamp R, Hop WC. Survival after laparoscopic surgery versus open surgery for colon cancer: long-term outcome of a randomised clinical trial. Lancet Oncol. 2009;10(1):44-52.

7.Guillou PJ, Quirke P, Thorpe H. Short-term endpoints of conventional versus laparoscopic-assisted surgery in patients with colorectal cancer (MRC CLASICC trial): multicentre, randomised controlled trial. Lancet.2005;365(9472):1718-26.

8.JayneDG,GuillouPJ,ThorpeH.Randomizedtrialoflaparosc opic-assisted resection of colorectal carcinoma: 3-year

J ClinOncol.2007;25(21):3061-8.

9.Luglio G, Nelson H. Laparoscopy for colon cancer: state of the art. Surg. Oncol. Clin N Am.2010;19(4):777-91.

10.Luglio G, G Domenico, De Palma, R Tarquini. Laparoscopic colorectal surgery in learning curve: Role of implementation of a standardized technique and recovery protocol, A cohort study.Annals of medicine and surgery.2015;4:89-94.

11.Milsom JW, Bohm B, Hammerhofer KA, Fazio V, Steiger E, Elson P. A prospective, randomized trial comparing laparoscopic versus conventional techniques in colorectal cancer surgery: a preliminary report. J Am CollSurg.1998;187:46-57.

12.Schwenk W, Haase O, Neudecker JJ, Müller JM. Short term benefits for laparoscopic colorectal resection. Cochrane Database of Systematic Reviews 2005, Issue 2. Art. No.: CD003145. DOI: 10.1002/14651858.CD003145.pub2.

Original Article

Traumatic Perforation of Tympanic Membrane: A Rural Profile of Bangladesh

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Abstract

To determine the various etiological factors, clinical presentation and outcome of traumatic perforation of tympanic membrane (TM) in a rural area of Bangladesh. A retrospective study of 210 cases of traumatic perforation of TM in upazilla health complex, Nangalkot and Muradnagar, Comilla, Bangladesh within the period of March 2013 to February 2014. The study showed middle age people of 20-39 years age group were mostly affected (61.89%), where males are more than females at the ratio of 1.18:1. Domestic violence was a major factor (50%) and husbands are only culprit for 35.13% of housewives and slap was the major mode of injury (52.86%) affecting the left ear mostly (70.95%). Spontaneous healing rate was very satisfactory and it was 88% within 03 months in our study. Traumatic perforation of TM is a common type of injury in rural areas. Unnecessary surgical intervention or unskilled handling should be discouraged. Early appearance and watchful treatment reduces the morbidity.

Key words: *Tympanic membrane, tuning fork test, audiometry, slap.*

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Introduction

Tympanic membrane(TM) is a thin, translucent partition between external acoustic meatus and the middle ear. It is oval in shape, measuring 9 x 10 mm. It is placed obliquely TM is an important component of sound conduction as its vibratory character is necessary for sound transmission in human beings. Perforation of TM may be caused by:

(1) Change in air pressure (blow in the ear, blast injury, eustachian tube inflation, nitrous oxide anesthesia and hyperboric oxygen treatment.)

(2) By fluid (syringing, caloric test, diving.)

(3) By solid objects (instrumentation, attempt to foreign body removal, match stick, hair clips and sparks of hot metal). Rupture due to air pressure change occurs mostly in the anteroinferior quadrant of TM. Atrophic segments are likely to rupture at pressure change at least 50% lower than a normal TM [2]. Fracture bone of skull is an important cause when the fracture line involve the attachment line of TM. Lightening strike may cause rupture as rapid heating of intracorporal gas and increased middle ear pressure[3] .

Materials and Methods

It is a retrospective study of 210 cases of traumatic perforation of tympanic membrane (TM) within the period of March 2013 to February 2014 in two upazilla health complexes of Comilla district namely Nangalkot and Muradnagar which are the two government primary health care settings located in rural, remote and densely populated area. In this period we have seen a total 13800 patients, out of these 210 patients were of traumatic perforation of TM (1.52%). The included patients were presented within two weeks of injury and had no history of external or middle ear diseases.

Data were collected from OPD and IPD medical records including demographic data, date, mode of trauma, otoscopic finding, tuning fork test, kind of therapy and their result. Audiometry was not included due to shortage of facility. All patients were treated conservatively with antihistamine, antibiotics (oral and/or local in infected cases) and painkiller for 7-10 days, avoidance of letting water into the ear and self ear cleaning. No surgical interventions were done but myringoplasty were advised to those whose perforations were not healed within 03 months. The perforation is classified as 1) anterosuperior, 2) posterosuperior, 3) anteroinferior, 4) posteroinferior & 5) central (if involve more then one quadrant) according to location and according to size it is divided into three grades(naked eye calculation by otoscope): 1) grade I: loss of tissue less than 25%, 2) grade II: loss of tissue

within 25%-50%,& 3) grade III: loss of tissue more than 50%.

Results

Table-I: Age &Sex distribution

Age in Years	Male		Female		Total	
	No.	%	No.	%	No.	%
0-5	2	0.95%	2	0.95%	4	1.90%
6-10	8	3.81%	7	3.33%	15	7.14%
11-20	23	10.95%	19	9.05%	42	20.00%
21-30	44	20.95%	38	18.09%	82	39.04%
31-40	26	12.38%	22	10.48%	48	22.85%
41-50	9	4.29%	5	2.38%	14	6.67%
51-60	3	1.43%	2	0.95%	5	2.39%
Total	115	54.76%	95	45.23%	210	100%

Age ranges from 2 year to 57 year with the mean age of 28.20 year. The youngest patient was of 2 year old who affected by unnoticed force by another baby while he was playfully cleaning his ear by a cotton bud. The oldest patient was of 57 year old who injured his ear by syringing by a quack doctor to remove a foreign body. 61.90% (n=130) patients were in the age group 21-40. Out of them maximum incidence (39.05%) was among 21-30 year age group. We found males were affected more (54.76%) than that of females (45.24%). Male to female ratio was 1.18:1.

Table -II: Laterality of Trauma

Side of affected	No. of patients	Percentage
Left	149	70.95%
Right	61	29.05%
Both	00	00%

70.95% (n=149) patients were affected in their left ear and 29.05% (n=61) patients were affected in their right ear. The predilection for the left ear may be due to the fact that slap was the major etiological factor in this series and a right handed person tends to slap the victim facing to him over the left ear. No patient were attended with two ear affected

Table -III: Presenting complaints

Presenting complaints	No. of patients	Percentage
Tinnitus	161	76.67%
Aural Fullness	131	62.38%
Hearing Loss	120	57.14%
Vertigo	54	25.71%
Blood	59	28.09%
Pain	116	55.24%
Infection	74	35.23%

In our study majority of the patients presented with tinnitus 76.67% (n=161) followed by aural fullness 62.38% (n=131) & hearing loss 57.14% (n=120). Blood in ear canal was found in 28.09% (n=59) cases while 35.23% (n=74) cases attended with infection. 58% (n=122) patient presented with more than one complaints.

Table -IV: Aetiology

Type of injury	Mode of injury	No. of patients	Percentage
Assault	Slap	111	52.86%
Iatrogenic	Faulty technique ear cleaning	39	18.57%
	Syringing	45	21.42%
Accidental	Moving agent (foot/cricket ball)	3	1.43%
	Forceful blow	2	0.95%
	RTA	7	3.33%
	Unnoticed force by another person	3	1.43%
	Blast	00	00%

In this series most common etiological factor was slap 52.86% (n=111). Iatrogenic factors like faulty technique of ear cleaning & syringing accounts for 18.57% (n=39) & 21.42% (n=45) respectively. Accidental rupture of TM found in 7.02% (n=15) cases. No case of blast injury was found.

Table -V: Source of slap (n=111)

Offender	No. of patients	Percentage
Husband	39	35.13%
Father/Mother	05	4.50%
Siblings	09	8.10%
Friends/Schoolmate	16	14.41%
Miscreants	22	19.81%
Teacher	8	7.20%
Police	12	10.81%

35.13% (n=39) husbands were the main culprit for a female victim which is 18.58% of total cases. Other family members (father, mother, siblings) were responsible for 12.60% (n=14) which is 6.66% of total cases.

Table -VI: Size of perforation

Grade of perforation	No. of patients	Percentage
Grade-I (loss of tissue <25%)	126	60%
Grade-II(loss of tissue25-50%)	72	34.28%
Grade-III (loss of tissue >50%)	12	5.71%

60% (n=126) cases of the perforations were small (grade-I) in size & located in the inferior half of the membrane 90% (n=189). The perforation were found 28.9% (n=59) in anteroinferior quadrant, 61.90% (n=130) were in posteroinferiorquadrant, 7.62% (n=16) in posterosuperior quadrant & 2.38% (n=05) in central. No

observed in 88.09% (n=185) cases at 3 months. Shortest time was 21 days and longest time was 125 days. Uninfected cases healed early than that of infected cases. Wet perforation with bloody or watery discharge accelerates the healing rate. 74.28% (n=156) were healed within 30 days, 83.33% (n=175) were healed within 60 days & 88.09% (n=185) within 90 days.

Discussion

In this series we found the young age group(21-40 years) peoples had the highest incidence which is 61.89% (n=130). Out of this the maximum incidence 39.04% (n=82) was among 21-30 years age group. This finding coincides with most of the similar studies[4,5,6,7]. Males were slightly predominated over females (54.16% vs 45.84%) which is almost similar with other studies [5,6,7,8,9]. Afolabi et al[10] found male to female ratio -2.5:1 whereas Linderman et al[11] showed female predominated over male. Almost all studies[5,7,10,12] showed left ear to be affected more than right. We also found the same incidence as left ear 70.95% (n=149) & right ear 29.05% (n=95) (Table-II). The predilection for the left ear may be due to the fact that slap was the major etiological factor in this series and a right handed person tends to slap the victim facing to him over the left ear. In our study slap was the highest incidence of mode of injury (Table-III & IV). That's why left ear incidence was more than right ear.

In our study most of the patients presented with tinnitus 76.67% (n=161), aural fullness 62.38% (n=131) & hearing loss 57.14% (n=120) (Table-III). Level of hearing loss showed by Wani A et al [5] & Sarojamma et al [7] was 58.6% & 48% respectively which coincide with our findings. Highest level of hearing loss showed by da Lilly-Tariah et al[13] (94.80%) &Afolabi et al[10] (95.30%). Conductive type of hearing loss was measured by tuning fork test to all patients. Audiometry was not included in our study.35.23% (n=74) cases in our study presented with infection &Afolabi et al[10] found it in 37.50% cases.

In our study physical assault (Table-IV) got the highest score 52.86% (n=111) which is comparable with other renown series[5,6,7,9,10,]. SM Golam Rabbani et al[6] & Sarojamma et al[7] showed it 88.5% & 50% respectively. We found no cases of perforation due to blast injury but Al-Juboori et al[9] , Sarojamma et al[7] &Wani A et al[5] found it 16.60%, 4% & 5.42% respectively. Al- Juboori et al[9] conducted his study in a warfull city, Bagdad of Iraq from 2011-2013 where bomb blast was a common happening everyday which may be the fact of this high incidence.

We found husbands are the main culprit for their wives to rupture tympanic membrane by slapping 35.13%. Including other family members(father, mother, siblings) slapping accounts for 48% which reflect the family disharmony including marital conflict of our study area (Table-IV, V). In Nigeria 27.5% slapping occurred for marital conflict as showed by da Lilly-Tariah et al[13] . Attempt at removing foreign body, self ear cleaning with variety of objects like cotton bud, pin head, match stick and wax removal in an unskillnied manner either by the parents or the primary health care physician/quack with TM perforation was an important cause found mostly among the children similar to other studies [2,14].

Like that of other studies we found small perforations (Grade-I) had the high incidence 60% (n=126) which coincided with Al- Juboori et al[9] (71%) &Sarojamma et al [7](56%). Inferior half of TM involved in 90% (n=189) cases (Table-VI) &Sarojamma et al [7] showed it 96%. Hempel et al[12] concluded as inferior part of TM mostly affected. Wani A et al[5] found grade-I perforation 36% & grade-II perforation 63% which is almost reveres to us . Posteroinferior quadrant seems to be more vulnerable to trauma since it is more laterally placed & more easily accessible. This is the fact that direct trauma (like ear pricking, slap) create perforation easily. In our study we found it 61.90% (n=130) &Sarojamma et al[7] found it 58%. More than one quadrant (central) involved in 2.38% (n=05).

Most traumatic perforations have a tendency to heal spontaneously. In our study we found 88% (n=185) cases healed at 3 months which is comparable to other studies[4,15,16]. Two main factors that predispose to failure of the perforation to heal are loss of tissue & secondary infection[10]. Small perforations are more likely to close spontaneously than larger one [2]. We observed these in our study. In our study the TM healed spontaneously with prophylactic antibiotic cover & strict observation of the instruction not to allow water or any other fluid enter into the ear. By 1-3 months follow up there was complete healing of the membrane and return to normal hearing in majority of uncomplicated cases. If the perforation fails to close spontaneously in 3-6 months (in absence of infection), surgical closure is indicated[2]. As all our patients in this study had conservative, non-touch technique or non-surgical treatment we referred for myringoplasty after 3 months. Wet perforation with bloody or watery discharge significantly improve the healing rate and shortened the average perforation closure time as compared with dry perforation [8].

In conclusion,traumatic perforation of TM have excellent prognosis. The clinical outcome of spontaneously healing is generally associated with perforation size, etiology & whether dry or wet. Late presentation and wrong intervention predispose to complication & poor outcome. Social awareness is required to reduce the hearing handicap and unwanted complications.

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References

1. B.D.Chaurasia's Human Anatomy. 4th edition. Dr. Krishna Garg: CBS publishers & distributors, New Delhi,

INDIA; 2004.

2.Toner JG, Kerr AG.Ear trauma. In:Booth JB, Kerr. Advisory AG , Grooves J, editors.Scott-Brown's Otolaryngology. 6th edition.London:Butterworths Meinemann;1997.

3.Roger F. Gray, Mourice Hawthorne. Synopsis of Otolaryngology.5th edition.Butterworths- Meinemann: London;1992.

4.Berger G, Finke Istein Y, Harell M. Non-explosive blast injury of the ear. J Laryngol Otol.1994;108:393-398.

5.Wani A, Rehman A, Lateef S, Malik R, Ahmed A, Ahmed W, et al. Traumatic tympanic membrane perforation: An overview. Indian J Otol. 2016;22:100-4.

6.SM Golam Rabbani, Abdur Rashid, Khaled Mahmud, M Alamgir Chowdhury, AbdurRazzak. Traumatic rupture of tympanic membrane: A study of 70 cases. Bangladesh J otorhinolaryngol. 2015;21(1):38-42.

7.Sarojamma, Saurabh Raj,H.S.Satish. A clinical study of traumatic perforation of tympanic membrane. IOSR Journal of Dental and Medical Sciences. 2014:13(4)Ver.II:24-28.

8.Lou ZC, Lou ZM, Zhang QP. Traumatic tympanic membrane perforations: a study of etiology and factor affecting outcome. Am J Otolaryngol. 2012;33(5):549-55.

9.Al-Juboori AN. Evaluation of spontaneous healing of traumatic tympanic membrane perforation. Gen Med (Los angel).2004; 2:129.

10.Afolabi OA, Aremu SK, Alabi BS, Segum-Busari S. Traumatic tympanic membrane perforation: an aetiological profile. BMC Res Notes. 2009;2:232.

11.Linderman P, Edstrom S,Grandstrom G, Jacobson S, Von Sydow C, Westin T et al. Acute traumatic tympanic membrane perforation. Cover or observe ? Arch Otolaryngol Head Neck Surg. 1987;113:1285-7.

12.Hempel JM, Becker A, Muller J, Krause E, Berghaus A, Braun T. Traumatic tympanic membrane perforation: Clinical and audiometric findings in 198 patients. OtolNeurotol. 2012 oct;33(8):1357-62.

13.Da Lilly-Tariah O B, Somefun A O. Traumatic perforation of the tympanic membrane in University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria. Niger Postgrad Med J. 2007;14:121-124.

14.Ladapo AA. Danger of foreign body in the ear. Nig med J. 1979;9(1):120-122.

15.Grif An WL Jr. A retrospective study of traumatic tympanic membrane perforation in a clinical practice. Laryngoscope. 1979;89(2):261-82.

16.Lou ZC, Hu YX, Tang YM. Prognosis outcome of the tympanic membrane flap at traumatic tympanic membrane perforation edge. ORL J OtorhinolaryngolRelat Spec. 2011;73(4):212-8.

Review Article

Allergic Rhinitis during Pregnancy -an Update of Management

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Abstract

The concurrence of allergic rhinitis and pregnancy is common. The diagnosis of allergic rhinitis is easily and reliably made, by eliciting the characteristic symptoms on history. This diagnosis is easily confirmed by using the radioallergosorbent test (RAST) or enzyme-linked immunosorbent assay(ELISA) tests. Nasal symptoms, particularly obstruction, are often aggravated in pregnancy, through several possible mechanisms. The disease is often pre-existing and sometimes coincidental during pregnancy, and can worsen, improve, or stay the same during pregnancy. Besides ameliorating the detrimental effects of AR on the patient's quality of life, correct treatment is important for controlling concomitant asthma. If possible, it is important to highlight the risks of not taking such medications at a pre-conception visit. Although most medications for AR readily cross the placenta, there are several choices of treatment for controlling the symptoms during pregnancy. The choices may be varied depending on the disease course and symptoms, and inhaled corticosteroids are considered to be the first-line medical treatment. In addition, either a first-generation antihistamine, such as chlorpheniramine, or a second-generation antihistamine, such as cetirizine or loratadine, can be prescribed as the second-line medical treatment. As an alternative, intranasal cromolyn can be prescribed safely. Some of the leukotriene receptor antagonists and nasal decongestant sprays can only be prescribed when other methods are no longer valid and strict benefits can be expected. It is considered safe to continue immunotherapy during pregnancy.

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Introduction

Many patients are reluctant to treat sinonasal disease during pregnancy and the otolaryngologist must be knowledgeable of all medical evidence and guidelines that are available. A review of gestational rhinitis, sinusitis, and epistaxis will be discussed, including the diagnostic and therapeutic limitations and physiological changes specific to pregnancy. Physiological changes during pregnancy account for a distinct condition known as "rhinitis of pregnancy," as well as an increased incidence of epistaxis and worsened underlying sinonasal disease[1]. During the first and second trimester, there is increased circulating blood volume that is mostly contained within plasma volume and shifts to the extravascular space by the third trimester. Estrogen also has a direct cholinergic effect on nasal mucosa, causing vascular engorgement and increased mucosal gland activity, thereby causing or amplifying a preexisting sinonasal condition that usually resolves within 5 days postpartum[2,3]. Approximately 20-40% of women in their childbearing years report symptoms of rhinitis and sinonasal disease and 10-30% of these patients experience worsened symptoms during pregnancy[2]. The most common causes of sinonasal disease requiring medical attention during pregnancy include allergic rhinitis, bacterial sinusitis, and "rhinitis of pregnancy"[4]. There is also an increased incidence of rhinitis medicamentosa during pregnancy because mothers are inclined to abuse topical nasal decongestants that they believe entail a lower risk to the fetus than oral medications[5]. The purpose of this review is the effective management of allergic rhinitis in pregnancy is thus important and can be undertaken in complete safety, and the pregnant patient should not be made to suffer the symptoms.

Definition

Rhinitis is defined clinically by a combination of two or more nasal symptoms: running, blocking, itching, and sneezing. Allergic rhinitis occurs when this inflammation is IgE-mediated, following exposure to allergen[6].

Prevalence

While wide variations in reported prevalence exist, allergic rhinitis is acknowledged to be the most common allergic condition, affecting 10-25% of the population[7], is a global phenomenon, and appears to be increasing in

prevalence[8,9]. Given the common nature of the condition of pregnancy, clearly these conditions co-exist frequently!

Pregnancy and Nasal Problem

Clearly all nasal diseases can occur with the same frequency in pregnancy as they do in the non-pregnant population. While allergic rhinitis is a very common condition, the clinician must remember the other nasal conditions which can cause these nasal symptoms. Table I lists the differential diagnosis. Table II lists the predisposing causes of the subgroup of 'non-allergic non-infectious rhinitis'.

Table- I: Differential diagnosis of allergic rhinitis

Infectious rhinosinusitis (nonspecific)
Specific rhinosinusitis
- tuberculosis (TB)
- sarcoid
- syphilis
- leprosy, etc.
Non-allergic non-infectious rhinitis (see Table II)
Mechanical nasal obstruction:
- deviated septum
- hypertrophic turbinates
Tumours:
- nose/nasopharynx
- benign (e.g. polyps)/malignant
Non-allergic rhinitis with eosinophilia syndrome ('NARES')
(like allergic rhinitis, but IgE levels and skin tests are normal)
Hormonal: Puberty, pregnancy, menstrual, postmenopausal
Drug-induced: systemic: aspirin, NSAIDs, antihypertensives, etc.
Local: Sympathomimetic overuse (rhinitis medicamentosa); cocaine
Irritants: Pollution; air-conditioning; cold air
Food intolerance (Note: This is not true IgE-mediated allergy)
Emotional, probably autonomic mediated (stress, sexual ('honeymoon rhinitis'))
Atrophic rhinitis: Primary or secondary
Gastro-oesophageal reflux
Idiopathic rhinitis or vasomotor rhinitis

Table- II: Non-allergic non-infectious inflammation of the nose and sinuses

Occupational
Non-allergic rhinitis with eosinophilia syndrome ('NARES')
Hormonal: Puberty, pregnancy, menstrual, postmenopausal
Drug-induced: systemic: aspirin, NSAIDs, antihypertensives, etc.
Local: Sympathomimetic overuse (rhinitis medicamentosa); cocaine
Irritants: Pollution; air-conditioning; cold air
Food intolerance (Note: This is not true IgE-mediated allergy)
Emotional, probably autonomic mediated (stress, sexual ('honeymoon rhinitis'))
Atrophic rhinitis: Primary or secondary
Gastro-oesophageal reflux
Idiopathic rhinitis or vasomotor rhinitis

NSAIDs - nonsteroidal anti-inflammatory drugs.

It is however recognized that certain specific associations exist between pregnancy and nasal conditions. Congestion and inflammation of the nose (and sinuses) are recognised as occurring in pregnancy10-12 as a result of hormonal factors (see Table III). A 'persistent' rhinosinusitis may accompany the last trimester of pregnancy, when the severity increases as the blood oestrogen level increases. Symptoms normally resolve shortly after delivery. Severe allergic rhinitis has been associated with significant impairments in quality of life, sleep and work performance[13].

Diagnosis

The lay public too often labels all nasal symptomatology indiscriminately as 'sinus' or 'hay fever'. A definite diagnosis should always be made for nasal symptoms. Fortunately, the diagnosis of allergic rhinitis is extremely easily and reliably made. The basis of diagnosing allergic rhinitis is the history, and the symptoms are remarkably accurate (Table III).

Table- III: Symptoms specific to allergic rhinitis

Itch: Nasal/conjunctival/palatal
Sneezing many times in a row
Watery discharge: Rhinorrhoea/lacrimation
Reaction to specific allergens/situations: House dust; making beds; pollen; cats; dogs; feathers
Seasonal nature (although perennial nature does not exclude diagnosis)
Asthma/eczema
Family history of hay fever/asthma/eczema

Examination is far less reliable, and identification of the classic 'pale, blue', swollen, wet, inferior turbinates requires good lighting, a degree of experience and arguably a nasal speculum to achieve - and even then it is far less reliable than the history. Specialty consultation with otorhinolaryngologists or allergologists may assist if the diagnosis is uncertain. Confirmation of the diagnosis is done by either blood (radioallergosorbent test (RAST) or enzyme-linked immunosorbent assay (ELISA)) tests or the far cheaper and equally reliable skin-prick tests; both options are probably safe in pregnancy, but because of the small risk of hypersensitivity reaction, blood tests are advised in the pregnant state. Computed tomography (CT) scanning of the nose and sinuses is almost never necessary for allergic rhinitis. It is useful in excluding other nasal problems, particularly sinusitis. However, while the dose of radiation from current spiral CT scans is far less than it used to be, and the fetus can theoretically be shielded, radiologists are extremely reluctant to undertake CT scanning in pregnancy unless absolutely necessary, because of the issue of radiation scatter.

Management

As a general rule, medications should be avoided or used at the lowest dose that controls symptoms during pregnancy. However management of allergic rhinitis during pregnancy includes allergen avoidance, pharmacotherapy, education and possibly immunotherapy. Surgery (cautery, injection or reduction of hypertrophied turbinates) is rarely needed.

Allergen Avoidance and Environmental Control

The identification of allergens and instigation of allergen avoidance makes complete sense, and clearly puts the fetus at no risk. Symptoms of allergic rhinitis can be significantly mitigated by avoiding the allergen when this is possible.

No Treatment and Simple Non-specific Measures

There are times when, despite the diagnosis of allergic rhinitis, the symptoms are mild and no treatment is required. Nonspecific treatment measures may include the use of external nasal dilators, avoidance of irritants, and humidification. Nasal saline drops or sprays are a useful and safe option to help clear the nose, particularly before eating or sleeping[14].

Pharmacotherapy

Clearly it is a concern in pregnancy that the administration of systemic and even local pharmacotherapy might have a deleterious effect on the fetus. Caution is always advised when administering a drug to a pregnant woman, as most medications cross the placenta. The risk of fetal malformation represents a major fear and is highest during the first trimester, the time of most organogenesis. Fear of the possible teratogenicity of medication used for allergic rhinitis is largely based upon animal experiments and isolated associations in case reports. However medication is often avoided in pregnancy even when necessary, because of alarming information on drug labels or encountered in patient education. These cautions should be balanced against the fact that upper airway disease, if uncontrolled, has a significant, negative effect on quality of life, and several studies have shown that it can exacerbate coexisting asthma, which might in turn adversely affect the outcome of a pregnancy[15]. Furthermore, nasal obstruction may affect the pregnant mother's eating, sleeping and emotional well-being, which indirectly could adversely affect pregnancy[16]. For example, rhinitis during pregnancy may cause significant upper airway obstruction during sleep, which has been associated with pregnancy-induced hypertension and intrauterine growth retardation[17]. Medication is therefore indicated based on an exact clinical diagnosis, when the benefit of the drug outweighs risk, and when the drugs are carefully chosen and appropriately administered. Under these circumstances, risk should be negligible. In 1979 the US Food and Drug Administration (FDA) published a drug classification system[18] to assist in understanding the risk of any specific drug. It has five pregnancy precaution categories: A, B, C, D and X (Table IV).

Table- IV: Food and Drug Administration format for labeling human prescription drugs

Category	Description of Risk
A	Well-controlled human studies have failed to demonstrate risk to the fetus.
B	Either animal studies show no fetal risk and no human data are available, or animal studies show a risk but human studies do not show fetal risk.
C	Either animal studies indicate a fetal risk and there are no controlled studies in humans, or there are no available studies in humans or animals.
D	Studies show fetal risk in humans, but potential benefits may outweigh the potential risk in certain situations.
X	Studies in animals or humans, or based on human

Glucocorticosteroids

Systemic glucocorticosteroids are teratogenic in animals. The principal malformations are cleft lip and palate, and cardiovascular malformation[19]. Systemic steroids are generally used by otorhinolaryngologists as short courses to unblock the nose quickly at the start of treatment or as somewhat more prolonged courses for very severe symptoms during the hay fever season. The hormonal side-effects of prolonged administration even in the nonpregnant patient are widely accepted as precluding such use. Prolonged systemic corticosteroids in pregnant women have been implicated in growth retardation[20] and pre-eclampsia. Although the evidence for their teratogenic effects in pregnancy in humans is poor, concerns exist about possible increased risk of cleft lip or palate in the first trimester[21]. It would seem sensible to avoid even these short courses of systemic corticosteroids in pregnancy, whenever possible - certainly in the first trimester. The small concentrations of corticosteroids passed by the lactating mother to the infant present no substantial threat. Inhaled glucocorticosteroids, by contrast, have been extensively used by pregnant women who have asthma, and have not been incriminated in teratogenicity in humans[22]. Various studies have shown that high drug concentrations can be achieved at receptor sites in the nasal mucosa, with minimal risk of systemic adverse effects as the amount of systemic absorption of nasal steroid sprays is negligible[23]. Inhaled corticosteroids are extremely effective particularly for nasal obstruction in allergic rhinitis[24]. Large retrospective studies have suggested that topical corticosteroids may play a role in reducing the risk of asthma exacerbation[25,26]. A review of the use of budesonide in pregnancy showed no risk to the fetus in 6 600 pregnancies[27]. In a randomised, double-blind, placebo-controlled study that looked at the efficacy of fluticasone propionate nasal spray in pregnancy, no effects on the outcomes of the pregnancies were found[28]. Based on their efficacy, their limited systemic absorption, and the existing studies, nasal steroid sprays would seem to be a useful, effective and safe first-line option for use in pregnancy, particularly for nasal obstruction, and particularly after the first trimester. The FDA has assigned intranasal budesonide to category B; all other inhaled and intranasal corticosteroids are rated category C, although they are probably as safe. It is important for the clinician to emphasise and demonstrate the correct use of nasal steroid sprays, both consistent and compliant use, and administration by the correct technique, to ensure optimal benefit (Table V) which demonstrate incorrect technique.

Table-V: Instructions to patients for correct administration of nasal sprays

1. Hold your head in the normal upright position.
2. Place the tip of the nozzle in one nostril.
3. Hold the bottle at 45º to the horizontal.
4. Aim slightly away from the midline of the nose, i.e. towards the outer wall of your nasal passage.
5. Give a spray into the nostril, breathing in slightly through the nose. DO NOT SNIFF DEEPLY.
6. Give a second spray as in 5.
7. Now repeat steps 2-6 for the other nostril.
8. DO NOT BLOW YOUR NOSE FOR 15 MINUTES.
NOTE: Step 4 can be achieved by either of the following instructions:
* 'With the nozzle in your nostril aim for the outer corner of the eye'
OR
* 'Use your right hand for the left nostril, and your left hand for the right nostril'.

Antihistamines

Antihistamines are effective for the irritating symptoms of watery rhinorrhoea, itch and sneezing, but have until recently been considered to have little or no effect on nasal congestion[29]. The latest agents claim to be more effective for congestion[30]. Antihistamines for nasal symptoms need to be taken systemically, so clearly, safety of the fetus must be considered. While some first-generation antihistamines were shown to be teratogenic in animals[31-33], a large meta-analysis of 200 000 first trimester exposures to first-generation antihistamines[34] failed to show increased teratogenic risk in humans, and they are rated FDA category B. The newer second-generation antihistamines which have less central sedation than their predecessors have been less well studied. Isolated reports of teratogenicity in animal models and the possibility of hypospadias in human offspring raised concerns[35], but follow-up studies[36] dispelled these concerns and a cohort of 2147 women exposed to loratidine did not show risk of major congenital malformations[37]. Data from the Swedish Medical Birth Registry showed no increased incidence of congenital malformations in 917 exposures to cetirizine in pregnancy[35].

Decongestants

Sympathomimetic vasoconstrictor agents are not specific for allergic rhinitis, but at times are used in nasal particularly topically, may lead to tachyphylaxis, rebound congestion and 'rhinitis medicamentosa'. Oral decongestants are sometimes used alone, and at times in combination with antihistamines. Most oral decongestants are teratogenic in animals. Pseudoephedrine use in the first trimester has been implicated in an increased incidence of gastroschisis[38]. It carries an FDA category C rating. It can be considered after the first trimester when the danger of gastroschisis has passed. There are no specific data available concerning the use of decongestants during lactation. Pseudoephedrine does pass into the breast milk. It is recommended that only short-acting forms (e.g. phenylephrine) be used, and taken just after breastfeeding to minimise the concentration in breast milk. Topical nasal decongestants (nasal or ophthalmic). While it would seem logical that these are safer than oral agents, there are no adequate studies on the safety of administration. These drugs therefore carry an FDA category C rating. The limited data available suggest that their use should be limited to severe nasal congestion interfering with sleep, only when really required, preferably after the first trimester and not during labour.

Mast-cell Stabilisers

Mast-cell stabilisers, e.g. sodium cromoglycate, are virtually not absorbed by mucosal surfaces, and considered entirely safe, but, as stated previously, are far less effective than nasal steroids. No eratogenic effect has been found in animals and no adverse effect shown in humans[39]. They carry an FDA category B rating.

Allergen-specific Immunotherapy

Allergen-specific immunotherapy ('SIT', 'hyposensitisation' or'desensitisation') is based upon the repeated exposure of the allergic individual to an extract of the allergen in order to induce a state of immunological tolerance. It is generally used in patients who fail to respond adequately to avoidance, nasal steroids and antihistamines. It is less effective in patients with a wide spectrum of allergens, which is a common situation, and this limits its usefulness. It may be administered by intradermal or sublingual routes ('SLIT'). Systemic reactions may occur in up to 10% of patients, although these are usually mild[40]. There have been a number of case reports of women who have used immunotherapy during pregnancy for the treatment of allergic rhinitis and asthma without any adverse outcomes reported[37]. Metzger et al.[41] showed the safety of SIT in a study of 115 pregnant women with allergic rhinitis. It would seem unwise to initiate immunotherapy in a pregnant patient, but pregnancy is not considered to be a contraindication to the continuation of immunotherapy[42,43].

Discussion

Numerous pregnant women suffer from allergic rhinitis, and particular attention is required when prescribing drugs to these patients. In addition, physiologic changes associated with pregnancy could affect the upper airways.

Evidence-based guidelines on the management of allergic rhinitis have been published. Medication can be prescribed during pregnancy when the apparent benefit of the drug is greater than the apparent risk. Usually, there is at least one "safe" drug from each major class used to control symptoms. All glucocorticosteroids are teratogenic in animals but, when the indication is clear (for diseases possibly associated, such as severe asthma exacerbation), the benefit of the drug is far greater than the risk[42]. Inhaled glucocorticosteroids (eg, beclomethasone or budesonide) have not been incriminated as teratogens in humans and are used by pregnant women who have asthma. A few H1-antihistamines can safely be used as well. Most oral decongestants (except pseudoephedrine) are teratogenic in animals. There are no such data available for intranasal decongestants. Finally, pregnancy is not considered to be a contraindication for the continuation of immunotherapy. The only way to improve the mother's comfort and avoid complications for both mother and child is to perfectly control the disease. Indeed, it would be regrettable to be too prudent and deprive symptomatic patients of active treatments. Patients should be clearly informed of the benefits and risks of drug therapy.[44]

In conclusion, this article attempts to review the current evidence based literature on allergic rhinitis and pregnancy, in the hope of assisting clinicians in treating patients who require treatment in confidence and safety.

animals. There are no such data available for intranasal decongestants. Finally, pregnancy is not considered to be a contraindication for the continuation of immunotherapy. The only way to improve the mother's comfort and avoid complications for both mother and child is to perfectly control the disease. Indeed, it would be regrettable to be too prudent and deprive symptomatic patients of active treatments. Patients should be clearly informed of the benefits and risks of drug therapy.[44]

In conclusion, this article attempts to review the current evidence based literature on allergic rhinitis and pregnancy, in the hope of assisting clinicians in treating patients who require treatment in confidence and safety.

References

1. Loock JW. Allergic rhinitis and pregnancy - a review of the literature, with recommendations for management. Curr Allergy Clin Immunol.2009;22:11-6.

2. Incaudo GA, Takach P. The diagnosis and treatment of allergic rhinitis during pregnancy and lactation. Immunol Allergy Clin North Am. 2006 Feb;26(1):137-54.

3. Laibl V, Sheffield J. The management of respiratory infections during pregnancy. Immunol Allergy Clin North Am.2006 Feb;26(1):155-72.

4. Mabry RL. Rhinitis of pregnancy. South Med

5. Lekas. Rhinitis during pregnancy and rhinitis medicamentosa. Otolaryngol Head Neck Surg.1992 Dec;107(6 Pt 2):845-8.

6. Scadding G. Allergic Rhinitis. In: Glesson M. Scott- Brown's Otolaryngology, Head and Neck Surgery. 7th ed. London, Hodder Arnold;2008:1386-1407.

7. Bousquet J, van Cauwenberge P, Khaltaev N. World Health Organization Initiative on Allergic Rhinitis and its Impact on Asthma. Geneva: WHO, 2000;1-214.

8. Aberg N, Hesselmar B, Aberg B, Eriksson B. Increase of asthma, allergic rhinitis and eczema in Swedish schoolchildren between 1979 and 1991. Clin Exp Allergy.1995;25:815-819.

9. Leynaert B, Neukrich F, Demoly P, Bousquet J. Epidemiologic evidence for asthma and allergic rhinitis co-morbidity. J Allergy Clin Immunol.2000;106:201-205.

10. Mabry RL. Rhinitis of pregnancy. South Med J.1986;79:965-971.

11. Ellegard A, Karlsson G. Nasal congestion during pregnancy. Clin Otolaryngol.1999;24:307-311.

12. Sorri M, Bortikanen-Sorri AL, Karja J. Rhinitis during pregnancy. Rhinology.1980;18:83-86.

13. Dykewicz MS, Hamilos DL. Rhinitis and sinusitis. J Allergy Clin Immunol.2010;125:S103-115.

14. Nuutinen J, Holopainen E, Haahtela T, Ruoppi P, Silvasti M. Balanced physiological saline in the treatment of chronic rhinitis. Rhinology.1986;24:265-269.

15. Guerra S, Sherril DL, Martinez FD, Barbee RA. Rhinitis as an independent risk factor for adult-onset asthma. J Allergy Clin Immunol.2002;109:419-425.

16. Schatz M, Zeiger RS. Asthma and allergy in pregnancy. Clin Perinatol.1997;24:407-432.

17. Franklin KA, Holmgren PA, Jonsson F, Poromaa N, Stenlund H, Svanborg E. Snoring, pregnancy-induced hypertension, and growth retardation of the fetus. Chest.2000;117:137-141.

18. Food and Drug Administration. Labeling and prescription drug advertising: content and format for labeling for human prescription drugs (final rule). Fed Regist.1979;44(124):37434-37467.

19. Kusanagi T. Occurrence of cleft palate, palatal slit, and fetal death in mice treated with a glucocorticoid: an embryo transfer experiment. Teratology.1983;27:395-400.

20. Reinisch JM, Simon NG, Karow WG, Gandelman R. Prenatal exposure to prednisone in humans and animals retards intrauterine growth. Science.1978;202:436-438.

21. Park-Wyllie L, Mazzotta P, Pastuszak A. Birth defects after maternal exposure to corticosteroids:

22. Briggs GC, Freeman RK, Yaffe SJ: Drugs in Pregnancy and Lactation - a Reference Guide to Fetal and Neonatal Risk, 8th ed. Baltimore: Lippincott Williams & Wilkens; 1998.

23. Scadding GK. Safety of intratransnasal steroids. Current Opinion in Otolaryngology and Head and Neck Surgery. London: RSM Publications.2002.

24. Weiner JM, Abramson MJ, Puy RM. Intranasal corticosteroids versus oral H1 receptor antagonists in allergic rhinitis: systematic review of randomized controlled trials. BMJ.1998;317:1624-1629.

25. Adams RJ, Fuhlbrigge AL, Finkelstein JA, Weiss ST. Intranasal steroids and the risk of emergency department visits for asthma. J Allergy Clin Immunol.2002;109:636-642.

26. Crystal-Peters J, Nelusan C, Crown WH, Torres A. Treating allergic rhinitis in patients with co-morbid asthma: the risk of asthma-related emergency department visits. J Allergy Clin Immunol.2002; 109:57-62.

27. Gluck PA, Gluck JC. A review of pregnancy outcomes after exposure to orally inhaled or intranasal budesonide. Curr Med Res Opin. 2005;21:1075-1084.

28. Ellegard EK, Hellgren M, Karlsson NG. Fluticasone propionate aqueous nasal spray in pregnancy rhinitis. Clin Otolaryngol.2001;26:394-400.

29. Bousquet J, Campbell A, Michel F. Antiallergic activities of antihistamines. In: Church M, Rihoux J, eds. Therapeutic Index of Antihistamines. Lewinston, NY: Hogretfe & Huber;1992: 57-95.

30. Horak F, Stubner UP, Ziegelmayer R, Ing D, Harris AG. Effect of desloratadine versus placebo on nasal airflow and subjective measures of nasal obstruction in patients with grass pollen-induced allergic rhinitis in an allergen-exposure unit. J Allergy Clin Immunol.2002;109:956-961.

31. Walker BE, Patterson A. Induction of cleft palate in mice by tranquilizers and barbiturates. Teratology. 1974;10:159-163.

32. King CT, Howell J. Teratogenic effect of buclizine and hydroxyzine in the rat and chlorcyclizine in the mouse. Am J Obstet Gynecol.1966;95:109-111.

33. Saxen I. Cleft palate and maternal diphenhydramine intake. Lancet.1974;407-408.

34. Seto A, Einarson T, Koren G. Pregnancy outcome following first trimester exposure to antihistamines: meta-analysis. Am J Perinatol.1997;14:119-124.

35. Kallen B. Use of antihistamine drugs in early pregnancy and delivery outcome. J Matern Fetal Neonatal Med.2002;11:146-152.

36. Kallen B, Olausson PO. No increased risk of infant hypospadias after maternal use of loratidine in early pregnancy. Int J Med Sci.2006;3:106-107.

37. Gilbert C, Mazzotta P, Loebstein R, Koren G. Fetal safety of drugs used in the treatment of allergic rhinitis. Drug Saf.2005;28: 707-719.

38. Werler MM, Mitchell AA, Shapiro S. First trimester maternal medication use in relation to gastroschisis. Teratology.1992;45:361-367.

39. Wilson J. Use of sodium cromoglycate during pregnancy. Acta Theriol (Warsz).1982;8:S45-51.

40. Bousquet J, Lockey R, Malling HJ. Allergen immunotherapy: therapeutic vaccines for allergic diseases. World Health Organization. American Academy of Allergy Asthma Immunology. Ann Allergy Asthma Immunol.1998;81:401-405.

41. Metzger WJ, Turner E, Patterson R. The safety of immunotherapy during pregnancy. J Allergy Clin Immunol.1978;61:268-272.

42. Piette V, Daures JP, Demoly P. Treating allergic rhinitis in pregnancy. Curr Allergy Asthma Rep. 2006;6:232-238.

43. Shaikh WA. A retrospective study on the safety of immunotherapy in pregnancy. Clin Exp Allergy. 1993;23:857-860.

44. Demoly P, JAffuerl D, Godard F, Michel FB, Bousquet J. Asthma and Rhinitis medications: Pregnancy precautions. Presse Med.2000 Oct7; 29(29):1625-9.

Osteitis CondensansIlii - A Rare Presentation

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Abstract

We presented a case of 45 years old unmarried woman who complaints of chronic low back pain and diagnosed as a case of Osteitis CondensansIlii (OCI). We are discussing this rare presentation of OCI to increase awareness among the specialty and primary care physicians, as it may be confused with other conditions like- Ankylosing Spondylitis (AS) and inflammatory arthritis. It also prevents misdiagnosis and extensive investigations that not only increase anxiety but are of little benefit.

Key words: *Chronic low back pain, Osteitis Condensansilli, Ankylosing Spondylitis.*

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Introduction

Low back pain (LBP) is very common our day to day practice. 80% of all population experience LBP once in their life time[1]. Back pain is self-remitting condition. 70% of patients recover within one month, 90% within 2-3 month while duration of recovery may exceed more than 6 months in 4% patients[2]. LBP is most prevalent and expensive musculoskeletal problem. As many as every ten adults have LBP at some point in their lifetime. The incidence is equal in men and women but women report more LBP after age 60 years[3]. In a community based survey, showed the risk of LBP is higher among women with ratio between 1.3 to 1.57[4]. The risk of developing low back pain increases by too folds for women due to their wide pelvis, stress of hormonal change and childbirth[5]. The mean number of pregnancies was greater in women with LBP (2.6) than in those without 1.6[6]. OCI is benign pathology causing chronic back and hip pain. Although definitive cause is unknown. Most popular hypothesis is mechanical stress in development of the disease[7]. It is a self remitting condition but in a small group of patient may develop chromic LBP due to OCI.

Case Report

Our patient was unmarried lady of 45 years of age. By profession she is a school teacher. She attended outpatient department of Physical Medicine and Rehabilitation (PM&R), BIRDEM, Dhaka with the complaints of LBP for 10 years, pain and swelling of back of both heels for 2 years, pain in the outer side of elbow joint for 1year. LBP was gradual in onset, moderate in intensity, constant and dull aching in nature and without any radiation to other side. It was relieved with activity and exaggerated with rest. Usually it was associated with night pain and morning stiffness for about half an hour. She also noticed pain and swelling of posterior aspect of the heel (right>left) for 2 years which cause difficulty in walking. Then she developed pain in the lateral aspect of right

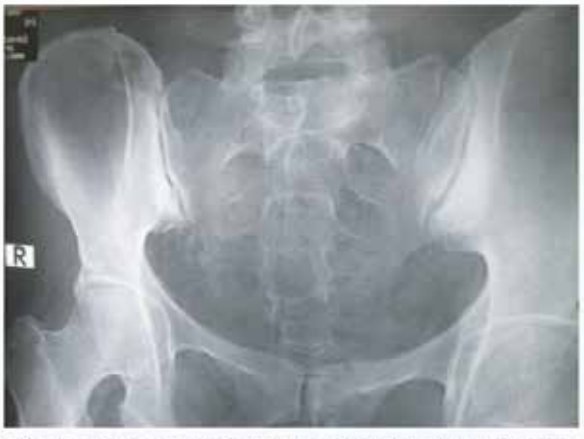

Figure- 01: X-ray of pelvis and both hip joints AP view:

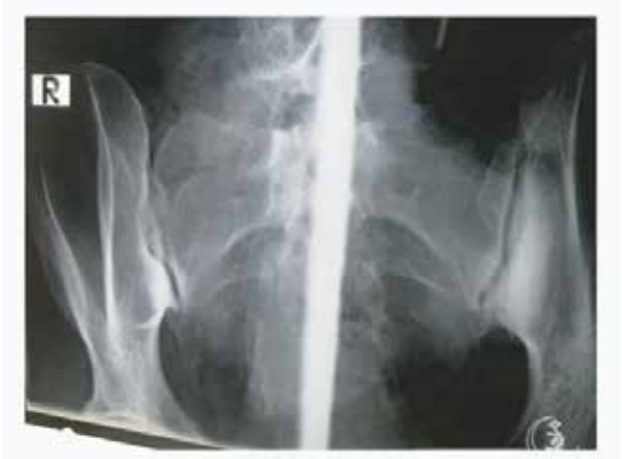

Figure- 02: X-ray of both SI joints oblique view:

elbow which aggravated during screwing movement and carrying heavy objects. She had no history of trauma, fever, weight loss, burning micturation, diarrhea, dysentery, skin, eye or nail changes, oral ulcer, chest pain and sexual exposure. On general examination her vital signs were normal. Musculoskeletal examination reveals sacroiliac joint tenderness (grade-I), Faber maneuver, sacroiliac distraction test, sacroiliac compression test, Gaenslen's maneuver were negative. Some special tests were done. Modified Schober's test -5cm, occiput to wall distance -0cm, finger floor distance -2 cm, finger- fibula distance -0cm and chest expansion -3.5cm. Her gait was antalgic. Cozen's and Chair test were positive. Mild swelling and grade -II tenderness was present on posterior superior heel. All other joints of the body were tested normal. Other systemic examination revealed no abnormality, Clinical diagnosis was AS. On investigation -hemoglobin -11.3gm/dl, Erythrocyte Sedimentation Rate (ESR) -21 mm in 1st hour, C-reactive protein (CRP) -<6mg/dl, RA test(-)ve, HLA_B27- (-)ve, Serum uric acid-4.5 mg/dl. Renal, liver, thyroid function test, s.calcium, parathhormone level, alkaline phosphatase, and phosphate level were normal. Figure -1 represents x-ray of pelvis and both hip joint anterior-posterior (A/P)- increased bone density was seen in both iliac bones. Figure -2 represents X-ray sacro-iliac joint (SI) both oblique view-joint space and articular surface of both SI joints were normal, bilateral symmetrical increased bone density involving the both iliac bone sparing the SI joint were seen. Finally the diagnosis was confirmed --Bilateral Osteitis CondensansIlii with bilateral Achilles tendinitis with right lateral epicondylitis. Patient received conservative management with physiotherapy. Short Wave Diathermy (SWD) and therapeutic exercises in the form of back muscle strengthening exercises, back extension exercises and respond accordingly for low back. For Achilles tendinitis - phonophoresis with ketoprofen gel was given and shoe modification was done. For lateral epicondylitis - phonophoresis, counter bracing by tennis elbow strap and deep cross friction message was given along with strengthening exercises and grip training.

Discussion

OCI is characterized by benign sclerosis of the Ilium adjacent to the sacroiliac joint [8]. It was first discovered by Sicard, Gally and Haguenam in the year 1926[9] and contributed five case reports. They said OCI can occur anywhere in the skeleton and describe the case which involved the oscalsis and also the fourth and fifth lumbar vertebrae. In 1928 Barsony describe the lesion as a sclerosing bone disease, easily demonstrable by x-ray and confined to OS ilii. They described 15 cases in a period of one and half years. The prevalence of OCI in the general population has been estimated to be between 0.9 and 2.5% [10]. It is essential a radiological diagnosis. The radiographic appearance of OCI [11].

Table-I: Radiographic appearance of OCI

A. Well defined triangular sclerosis on the iliac aspect of the SI joint. The bony eburnation involves the inferior portion of the bone and the apex of the sclerosis can extend up the articular portion of Ilium.
B. Normal appearing joint space and articulating surface.
C. Little or no radiological evidence of involvement of sacrum.
D. Minimal or no spurring at the lower margin of SL joint

OCI affects primarily female especially during or following pregnancy. It can also affect nuliparous woman and male[12]. Path physiology is unclear. Most popular hypothesis is that bone remodeling due to stress induced vascularity across SI joint[13]. During pregnancy mechanical stress may cause OCI or uterus may compress abdominal aorta causing ischemia and sclerosis. Gillespice and Lloyd- Roberts described 21 cases, all occurring in female who had borne children their thought was probable pathogenesis was obliterate end arteritis that follows parturition[14]. Hare and Haggart reported a series of female patient with this condition, some of whom are nulliparous. They believed that the condition might represent a disturbance of circulation[15]. Jerks et al. performed a study in 2009 and showed that 35 female of OCI reported prior pregnancy[16]. The lesions are usually bilateral with diffuse pain in the lower lumber region. Sometime it may radiate in the lower limb. The disease has chronic course and with a tendency to relapse[17]. Our case presented with non radiating low back pain which was gradual onset, moderate in intensity, dull aching in nature. It exaggerated with rest and relived a bit by activity. It was associated with night pain & morning stiffness for half an hour. The diagnosis of OCI has to be supported with the differential diagnoses. Differential diagnoses of OCI is Serongetivespondyloarthpathies especially AS, lumbar or pirifrom strain, ischio-gluteal bursitis, renal osteodystrophy, lymphoma, Paget's disease, primary hyperparathyroidism, metastatic disease etc. Polyarthalgia in peripheral joints have been noted in a small group of patients with OCI, although significant inflammatory articular findings are generally absent[18].

Table-II: Differentiating point between AS and OCI

AS		OCI	
1	As is common in man.	1	OCI is common in female.
2	As is not related with pregnancy.	2	OCI is related with pregnancy.
3	Erosion of SI joint and narrowing of SI joint space (greater than 2mm) seen in AS.	3	SI joint space is normal in OCI.
4	Sclerosis is poorly defined.	4	Sclerosis clearly defined.
5	Laboratory finding --acute phase reactants increase in AS.	5	Normal.

Basset P et al in their comparative study between OCI and AS in female patients included that OCI is not a variant of AS in a women[19]. It is a self remitting condition. Isley and Baylin in a long term follow up study of nine patients with this condition noted that all but two showed signs of definite improvement. The condition spontaneously remitted after a few days to a few weeks[20]. Treatment of OCI is primarily conservative. Physical therapies, non steroidalanti inflammatory medications and steroid injection with surgical resection being reserved for refectory cases. Servodio et al performed surgery of two OCI patients due to non responsiveness of conservative management[21]. Our case showed significant improving with non steroidalanti inflammatory drugs & therapeutic exercises.

In conclusion, OCI when found, the case should be completely investigated to uncovered new fact and findings and to prevent misdiagnosis with the other entities. As it is a case of chronic low back pain, it can interface with mood, every part of life and ADLs (activities of daily living). Through it is a self-remitting condition, conservative management, analgesics and physiotherapy are the mainstay of management of OCI.

References

1. Shakoor MA, Islam MA, Ullah MA, Ahmed MM, Hasan SA. Clinical profile of the patient with chronic low back pain- a study of 102 cases. JCMCTA.2007; 18(2):16-20.

2. Ahmad SJ, Rather AH. Clinical pattern of chronic low back ache. A prospective study of 210 cases at a multidisciplinary hospital. JK practitioner.2014; 19(1-2):21 - 27.

3. Bienng Sorensen F. Physical measurements as risk indicators of low back trouble on a one year period. Spine. 1984; 9: 106-119.

4. Kelsey JL. An epidemiological study of acute herniated lumber intervertebral disc. Rheumatic rehab.1975; 14:159.

5. Shakoor M. A, Huq MN, Khan AA, Moyeenuzzaman M. Effect of ultrasound therapy (UST) in osteoarthritis Knee Joint CM- OS (child) HJ. 2003;1(2):11 -16.

6. Meisler JG. Towards optimal health. The expert discusses management of low back pain in woman. Journal of women's health.2003;12(10):953-959.

7. Cidem M, Capkin E, karkucak M, Karaca A. OsteitsCondensansilii in differential diagnosis of patient with chronic low back pain. Modern Rheumatology.2012;22(3):467-469.

8. Mitra R. OstetisCondensansIlii. Rheumatol Int.2010; 30(30):293-6.

9. Frank I, Edmumd H. Further experience in management ostritiscondensansilii. Thejournal of bone and joint Surgery.1950; 32(4):841-847.

10. Alkan BM, Karaarslan H, Eroglu E, Alemdar A, Yamcici S, Ardicoglu O. Osteitis CondensansIlii : Case Report. Open Journal of Rheumatology and Autoimmune Diseases.2011; 1:1-4.

11. Vadivelu R, Green TP, Bhatt R. An unknown case of back pain in pregnancy. Post-graduate Medical Journal.2005; 81:65-67.

12. Demirdal OS, Haktanir A, Yaman F. low back pain due to OCI. Tourkish Journal of Osteoporosis.2013; 19:48-51.

13. Srikaut W. OCI. JAPI.2010; 58:41.

14. Gillespie H.W, Robert GL. Osteitis CondeusansIlli. BJR.1953; 26(301):16-21.

15. Hare HF, Haggart GE. OCI. JAMA.1945; 128:723-8.

16. Jerks K, Meikle G, Gray A, Stebbings S. Osteitis CondensansIlii. A significant association with sacroiliac joint tenderness in woman. International journal of Rheumatic Disease.2009;12(1):39-43.

17. Ayoub MA. Refractory Osteitis CondensansIlii. Outcome of a novel invasive surgical approach. Int. Orthop.2013; 37(7):1251-56.

18. Oliveri I. Gemignani G, Camerini E, Semeria R, Chirstou C, Giustarini S, et al. Differential diagnosis between OCI and sacroilitis. J Rheumatlol.1990;17(11):1504-12.

19. Bosset P, Gordon DA, Smythe HA, Urowitz MB, Koehter BE, Signal DP. Comparison of OCI and AS in female patient: Clinical, radiological & HLA typing characteristics. J chronic Dis.1978;31(3):171-81.

20. Kaygon PL. OCI. A case report J Cans Chiropr Assoc.1980; 24(4):161-162.

21. Servodio LC, Grillo G, Lalla E, Fazioli F. OCI: therapy and diagnostic problem.Presentation of acase

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