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CONTINUING MEDICAL EDUCATION (C.M.E)

There has been a lot of talk in recent years on the institution of some sort of C.M.E certification in Pakistan. In fact the word now being used is C.P.D i.e. Continuing Professional Development which is more all encompassing than C.M.E and implies all aspects of competence as a professional person will be covered.

There is no doubt that this is a very important requirement in any country. Many countries of the world have some sort of C.P.D program in place, all but very few of them feel fully satisfied with it. However, there must be some mechanism by which to test whether a doctor has kept abreast with the developments in his field and has constantly educated and improved himself.

The C.P.D/C.M.E process can best be carried out by an independent autonomous body having statutory power from the elected assembly. It cannot be entrusted to a government department with its inherent capacity to be influenced by outside forces and the rank inefficiency and incapability prevailing within it. The autonomous body proposed will have to develop the capacity to carry out the various tasks required. These consists of

1. A system of registration of all the practising doctors in the country, and the ability to be in contact with them and be responsive to them
2. A system of Accreditation of C.M.E/C.P.D providers including their inspection.
3. A body of experts to decide which activity should be part of C.M.E. This body will also decide points to be allocated to each activity.

These steps are not simple or easy to implement, but in view of the importance they carry, the C.M.E/C.P.D program needs to be setup and implemented without undue delay.

PROF. IRSHAD WAHEED

OUTCOME OF LEVONORGESTREL RELEASING INTRAUTERINE SYSTEM IN THE TREATMENT OF IDIOPATHIC MENORRHAGIA

MAMMONA MUSHTAQ, KHADIJA ASHRAF

ABSTRACT

Objective

To investigate the effect of levonorgestrel releasing intrauterine system (LNG-IUS) in the treatment of idiopathic menorrhagia.

Methods

Eighty-five patients with idiopathic menorrhagia were selected for the study. The LNG-IUS was inserted on cycle day 5-7. Before the insertion menstrual blood loss was measured along with hemoglobin and serum ferritin. These were measured before the insertion and once every 3 months for 3 years for evaluation of efficacy of treatment.

Results

A significant reduction of menstrual blood loss (MBL) at 1 year was observed. After 6 months one fourth of patients experienced amenorrhoea. Hemoglobin increased significantly from 9.7 gm/dl to 11.1gm/dl, while serum ferritin levels increased significantly from 20.6 ng/ml to 93.4 ng/ml after 1 year. In women using LNG-IUS levels were maintained.

Conclusion

The significant reduction in menstrual blood loss and increase in hemoglobin and serum ferritin has great implications for women's reproductive health in developing countries.

KEY WORDS:- Levonorgestrel-releasing intrauterine system, idiopathic menorrhagia, Menstrual blood loss.

INTRODUCTION

The levonorgestrel releasing intrauterine system (LNG-IUS) is known world wide for its high efficacy in contraception that lasts for at least five years¹. It is much more than just an effective contraception. It is a readily reversible alternative to sterilization² and offers positive health benefits such as shorter lighter periods and less period pain³. The levonorgestrel releasing intrauterine system (LNG-IUS) was first introduced in China by

Luukkainen in 1986 at a national conference on family planning^{4,5}. It consists of a T shaped frame carrying 52 mg levonorgestrel BP. It exerts its clinical effect by preventing endometrial proliferation, consequently reducing both the duration of bleeding and the amount of menstrual blood loss.

Idiopathic menorrhagia is one of the common gynecological diseases seen in the outpatient clinic of many general hospitals and gynecology clinics. It can cause considerable physical and psychological morbidity. Drugs including tranexamic acid, mefenemic acid, combined oral contraception and depo provera are considered as first line therapy for menorrhagia. When

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medical treatment fails, the last resort is surgical intervention. Curettage is often used as an emergency measure to treat heavy bleeding. Endometrial ablation is not very popular and is only performed in a few hospitals. Only when all methods fail after many years of treatment and the patient is very ill does the patient resort to hysterectomy. The fact that levonorgestrel releasing intrauterine system (LNG- IUS) can effectively treat menorrhagia brings hope to these women⁶.

PATIENTS AND METHODS

Eighty five parous women aged 27-43 years who experienced regular and heavy menstrual bleeding with a normal sized or slightly enlarged uterus were recruited into the study. Subjects with known or suspected pregnancy, deformity of the uterine cavity or cervical canal, undiagnosed abnormal bleeding, or any other systemic diseases were excluded. Insignificant or small fibroids, detected by ultrasound, were acceptable. A total of 85 patients were recruited and they were followed up on a 3-month basis, for 3 years. Before the insertion of the LNG-IUS, MBL was measured in two menstrual cycles, and only those with MBL over 80 ml on average were admitted to the study. The measurement of MBL was repeated at months 6, 12, 24, and 36 after insertion.

The LNG-IUS consists of a T-shaped polyethylene frame and an LNG containing cylinder covered with a membrane regulating the release of the hormone. The total amount of LNG in the cylinder is 52 mg, and its initial release rate is 20 microgram per 24 hours. The system releases the active ingredient LNG for up to 5 years at a virtually constant rate. It has been studied as a contraceptive device for more than 10 years. Insertion of the LNG-IUS was performed on day 5 of the menstrual cycle under aseptic conditions.

Serum ferritin and hemoglobin levels were measured before insertion and once every 3 months after insertion in the first year and then at yearly follow-up visits. The following analyses are based on samples taken at different time intervals. In some cases, because of very scanty spotting, MBL was not measurable, and in cases of amenorrhea no samples were collected. Therefore, the samples analyzed were fewer than the number of patients at each follow-up visit. Serum ferritin and hemoglobin levels were measured at 3, 6, 12, 24, and 36 months.

RESULTS

Eighty five women were recruited after screening MBL. All patients recruited had a history of idiopathic menorrhagia and failure in previous treatment with hormones or traditional medicine. The LNG-IUS were inserted on days 5-7 of the menstrual cycle. The mean age of the 34 patients at admission was 40 years. The mean weight was

58 kg. The mean height was 161cm. Pelvic examination revealed a normal uterus in most cases. In five cases, small sub serous or intramural fibroids were found by ultrasound. No changes in the size of fibroids were noticed at follow-up examinations. No intrauterine or ectopic pregnancies occurred during the follow-up period. There was one expulsion of the LNG-IUS in total. The IDS was sterilized and reinserted within an hour. The patient remained well with no infection and is amenorrhic at present. One of the IDS was removed prematurely because of prolonged spotting and less experience with the device during the beginning of the study. Complaints after LNG-IUS insertion were rare except for some abdominal pain (n = 5). These side effects were well tolerated and did not cause any premature removal of the IDS. In five cases, small fibroids were detected before insertion by ultrasound, but they showed no changes in size at the follow-up visits. Prolonged spotting and amenorrhea were the main complaints. Over one-third of the patients experienced amenorrhea, and one-fourth had scanty spotting. Spotting and amenorrhea often occurred alternately, which means that the amenorrhea was not constant, even though there was a tendency towards an increased incidence of amenorrhea with increased duration of use. These changes in menstrual bleeding were well accepted by the women in comparison with the monthly heavy bleeding they suffered before treatment.

After insertion of the IDS, MBL was markedly reduced. There were many cycles where MBL was so scanty that it was not measurable, and some patients were amenorrhic. After 6 months, about one-third of the patients experienced amenorrhea and one-fourth, scanty spotting. In Table I, the amounts of MBL before and after LNG- IUS insertion are given. When compared with the average MBL before insertion (5-13 pads), MBLs was negligible at 12 months. Along with the reduction of MBL,

TABLE-I MENSTRUAL BLOOD LOSS (NO. OF PADS) BEFORE AND AFTER LEVONORGESTREL RELEASING INTRAUTERINE SYSTEM / SMALL CASE INSERTION

		Menstrual blood loss (no. of pads)			
		Pre insertion	3 months	6 months	12 months
n	Valid	85	85	85	85
	Missing	0	0	0	0
Mean		8.1765	1.4471	.3647	.0000
Median		8.0000	1.0000	.0000	.0000
Mode		8.00	1.00	.00	.00
Std. Deviation		1.8656	.5001	.4842	.0000
Minimum		5.00	1.00	.00	.00
Maximum		13.00	2.00	1.00	.00

there were also significant increase of hemoglobin and serum ferritin levels. Hemoglobin increased from 9.7 gm/dl preinsertion to 11.1 gm/dl after 36 months; serum ferritin increased from 20.6 ng/mL before insertion to 93.4 ng/mL at 12 months. The differences were highly significant (Tables II and III).

TABLE-II HAEMOGLOBIN BEFORE AND AFTER LEVONORGESTREL RELEASING/SMALL CASE INTRAUTERINE SYSTEM INSERTION

		Haemoglobin			
		preinsertion	3 months	6 months	12 months
n	Valid	85	85	84	85
	Missing	0	0	0	0
Mean		9.7082	10.0847	10.4753	11.1294
Median		9.8000	10.0000	10.2000	11.0000
Mode		9.00	11.00	9.00	11.00
Std. Deviation		1.1185	1.1297	1.1497	1.1804
Minimum		7.90	8.20	8.50	9.00
Maximum		12.00	12.50	12.70	13.80

A Multiple modes exist. The smallest value is shown

TABLE-III SERUM FERRITIN BEFORE AND AFTER INSERTION

		S. Ferritin			
		Pre insertion	3 months	6 months	12 months
n	Valid	85	85	85	85
	Missing	0	0	0	0
Mean		20.6000	37.4353	54.5059	93.4365
Median		17.0000	34.0000	56.0000	97.0000
Mode		14.00	23.00	56.00	76.00
Std. Deviation		11.1582	14.0513	13.6945	26.0829
Minimum		10.00	13.00	30.00	32.90
Maximum		76.00	76.00	87.00	143.00

DISCUSSION

The therapeutic effect of the LNG-IUS in the treatment of menorrhagia is very well illustrated in European studies^{5, 6}. In the present study we reported the follow up of 84 subjects for 3 years. More than one third of the women who had amenorrhea or very scanty bleeding found the LNG-IUS very satisfactory. They had previously been suffering both physically and mentally, with no effective treatment for a long time⁷. They were happy to have amenorrhea, knowing that it was not pathological and was reversible.

Many authors have studied the mechanism of action. The therapeutic effect depends mainly on the direct action of the progestin on the endometrium and less on the systemic effect on hypothalmo-pituitary-ovarian function. Hence, the LNG-IUS has advantages over treatment with

oral steroids pills or long acting injectables of progestin. Instead of intermittent fluctuating levels, as with daily pills, or very high systemic levels of steroids, as with steroid injectables, the LNG-IUS provides a local effect with a low systemic level of progestin for several years⁸. This mechanism of action is the basis of therapeutic affect of the LNG-IUS in the treatment of menorrhagia. The serum level of E2 and P show that ovarian function is little affected after long term use⁹.

Prolonged and irregular spotting and bleeding, although in low amounts, during the early months of treatment is the main disadvantage of the LNG-IUS. Patients with menorrhagia are satisfied with reduced bleeding and are not concerned about the side effects. Prolonged spotting or a small amount of bleeding are tolerable than heavy bleeding every month. In addition, along with the reduction of MBL, the LNG-IUS has the beneficial effect of increasing blood hemoglobin and whole body iron reserves¹⁰. Although most patients were used to a low level of iron during the long duration of heavy bleeding, they were not in a healthy condition and additional diseases would worsen their condition. Hence, an increase in body iron reserves is important to women's health in general. For years, these patients had been tired and depressed. It is a great relief to such women when scanty or no bleeding occurs. Regarding younger women, they do not have to worry about accidental pregnancy because they know that the LNG-IUS is also a good contraceptive.

Some women experienced some minor side effects, such as lower abdominal pain, headache, backache, and breast tenderness but these were negligible when compared with the previous studies¹¹. In addition, treatment with the LNG-IUS saved the cost of surgical intervention, which had been the usual solution when medical treatment failed.

As reported by a study of 56 menorrhagic women waiting for hysterectomy, 64.3% of the women with the LNG-IUS for 6 months cancelled their decision to undergo surgery compared with 14.3% in the control group¹². There is no doubt that women would be happy to use a device that can stop bleeding as a conservative alternative to hysterectomy. Taking into consideration the total costs of hospitalization, operation, and the postoperative recovery period, one LNG-IUS that can last over 5 years is indeed an excellent method of treatment of menorrhagia¹³.

The results of a randomized study comparing the LNG-IUS (119 patients) with hysterectomy (117 patients) in the treatment of menorrhagia in terms of the quality of life and cost-effectiveness revealed that the health-related quality of life improved significantly in both the IUS and hysterectomy groups, as did other indices of psychological well-being. Overall, costs were about three times higher

for the hysterectomy group than for the IDS group¹⁴. The result may not be the same in Pakistan or in other developing countries. The cost of hysterectomy may be 10 times higher, including all the expenses of hospitalization^{15, 16}. For a patient of low socioeconomic status it would be a great burden to the whole family. Even for a minor operation such as endometrial ablation there is no comparison with LNG-IUS insertion as regards cost and safety¹⁷. Hence, a device that can be an alternative to surgical intervention will certainly be welcomed by many women, especially those in developing countries, where medical care and operations are not available or affordable. Some women may not be willing to tolerate the irregular bleeding that sometimes occurs in the initial phase after LNG-IUS insertion. Hence, counseling before insertion and during follow-up visits about the possibility of irregular bleeding can reassure the patient that bleeding will eventually stop and that reduction of bleeding is beneficial to her health in general¹⁸.

Among the treated women, there were five cases with small fibroids, either sub serous or intramural, as detected by ultrasound. MBL in these subjects became markedly reduced, but no decrease in size of the fibroids was detected¹⁹. The therapeutic effect of the LNG-IUS in treatment of fibromyoma or endometriosis needs to be explored in the future^{19, 20}.

The contraceptive and therapeutic effects of the LNG-IUS are important to the improvement of reproductive health of women, particularly those in developing countries. Unfortunately, owing to the limited provision of the LNG-IUS in developing countries, the best features have not been well recognized. More information should be distributed and clinical trials carried out.

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VARIATION IN THE CENTRIC SLIDE ACCORDING TO THE FACIAL FORMS

AMBREEN AFZAL, IRFAN QAMAR-UD-DIN, S.A ROUF SHAH

ABSTRACT

Objective

To compare the Centric occlusion-Centric relation (CO-CR) discrepancy among subjects having various facial forms i.e. normal, hypodivergent and hyperdivergent, determined by sagittal cephalometric analysis

Study design

Comparative; cross sectional study

Place and duration

Orthodontic outpatient department, Karachi Medical & Dental College, Karachi. Duration of the study was 18 months

Patients and Method

Study included 80 pretreatment orthodontic patients, divided into 3 groups according to their facial patterns. The first lateral cephalogram was taken in CO, then leaf gauges were placed in between incisors to guide the mandible in CR. The second cephalogram was taken with leaf gauges in place. Both the radiographs were traced. Angle ANB was measured for sagittal analysis. Angles from both cephalograms were compared with each other.

Results

Significant difference ($p < 0.05$) was found in values of ANB in CO and CR cephalograms. Significant CO-CR discrepancy was found ($p < 0.05$) in Angle's class III patients in comparison to Angle's class I and class II.

Conclusion

CO-CR discrepancy can occur regardless of age, gender and Angle's classification. Special emphasis should be given to Angle's class III patients for the centric slide.

KEY WORDS:- CR-CO discrepancy; Ccentric occlusion; Centric relation

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INTRODUCTION

The goal of modern orthodontics is to create the best possible occlusal relationships within the framework of acceptable esthetics and stability of the results¹. To achieve this goal a comprehensive examination including

a full occlusal examination is essential. A change in the mandibular position can be observed during examination when the patient occludes his teeth together (centric occlusion) from a relaxed position (centric relation). This difference between centric relation and centric occlusion is commonly known as the centric slide or CO-CR discrepancy. The CO-CR discrepancy may be due to occlusal interferences, neuromuscular abnormalities or compensation of skeletal discrepancies².

A child with bilateral maxillary constriction may shift his mandible laterally to achieve proper occlusion. Similarly pseudo-class III patient may shift his mandible forward in order to escape the incisor interferences and have a comfortable occlusal interdigitation. This gives a false clinical picture of skeletal class III. Many children and adults with a skeletal class II jaw relationship, position the mandible forward in a Sunday bite making the occlusion looks better than it really is¹.

Centric slide is accepted to be within the range of 1-2mm in anteroposterior direction and less than 0.5mm vertically and transversely at the condylar level³. Posselt⁴ in 1952 found that in 10% of patients the CR coincided with CO. For the remainder, CR was 0.5-2mm infero-posterior to CO. According to Okeson⁵, in 80% of patients the CO-CR discrepancy is 1-1.5mm, which is an acceptable range. In Angle's class II⁶, and hyperdivergent facial forms⁷, large discrepancy is expected. Such a slide between both mandibular positions are thus, considered to be responsible for a remarkable change in occlusion and esthetics. It has been shown that the mandibular body and the dentition can move distally causing an increased overjet, a decreased overbite, and a change from Angle's class I to Angle's class II⁶.

Lateral cephalometric radiograph is the key diagnostic tool used in orthodontics. When the patient has a dual bite or CO-CR discrepancy, there is a possibility that the cephalometric analysis may not give the correct impression of the existing maxillo-mandibular discrepancy and its severity. There may be difference between the result of analysis of the cephalogram taken in centric relation and cephalogram taken in centric occlusion. Williamson et al⁸ evaluated this CO-CR discrepancy through lateral cephalograms taken in both CO and CR and concluded that the discrepancy was greater in class II subjects. Shildkraut et al⁹ studied the effects of CO-CR discrepancy on cephalometric measurements. He reported significant differences in 21 out of 24 measurements. It may prove beneficial to take lateral cephalometric radiograph in centric relation for evaluation of orthodontic problems especially in class II cases as it may yield useful information regarding the severity of the problem.

The goal of orthodontic treatment is to establish the maximum intercuspation CO coincident with or near centric relation¹⁰. It is critical to identify the patient's proper CR before any orthodontic treatment is initiated and to formulate a correct treatment plan otherwise many problems can be encountered during the treatment period. The purpose of this study was to evaluate a preliminary data about the CO-CR discrepancy in various classes of malocclusion and various facial forms in a sample of Pakistani population. This study may serve as a reference to explore more avenues for the upcoming researchers, regarding the controversy of occlusal concepts and may prove beneficial for the new coming orthodontists to improve their diagnostic and treatment strategies.

PATIENTS AND METHOD

This cross sectional, comparative study conducted in the Department of Orthodontics at Karachi Medical and Dental College, Karachi. Eighty patients, selected out, of which seventy were females and ten males. The mean age was 15.9 years with the range of 10 to 30 years. The patients were divided in three groups on the basis of Angle's classification. Angles class I, class II and class III. There were twenty-nine patients in Angle's class I, forty-one in class II and ten patients in Angle's class III. Patients were selected according to non-probability convenient sampling technique. Those patients were selected who had late mixed dentition or permanent dentition. Patient with marked functional shift of mandible, pseudo-class III or dual bite were also included in the study.

Patients with the history of orthodontic treatment within past 5 years were excluded from study. Patients with missing maxillary or mandibular first molars, multiple extractions, facial asymmetry, or with the history of trauma, craniofacial pathology (also including temporomandibular dysfunction) or craniofacial anomalies were not included in the research.

This study included the pretreatment lateral cephalometric radiographs of all patients taken both in centric occlusion and centric relation. The lateral cephalometric radiographs were made with a cephalostat based on Higley¹¹ method. The distance between the x-ray source and the mid-sagittal plane of patient's head was 60 inches and the distance between film and the mid-sagittal plane was 7 inches. The left side of the subject was towards the film and right side towards the x-ray source. Patient's head was oriented with the Frankfurt plane parallel to the floor. The first radiograph taken was a conventional lateral cephalometric radiograph in centric occlusion or habitual bite with the teeth in maximum intercuspation and lips in relaxed position. The other cephalometric radiograph of the same patient was taken in centric relation. This radiograph was taken with the leaf gauges in place to

guide the mandible in its most seated position within the fossa^{12,13}. The leaf gauges were made from exposed radiographic films, which had been through the developer¹⁴. Films were cut into small leaves of specific size (1x5cm). After collecting these strips into a key chain, they were placed in between patient's incisors; then patient was ask to close on back teeth evenly on both sides. The patient was instructed to close down on the posterior teeth with a mild force using only the temporal muscles, avoiding any heavy masseter contraction¹⁵. The strips of leaf gauges were added until the posterior teeth loose contact with each other in vertical plane. With the leaf gauge present between incisors, lateral cephalometric radiograph was exposed with the jaws in centric relation as determined by the leaf gauges. After having both the lateral cephalometric radiograph (CO and CR) the radiographs were traced. Angle ANB was measured for sagittal analysis in both the tracings. The difference of the values of ANB for CO and CR tracings was analyzed to note the change in mandibular position in centric occlusion and centric relation. Entire data collection procedure was performed by a single operator. Windows SPSS 10.0 was used for data analysis.

RESULTS

In this study angle ANB was measured to compare the CO-CR discrepancy among all Angle's classes. A paired t-test was used to determine the CO-CR discrepancy in sagittal planes significant difference (p<0.0001) was found in the value of ANB in both the positions (table I). Mean value of ANB and mean discrepancy in angle ANB value according to Angle's classification is given in table II.

TABLE-I STATISTICS DESCRIBING ANB IN CO AND CR

CO-CR discrepancy	Mean values CO	Mean values CR		p-value
ANB	2.93°±3.7	4.88°±3.4		.0001*
CO-CR discrepancy	Mean	Minimum	Maximum	Std deviation
ANB	1.94°	0°	4°	.87°

TABLE-II MEAN VALUES FOR ANB DISCREPANCY IN VARIOUS CLASSES

Angle's classification	Mean	Minimum	Maximum	Std. Deviation
Class I	1.96°	1°	4°	.94°
Class II	1.65°	0°	3°	.65°
Class III	3.05°	2.5°	4°	.55°

Independent t-test was performed to compare ANB discrepancy among various Angle's classes. Table III depicts the insignificant difference in ANB discrepancy value in class II patients when compared with class I. Difference in ANB discrepancy was found significantly greater in class III when compared with class II (p<0.0001). There was significant difference in ANB discrepancy in class III patients when compared with class I (p<0.002).

TABLE-III COMPARISON OF ANB DISCREPANCY BETWEEN ANGLE S CLASSIFICATION

Comparison of classes	t value	df value	p value
Class II and I	-1.60	68	.113
Class II and III	-6.18	49	.0001*
Class I and III	-3.41	37	.002*

*Significant

DISCUSSION

The diagnostic lateral cephalometric radiograph has been considered to be a very commonly used and authentic method in the treatment planning of a routine orthodontic case. Conventionally, the lateral cephalogram is taken in CO. In an ideal situation the CO should be coincident with the CR but normally a small slide is present between the two positions. With regard to this centric slide, the cephalometric measurements that include mandible can only be considered valid if the mandible is in centric. This is because centric occlusion is not a true representation of the skeletal component. The patient may have a centric slide that may not be apparent in the cephalogram since it was taken in CO. This centric slide can be severe enough that what may appear to be a tooth related class II occlusion at maximum intercuspation is a severe skeletal class II when the mandible is allowed to assume the centric relation position. Apparent class III can be skeletal class I, apparent class I can be skeletal class II. Without detection of this discrepancy and utilization of this information in the diagnosis, treatment results will be compromised.

It is obvious from this study that there is a measurable difference in the position of mandible in cephalometric analysis between the centric relation position and maximum intercuspation. The mean value of angle ANB in CO was found to be 2.93°+3.7° while in centric relation it was 4.88°+3.4° (table I). The mean value for ANB was

greater in centric relation than in centric occlusion. This means that the mandible moved forward in centric occlusion. The reason could be answered by the explanation given by Wood¹⁶ in his study. When there is discrepancy between CO and CR, the most posterior teeth come in contact when the mandible closes in centric relation position. The body of the mandible and teeth move forward from this initial contact to centric occlusion. This forward thrust of the mandible signifies the translatory component of condylar movement under normal conditions. This forward movement or slide should be from 1-2mm. Shildkraut not defined. reported that in most of the cases, the condyle moves downward and backward when moving from CR to CO. He found the mean value of $4.1^{\circ} \pm 2^{\circ}$ for angle ANB in centric occlusion and $4.9^{\circ} \pm 2.4^{\circ}$ in centric relation. Boman¹⁷ has commented that in some class II cases with excessive overbite bite, the slide of the mandible may be upward and backward rather than forward. In the current study most of the patients had the forward slide of the mandible from CR to CO. Two out of total 80 patients had coincident centric relation and centric occlusion; both of them had class II malocclusion. The mean values for ANB discrepancy was $1.94^{\circ} \pm 0.87^{\circ}$ with a range of 0° to 4° (table I). Fuquas¹⁸ in his study reported the mean value of 1.25° for ANB discrepancy, ranging from 0° to 2.5° . While Shildkraut's findings revealed a differential mean of 0.8° . This CO-CR discrepancy was compared between various dental classes according to the Angle's classification.

Table II summarizes the difference in ANB discrepancy according to Angle's classification. Angle's class III had largest discrepancy for angle ANB i.e. $3.05^{\circ} \pm 0.55^{\circ}$ with the range of 2.5° to 4° . Class II cases had discrepancy of $1.65^{\circ} \pm 0.65^{\circ}$ ranging from 0° to 3° . There were two patients out of total 80 patients who had coincident CO and CR; both of them belonged to Angles class II. The mean CO-CR discrepancy in ANB value for Class I was found to be $1.96^{\circ} \pm 0.94^{\circ}$ with the range from 1° to 4° . Five patients out of total number of patients had discrepancy of 4° . Two had class III dental relationships while three of them belonged to Angle's class I. The three patients with largest ANB discrepancy who belonged to Angle's class I, had skeletal class I relationship in centric occlusion (ANB 2°). While in centric cephalometric tracing, it was revealed that they belonged to skeletal class II (ANB 6°) rather than class I. Two of them had a history of treatment with functional appliance. These findings validated the statement given by Graber² that functional appliance therapy may lead to creation of dual bite.

Williamson et al⁶ in his study found the greatest centric slide ($>2.5\text{mm}$) in class II patients with the range from 0 to 4mm. While in the current study, Angle's class III malocclusion had the greatest discrepancy (table III) as

most of the class III patients had pseudo-class III relationship. Two patients with the largest discrepancy of 4° had moderate skeletal class III relationship in CO, actually had mild skeletal class III in CR.

Significant difference was found ($p < 0.002$) when ANB discrepancy of class III was compared with class I and when compared with class II ($p < .0001$). No statistical significant value was found when class I was compared with class II ($p = .113$).

The reason for the greatest centric slide in class III patients was that most of the patients selected in this study had pseudo-class III malocclusion rather than true skeletal class III. Patients had edge-to-edge bite in centric relation with occlusal interferences in the incisor region. When they were asked to bite, they used to position their mandibles forward to escape the interferences and bite evenly on posterior teeth. This led to increased slide in sagittal plane.

The information from this study may be applied clinically. Cephalometric analysis and evaluation should continue to be made from radiographs taken with the teeth in centric occlusion, as there was acceptable difference in both the position i.e. centric relation and centric occlusion in most of the cases. Furthermore most of the patients report in the daily OPD belongs to class I and class II. Comparison of ANB discrepancy between class I and class II, revealed insignificant value ($p = 0.113$). On the contrary, all class III cases should be given special consideration during clinical evaluation to differentiate pseudo-class III from true skeletal class III. It can be concluded from table III that most of the class III patients had statistically significant difference in both the positions. When compared with class II and class I, it revealed significant p value.

It is suggested that all cases should be assessed clinically with the mandible in centric relation prior to treatment. If clinical evaluation reveals significant slide from centric relation position to centric occlusion, centric cephalometric radiograph should be taken and treatment should be planned accordingly.

CONCLUSION

The conclusive findings of the present study are:

1. Slide from centric relation to centric occlusion was found to be in acceptable range in sagittal plane in most of the cases
2. Patients with class III malocclusion had the largest discrepancy in centric occlusion and centric relation. All the cases should be evaluated clinically for CO-CR discrepancy. If noticeable slide is observed then centrally related cephalogram should be taken for proper diagnosis and treatment planning. Special consideration should be given to the patients with Angle's class III cases.

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COMPARATIVE STUDY OF DIFFERENT DRUG TREATMENT PROTOCOLS IN PATIENTS WITH PERITONITIS

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AQIL SOOMRO

ABSTRACT

Objective

To compare two treatment protocols for patients with peritonitis.

Design

A comparative study.

Place and duration

The study was conducted at Surgical Unit B, National Institute of Child Health, Karachi, during the year 2002.

Patients and Method

A total of 35 patients were included in the study. Two groups were made. In-group 1(n=15), protocol I (ampicillin, gentamicin & metronidazole – AGM) was used and in-group 2(n=20), protocol II (ceftazidime & metronidazole – CM) was used. All patients admitted with the diagnosis of peritonitis were recruited into the study and randomly grouped.

Results

The most common cause of peritonitis in both the groups was perforated appendicitis. Majority of the patients (n=27) were above 5 years of age. Wound infection was the commonest complication observed in both the groups (n=6 in group I and n=3 in group 2). E.coli was the commonest isolate in both the groups. Mean hospital stay in group I was 12 days and in group 2, nine days. No significant difference was observed as regard to outcome in terms of disease control and complications, while logistics in use of giving drugs made a difference in favor of group II. Mean cost of drug treatment was Rupees 1980 in group I and Rupees 1620 in group 2.

Conclusion

Both protocols can be used depending upon availability of drugs and logistics.

KEY WORDS:- *Peritonitis, Antibiotic protocols, Pediatric.*

INTRODUCTION

Peritonitis is one of the most common surgical emergencies related to gut. In majority of cases it is the result of acute secondary bacterial peritonitis. When generalized and severe it carries an appreciable mortality, varying from 20-60%.¹

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The mainstay of treatment in established cases of peritonitis certainly is surgery but toxemia, bacteremia, endotoxemia and shock of varying degrees that accompany all cases of acute secondary bacterial peritonitis needs to be controlled. To combat all these risks, antibiotic therapy is instituted invariably in all cases. Since this infection is usually polymicrobial in origin with gram negative aerobes and anaerobes (*E. Coli*, klebsiella, proteus, pseudomonas and bacteroides) and gram-positive bacteria (enterococcus, staphylococcus, streptococcus and clostridia), thus it is advocated to use combination antibiotic therapy^{1,2,3}.

This study was undertaken to compare two different protocols to analyze their effectiveness in terms of disease control and complications and also to find out cost incurred upon in application of these protocols.

PATIENTS & METHODS

This comparative study was conducted on patients admitted with the diagnosis of peritonitis in surgical unit B, National Institute Child Health, Karachi, during the year 2002. Thirty five patients were included in the study. The patients were randomized into 2 groups. In group I, 3 drugs (AGM) and group II, 2 drugs (CM) were administered. Antibiotics were started pre operatively and continued thereafter for a variable length of time in individual patient depending upon the clinical condition of the subject.

We analyzed the patients during the course of illness for possible complications, total hospital stay and the total cost related to two treatment protocols. Means were calculated for numerical variables and chi square test was applied for categorical variables, a p value of < 0.05 was considered statistically significant.

RESULTS

A total of 35 patients were included in the study group of whom 20 were males and 15 females. Eight patients were under 5 years of age with 4 in each group. Twenty-seven patients were >5 years of age, comprising 11 patients of group I while 16 patients of group II.

Various surgical conditions encountered are shown in table I. Patients randomly included in two of the groups. No significant differences found in surgical complications in two groups, P value > 0.05 (table II). The predominant isolate grew in cultures of the patients of both the groups was *E. Coli* followed by klebsiella, pseudomonas and enterobacter (table III). The total hospital stay of group I was 6-21 days (Mean 12days) while group II patients were discharged in 5-14 days (Mean 9 days). The total cost was Rs.165/day (Mean Rs.1980/patient) and Rs.205/day (Rs.1620/patient) in group I & II respectively.

TABLE-I SURGICAL CONDITIONS RESULTING IN PERITONITIS

SURGICAL CONDITIONS	GROUP I	GROUP II
Perforated appendix	6	9
Gut perforation (inflammatory)	2	1
Gut perforation (traumatic)	1	2
Meckel's with volvulus	2	2
Intussusception (gangrenous)	2	2
Malrotation/bands	-	2
Miscellaneous	2	2

TABLE-II SURGICAL COMPLICATIONS

COMPLICATIONS	GROUP I	GROUP II
Wound infection		
Moderate	3	2
Severe	3	1
Interloop abscesses	2	1
Burst abdomen	2	1
Anastomotic disruption	-	-

P > 0.05 (non significant by chi square test)

TABLE-III BACTERIAL ISOLATES OF WOUND / PUS CULTURE

ORGANISMS	GROUP I	GROUP II
<i>E. Coli</i>	3	2
Klebsiella	1	-
Enterobacter	1	-
Pseudomonas	1	-
No growth	-	1

DISCUSSION:

Peritonitis is a common condition in general pediatric surgical practice. Various drug treatment protocols are described for its management as a supportive measure in addition to resuscitation prior to subjecting the patient to definitive treatment i.e. exploration. There are a number of protocols described in different studies in literature. Since secondary bacterial peritonitis is always polymicrobial in origin, a combination antibiotic therapy is advocated. The most favored is an aminoglycoside or third generation cephalosporin plus metronidazole regimen.¹

In early 70's the standard protocol proposed by King et al was the use of ampicillin, gentamicin and clindamicin in pediatric complicated appendicitis⁴. Lund and Murphy employed the same protocol for a decade and achieved the lowest published wound infection rate of 3% in perforated appendicitis in children⁵. Our clinical results were contrasting in both the groups with moderate to

severe wound infection in 6 of 15(40%) patients in group I and in 3(15%)out of 20 patients in group II. Other less common complications we observed were intra abdominal abscesses and burst abdomen in 2(13.33%) and 1(5%) patient in groups I and II respectively.

After the third generation cephalosporins were introduced, this triple regimen became obsolete according to Wittmann⁹, but there are still authorities who are the contenders of this regimen and still producing results so is done in this study. Preoperative administration of antibiotics has proven to be effective in reducing the wound infection rate after potentially contaminated surgical procedures^{7,8,9}, so we routinely started all of our patients on antibiotic treatment according to the two protocols described above and continued the same antibiotics post operatively.

There are other protocols as well which are based on not only the parenteral therapy but also combination of intraperitoneal administration of antibiotic¹⁰. This method found to be effective to minimize post-op intra-abdominal abscess, and this route proved to be more effective than systemic administration. Other protocol described is the clinical management according to the culture results but this does not make any gross difference in terms of preventing post-op complications^{11,12}. A research is going on of antibiotic/antibody combination therapy benefits in peritonitis, using ceftazidime and locally injected polyclonal antibodies in mice. This trial study produced a synergistic 95% survival, compared to each monotherapy, a benefit significantly different than all other treatment groups⁹.

There are number of factors responsible for early improvement and early discharge described in various studies, but none has been proved to be the sole factor. So no specific recommendations can be made for the first line treatment of secondary peritonitis. Other factors such as local guidelines, ease of administration, costs and availability must therefore be taken into consideration in deciding the antibiotic regimen of choice. This is what we found at the end of our study that although there was no significant difference observed in terms of effectiveness and complications and though group II was not found cost effective but considering short hospital stay, the average cost was less and thus considered the drug regimen of choice.

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URINARY TRACT INJURIES DURING GYNECOLOGICAL AND OBSTETRIC PRACTICE

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ABSTRACT

Objective

To determine the number and type of urinary tract injuries encountered in gynaecological and obstetrical surgical procedures, so that emphasis can be placed on prevention, early recognition and management of such complications.

Study design:

Descriptive study.

Place and duration

The Department of Obstetrics and Gynaecology unit III, Liaquat University Hospital Hyderabad, from 1st March 2000 to February 2004.

Patients and Method

It was a case series descriptive study on patients who had obstetric intervention such as instrumental deliveries, caesarean sections, caesarean hysterectomies and gynaecological operations such as abdominal and vaginal hysterectomies, laparotomies, Manchester repair operations and operations for vaginal stenosis. The case records of all the patients who suffered urinary tract injuries were reviewed for predisposing factors location and type of injury, time and method of reorganization and management.

Results

During study period 742 major gynaecological surgical operations and 2455 major obstetrical operations were performed. There were 12 cases of urinary tract injuries involving bladder, urethra and ureters. Five injuries were documented in 742 gynaecological and 7 in 2455 obstetrical procedures. Nine were bladder injuries; two were urethral injuries and one ureteric. The incidence of bladder, urethral and ureteric injuries in gynaecological surgery was 0.9%, 0.13% and 0.13% respectively, whereas in obstetric surgery the incidence of bladder, urethral and ureteric injury was 0.24%, 0.04% and 0% respectively. The overall incidence of urinary tract injuries was 0.85 per 1000 deliveries and 3 per 1000 caesarean sections. All the injuries were recognized and managed intraoperatively. 11 patients recovered well and one developed vesicovaginal fistula.

Conclusion

Our study concludes that urinary tract injuries are not rare in obstetrical and gynaecological practice. These are due to delayed referral of patients, poor surgical monitoring facilities, improper training and supervision of postgraduate trainees. Prevention, early recognition and prompt treatment of these injuries especially in high-risk patients can reduce the incidence and its related morbidity.

KEY WORDS:- Urological injuries, Obstetrical practice, Gynecological practice

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INTRODUCTION

The proximity of female genital and lower urinary tract naturally results in a degree of structural and functional dependency that makes occasional urinary tract complications inevitable after childbirth and

gynaecological procedures¹. It is difficult to estimate the true incidence of such injuries. In the various reported studies the frequency of urinary tract injury in gynaecological surgery varies from 0 to 14.6 injuries per 1000 operations, with an overall frequency of 1.6 per 1000. The frequency of bladder injury varies from 0.2 to 9.5 per 1000 with an overall frequency of 2.6 per 1000². The incidence of ureter and bladder injury in obstetric operations is 0.25% and 0.3% respectively³. The incidence of operative bladder or ureteral injury is relatively low. However, even when recognized, these individuals experience greater operative and postoperative morbidity⁴. Overall these injuries put economical burden on patients and family by prolong stay in hospital and upset the psychology of the patient.

The aim of our study was to find out the number of urinary tract injuries in gynaecological and obstetric surgical procedures so that early reorganization and proper management can be sought to reduce the related morbidity and mortality.

PATIENTS & METHODS

Case records of all patients who had undergone gynecological and obstetrical surgical procedures from 1st March 2000 to 28th February 2004 were analyzed for urinary tract injuries. The information was obtained from past medical and surgical history, disease process, the indication for initial surgery, the procedure performed, and the level of surgeon. Every injury was evaluated with respect to its cause, type, location, the time of reorganization and the method of repair and its outcome.

RESULTS

During four years study period 322 abdominal hysterectomies, 134 vaginal hysterectomies, 210 laparotomies, 52 Manchester repair operations and 09 operations for correction of vaginal stenosis were performed. During same period 8235 women were delivered. 2322 caesarean sections, 57 forceps, 44 vacuum extraction and 34 caesarean hysterectomies were carried out. There were 12 urinary tract injuries. (Table I)

The incidence of bladder, urethral and ureteric injuries in gynaecological surgery was 0.9%, 0.13% and 0.13% respectively. Whereas in obstetric surgery the incidence of bladder, urethral and ureteric injury was 0.24%, 0.04% and 0%. The overall incidence of urinary tract injuries per 1000 deliveries and caesarean sections was 0.85% and 3% respectively. All urinary tract injuries were recognized and managed during intraoperative period. We observed one case of vesico-vaginal fistula as a consequence of the injury, which required secondary closure. The ureteric injury occurred during difficult abdominal hysterectomy

TABLE-I **URINARY TRACT INJURIES**

No	Type of surgery	Type of injury	Grade of surgeon	Repair
1	Emergency LSCS	Bladder	Registrar	Primary
2	Obstetric Hysterectomy	Bladder	Senior registrar	Primary
3	Emergency LSCS	Bladder	Postgraduate Trainee	Primary
4	Emergency LSCS	Bladder	Postgraduate Trainee	Primary
5	Abdominal Hysterectomy	Ureter	Postgraduate Trainee	Primary
6	Vaginal Hysterectomy	Bladder	Consultant	Primary
7	Forceps Delivery	Urethra	Postgraduate Trainee	Primary
8	Obstetric Hysterectomy	Bladder	Senior Registrar	Primary
9	Abdominal Hysterectomy	Bladder	Postgraduate trainee	Primary
10	Emergency LSCS	Bladder	Postgraduate Trainee	Primary
11	Correction of Vaginal stenosis	Bladder	Consultant	Primary
12	Manchester's Repair operation	Urethra	Registrar	Primary

LSCS=Lower segment caesarean section

carried out for endometriosis. The injury was recognized during surgical procedure, the urologist performed uretero-neo-cystostomy, and the patient did well post operatively. Indwelling catheter was retained for seven days and prophylactic antibiotic were given to all patients. Five patients had febrile morbidity from urinary tract infection. The average hospital stay was 12 to 14 days.

DISCUSSION

The close anatomical association of genital and urinary organs predisposes the urinary tract to injury during surgery. Among the common gynecological surgical procedures, which can damage the lower urinary tract including the bladder, urethra and ureter are hysterectomies both abdominal and vaginal, especially when carried out for advance malignancies, endometriosis, and pelvic inflammatory disease or in presence of previous pelvic surgeries. The predisposing risk factors are poor exposure due to large tumor masses, hemorrhage or inadequate incision and dense adhesions due to previous surgeries. In obstetrical practice caesarean section carried out for obstructed labour and obstetrical hysterectomy performed for uterine rupture are the commonest surgical procedures responsible for urinary tract injuries. An inexperienced surgeon increases the risk to many folds. In our study the incidence of urinary tract injuries is much less than that reported by Raut et al

the incidence of 1.23% bladder and 0.11% ureteric injuries in gynaecological surgery whereas in obstetric surgery the incidence of bladder and ureteric injury was 0.67% and 0.33% respectively⁶. In our study the incidence of urinary tract injury related to obstetrical procedure was higher than observed by Rajasekar et al⁶ and Onuora VC et al⁷ giving the overall rate of 0.1 and 0.43 urinary tract injuries per 1000 deliveries respectively. This is related to the fact that most of our patients were none booked, admitted in emergency as an obstructed labor or uterine rupture requiring difficult caesarean section or obstetric hysterectomy.

Iatrogenic bladder injury is a well-recognized complication of any pelvic operative procedure when recognized and properly repaired at the time of injury; lacerations of the bladder seldom lead to significant postoperative morbidity⁸. Injury to the bladder during surgery should be suspected if there is leakage of urine. In these cases the bladder should be examined carefully and in case of doubt the bladder should be filled with dye like methylene blue to identify the site for injury. The injury to the ureter is one of the most serious complications of gynaecological and obstetrical surgery. Less common than injuries to bladder, ureter injuries are far more serious and troublesome and often are associated with a high morbidity, the formation of ureterovaginal fistulae and potential loss of kidney functions, especially when recognized post operatively. For these reasons the injuries to the urinary tract particularly ureter are the common cause for legal action against gynaecologist. Any suspicion of ureteral injury during operation should be clarified and dealt with intra-operatively⁹. The proximal ureter may be dilated if it obstructed distally. Dye test with intravenous indicocarmine or methylene blue may be used to demonstrate extravasation of urine more clearly and identify the site of injury. Cystoscopy along with dye test, retrograde catheterization and intraoperative intravenous urography may be helpful in recognizing the injury even when there is any concern of bladder or ureteric injury. Postoperatively bilateral ureteric ligation is evident by anuria. Unilateral ureteral injury may present with persistent fever, pain in flanks, lump in abdomen and urinary leakage. When a ureteric injury is recognized intraoperatively or postoperatively it should be dealt with immediately and urologist must be involved in the management.

In our study most of the urinary tract injuries occurred when the trainees were performing the surgeries without

direct supervision. This should be avoided by increasing supervision and /or training of postgraduate students.

CONCLUSION:

Operative injuries during obstetrical and gynecological surgeries are rare. These are easily recognized and treated during the primary operation without important sequelae. The junior staff should predict the problem and timely summon consultant's assistance. The protocol should be developed and regular audits should be carried out to make sure that guidelines are followed.

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A COMPARATIVE ANALYSIS OF PERFORMING TONSILLECTOMY BY DIATHERMY VERSUS DISSECTION METHOD

SYED MOSADDAQUE IQBAL, AHSAN KHAN

ABSTRACT

Objective

To compare and evaluate the advantages and disadvantages of performing tonsillectomy using diathermy with dissection method.

Place & Duration

This study was conducted at Otolaryngology department, Fatima Hospital Baqai Medical College Karachi, between August 2000 and February 2003..

Design

Comparative Study

Patients and Method

Two hundred patients were included in this study. One hundred patients underwent tonsillectomy by diathermy (Group I) and the other one hundred had their tonsils removed by dissection method (Group II).

Results

The average operative time was 14 minutes using diathermy and 25 minutes for dissection method. The average intra-operative blood loss was 10 ml with diathermy and 35 ml with dissection method. Post-operative haemorrhage occurred in 12 cases of Group I and 5 of Group II. Post-operative pain of longer duration(10 days) was observed in 38 cases after diathermy and 12 cases after dissection method..

Conclusion

Tonsillectomy using diathermy is relatively fast and bloodless but due to higher rate of post-operative haemorrhage, late post-operative pain and delay in patient's return to normal activities, does not represent a significant advantage over the dissection method.

KEY WORDS:- Tonsillectomy, Technique, Results

INTRODUCTION

Tonsillectomy remains the most commonly performed surgical procedures in ENT practice. It was described in 1000 BC in India and then in 50 AD by Celsus¹ & Paul of

Aegina in 625, when tonsils were hooked, scraped and excised with the scalpel². By the early part of 20th century the prevalence of tonsil disease was recognized and necessity of tonsillectomy was appreciated. Different methods of tonsillectomy have been used e.g. guillotine tonsillectomy introduced by Willies and Pybus of Newcastle in a series of 200 cases in 1910. It was a routine method of tonsillectomy and is still in practice in few centers of the world. It was highly controversial and

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nearly unknown to present day ENT surgeons. Dissection method with ligation of bleeding points was introduced by Waugh in 1909^{3,4}. It remained the commonest practiced method in most centers of the world.

In the last decade another method is introduced by the name of diathermy or hot or electro-dissection tonsillectomy more commonly bipolar diathermy is used for both dissection and haemostasis. It was first described by Hawse and Nogurea in 1962 as a suitable method for obtaining haemostasis after tonsillectomy⁵. Now it is perhaps the commonest procedure used specially for children. Modern techniques like, harmonic scalpel, bipolar scissor dissection, microdebrider, endoscopic tonsillectomy, laser tonsillectomy, and the bipolar radio frequency ablation (co-ablation) have revolutionized the surgery of tonsillectomy⁶. All these methods of tonsillectomy are to remove the tonsil, decrease operative time, prompt control of per-operative bleeding, minimize the post-operative haemorrhage, pain and ensure early resumption of routine activities⁷.

In our study we compared the advantages and disadvantages of diathermy and dissection methods of tonsillectomy.

PATIENTS & METHODS

This comparative study of 200 patients was conducted at ENT Department, Fatima Hospital, Baqai Medical College Karachi, from August 2000 to February 2003. Hundred patients underwent tonsillectomy by diathermy and the other 100 with dissection method. (Group I and II respectively).

Age of patients ranged from 5 to 25 years. Majority were between 5 to 10 years. Study included patients of both gender with male predominance (male 148 & female 52.) A detailed history and thorough clinical examination were performed in every case. They were also evaluated for acute infection, bleeding disorders, metabolic diseases and cardiac problems. They all had investigations like CBC, ESR, bleeding time, clotting time, prothrombin time, activated partial and thromboplastin time. Platelets count, urine analysis, x-ray chest and ECG were done in some cases. The high ASOT titre in recurrent throat infection due to group-A beta hemolytic streptococci is also a possible indication for tonsillectomy⁸. Exclusion criteria was patient with acute infection, high risk anesthesia, metabolic, cardiac illnesses, and anaemia.

The average operative time, intra-operative blood loss, with post-operative haemorrhage and pain were recorded in each patient. The operative time, is the time of surgery recorded in each patient using a stop watch from beginning of tonsil dissection till complete haemostasis.

Intra-operative blood loss was quantified by measuring the blood in the suction bottle and counting the soaked swabs of 4 inches size. Each soaked swab imbibed approximately 5ml of blood. Post-operative pain was evaluated by analgesic consumption for prolonged throat pain and otalgia. Also noted were pyrexia after operation, time delay to start swallowing normal diet and return to routine activities.

RESULTS

The average intra-operative time recorded in group I was 14 minutes, while in group II it was 25 minutes. Average intra-operative blood loss was 10ml in group I and 35ml in group II. Regarding the post-operative haemorrhage, reactionary bleeding occurred in only one patient of group I and two in group II. The secondary post-operative haemorrhage was observed in 12 cases of diathermy tonsillectomy and in only 5 cases after dissection method. Post-operative pain was observed as high consumption of analgesic due to prolonged throat pain, otalgia and pyrexia in 38 cases of group I and in 12 cases of group II.

DISCUSSION

Tonsillectomy is the most common operation performed in otolaryngology. Regarding indications American academy of Otolaryngology & Head and Neck surgery recommends that children who have three or more tonsillar infections in a year should go undergo tonsillectomy, while the young ones with a sleep disorder should be the candidate for tonsillectomy⁹. Nowadays dissection method is preferred for the removal of enlarged or infected tonsils in spite of the different modern method and surgical instruments⁹. With the advent of new techniques like diathermy or electrocoagulation harmonic scalpel etc this operation is considered as outpatient day care procedure at different centers in UK and USA¹⁰.

In spite of all new surgical techniques haemorrhage is still a significant complication during and in post tonsillectomy period and 10% cases may face this problem any time from 24 hours to 10 days after operation¹¹. Diathermy tonsillectomy is popular because of shorter operative time and little intra-operative blood loss. Generally there is about 40% to 45% reduction in operative time with diathermy tonsillectomy. It is a rapid procedure with less intra-operative blood loss (4ml in 100 patient) and they were able to drink and swallow by 4 to 10 days with no primary haemorrhage. The technique of diathermy tonsillectomy is an easy procedure to learn¹².

In our study average intra-operative blood loss was 10ml with diathermy tonsillectomy and was 35ml in dissection tonsillectomy. We believe that the best indication for diathermy tonsillectomy is in children where total blood volume is less and also in patients with bleeding

disorders¹³. Post-operative haemorrhage is classified according to the severity and intensity of bleeding and ways to control it¹⁴. In our study post-operative haemorrhage occurred in 12 patients of diathermy tonsillectomy, while in 5 cases after dissection method. Thus tonsillectomy with diathermy has statistically significant higher secondary haemorrhage rate than using dissection method¹⁵. It also shows that tonsillectomy by diathermy has an increased risk of bleeding in older children¹⁶. Our study corresponds with the study of Bhattacharya¹⁷ and Wei et al¹⁸, where only in 4.3% cases post-operative bleeding was noticed, when tonsillectomy was done by dissection method and bleeding was controlled by using silk ligature. Use of bipolar diathermy although decreases the time of surgery and bleeding but there is always a danger of necrosis and infected slough formation which often leads to secondary haemorrhage¹⁹.

This study shows that post-operative pain was observed more often after diathermy tonsillectomy i.e. 38 cases while in only 12 patients of dissection method. Throat pain (postoperative) of prolonged duration after diathermy occurred more often than with dissection method. Thus diathermy tonsillectomy increases morbidity in pediatric patients in the recovery period²⁰.

CONCLUSION

Our study conclude that tonsillectomy with diathermy had an increased rate of post-operative haemorrhage, pain and delay in return to routine activity, with short operating time and minimal per-operative blood loss, while dissection method had a little longer operating time and increase intra-operative blood loss in comparison, but a significant low rate of post-operative haemorrhage and pain with early return to normal diet and routine activities.

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OBSTETRICAL HYSTERECTOMY

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ABSTRACT

Objective

To find out indications and complications of all obstetrical hysterectomies performed in our unit.

Design

A case series

Place & Duration

The study was done from January 2001 to December 2003 in Obstetrics and Gynecology unit II of Bahawal Victoria Hospital, Bahawalpur.

Patients and Method

The study included thirty two patients who underwent hysterectomy during a three year period. Records of all patients were analyzed for indications and complications.

Results

Out of a total 9018 obstetrical admissions, 7407 patients delivered. This included 2083(28.12%) caesarean sections. Thirty two patients (0.432%) underwent emergency obstetrical hysterectomy. (1 in 231.4 deliveries). All obstetrical hysterectomies were performed as a last tool to control hemorrhage and was considered as a life saving procedure. Main indications were rupture uterus (53.12%) and uncontrolled hemorrhage due to atonic uterus (21.81%). Other indications included placenta previa (9.39%), infected puerperal uterus (9.39%) and pathologically adherent placenta (6.25%). Subtotal hysterectomy was done in 25patients (78.12%) while 7patients (21.87%) had total abdominal hysterectomy. Anemia (100%) and pyrexia (78.13%) were the major post op complications. Despite multiple serious complications 26 patients (81.25%) recovered completely while 6 (18.75%) maternal deaths occurred.

Conclusion

The high number of obstetrical hysterectomies indicates the lack of knowledge and negligence among population about pregnancy and child birth. Adequate education of primary health providers, traditional birth attendants and early referral are essential to reduce this disaster.

KEY WORDS:- *Obstetrical hysterectomies, Hemorrhage, Maternal outcome*

INTRODUCTION

Obstetrical hysterectomies are performed to combat severe life threatening hemorrhage and infection. Obstetrical hysterectomies include both caesarean and

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postpartum hysterectomies. By definition an obstetrical hysterectomy is a life saving procedure performed to control hemorrhage. Caesarean hysterectomy was first proposed in 1869 in order to decrease the high mortality from hemorrhage and sepsis that accompanied abdominal delivery.¹ Porro in 1876 performed the first successful caesarean hysterectomy.² The commonest indications for obstetrical hysterectomies were

uncontrollable hemorrhage due to uterine atony, uterine rupture and placenta previa. Other indications were infected puerperal uterus and multiple fibroids with pregnancy.

Complications of obstetrical hysterectomies were hemorrhage, ureteric injury, urinary bladder injury, acute tubular necrosis (ATN), wound infection, septicemia, urinary tract infection, disseminated intravascular coagulation(DIC), sheehan's syndrome(hypo volemic pituitary necrosis) and hypo volemic irreversible shock. Maternal mortality was due to hypo volemic irreversible shock, anesthesia complication i.e. cardiac arrest, DIC, Mendelson syndrome and septicemia. In the study we document our experience of obstetrical hysterectomies

PATIENTS AND METHODS

In this study analysis was done on thirty two cases of emergency obstetrical hysterectomies performed in the Obstetrics and Gynecology unit II of Bahawal Victoria Hospital, Bahawalpur from January 2001 to December 2003. All hysterectomies during this period were performed as a life saving procedure. Clinical details, operative findings and post operative complications were analyzed. Specific data that might lead to emergency hysterectomy were critically analyzed. These included prolonged obstructed labour, neglected transverse lie, ruptured uterus, and injudicious use of oxytocin, morbidly adherent placenta and postpartum hemorrhage.

All patients received frequent blood transfusions ranging from 2-9 pints. Average blood transfusion required being 2.9 per patient. All the patients were administered prophylactic antibiotics in addition to symptomatic and supportive therapy. Intra operative and post operative complications were recorded. Patients who survived were followed up till discharge and were called back after 6 weeks.

RESULTS:

Between 1st January 2001 and 31st December 2003(three years), there were 9018 obstetric admissions in the Obstetrics and Gynecology unit II of Bahawal Victoria Hospital, Bahawalpur. Out of these 7407 patients delivered which included 2083 caesarean sections (28.12%). Thirty two patients (0.432%) under went obstetrical hysterectomies. (1 in 231.4 deliveries) with a rate of 4.32 per 1000 deliveries

Twenty seven patients (84.3%) were above 30 years of age and average age was 36 years. Nineteen patients (59.38%) who had obstetrical hysterectomies were grand multipara. Average parity of the patients was 6 (range 3-12).

Three patients (9.37%) who were para 3 underwent hysterectomy for post partum hemorrhage. All measures were taken to stop bleeding along with bilateral internal iliac ligation and hysterectomy was done as a last tool to control hemorrhage. Indications of obstetrical hysterectomies are given in table I. Uterine rupture was found to be the most common indication leading to emergency hysterectomies in 17 patients (53.12%). Commonest cause of uterine rupture was injudicious use of oxytocin injection in grand multiparous patients and patients having previous caesarean section. No patient had uterine rupture in hospital.

TABLE-I INDICATIONS FOR OBSTETRICAL HYSTERECTOMIES.

Indications	No of patients	Percentage
Ruptured uterus	17	53.12%
Atonic uterus	07	21.87%
Placenta previa	03	9.39%
Infected puerperal uterus	03	9.39%
Pathologically adherent placenta	02	6.25%
Total	32	100%

Seven patients (21.87%) had uncontrolled hemorrhage due to atonic uterus. Out of these, 5 patients had caesarean hysterectomies while 2 patients had postpartum hysterectomies. Main causes of atonic uterus were prolonged labour in 4 patients, abruptio placentae in 2 patients and chorioamnionitis in one patient.

Three patients (9.39%) with type IV placenta previa and previous 2 caesarean sections developed post partum hemorrhage after one hour of elective lower segment caesarean section. Abdomen was reopened and hysterectomy along with bilateral internal iliac ligation was performed to arrest bleeding. Two patients (6.25%) had hysterectomies because of placenta increta. These patients had previous one c-section due to non recurrent cause and then delivered vaginally. They developed primary postpartum hemorrhage due to retained placenta. Post partum hysterectomies were performed in three patients (9.39%) who had severely infected uterus due to retained product of conception. Out of these, two patients had lower segment c-section and one delivered vaginally 15-20 days back at some private clinic and come to us in a state of shock (secondary postpartum hemorrhage). Sub total hysterectomies were performed in 25 (78.12%) patients while 7 (21.87%) patients had total abdominal hysterectomies.

Significant complications other than anemia (100%) and pyrexia (78.13%) occurred in 19 patients (59.38%) during operation or post operative period as shown in table II. Multiple complications occurred in 8 patients. The complications were hypovolemic irreversible shock (9.39%), cardiac arrest due to anaesthesia (3.13%), DIC (3.13%), ATN (9.39%), UTI (18.75%), paralytic ileus (43.75%) and wound infection (18.75%). Luckily there were no ureteric or bladder injury during hysterectomies.

Complications.	No of patients.	Percentage
Intra operative		
Hemorrhage	22	68.75%
Anaesthesia complication	02	6.25%
Post operative		
Anaemia	32	100%
Pyrexia	25	78.12%
Shock (Hypovolemic irreversible)	03	9.39%
Acute Tubular Necrosis	03	9.39%
Disseminated Intravascular Coagulation	01	3.13%
Paralytic ileus	14	43.75%
Wound infection	06	18.75%
Urinary Tract Infection	06	18.75%

Maternal mortality was 18.75%. Hemorrhage was major cause of death (50%) in three patients. One patient died 6 days after undergoing hysterectomy due to septicemic shock and renal failure. She was admitted 3 days after delivery at home and came with ruptured uterus. Another patient died because of DIC. One patient died due to cardiac arrest during operation due to anaesthesia complication.

DISCUSSION

Hysterectomy at the time of caesarean section or immediately after caesarean section is called caesarean hysterectomy.³ Reviewing the literature published in the recent years the incidence of obstetrical hysterectomy ranges from 36/100,000 to 302/100,000 births.⁴ Our study showed a high incidence (1 in 231.4 deliveries) of obstetrical hysterectomy as compared to other studies performed in other cities of Pakistan. In a study done in Faisalabad the incidence was found to be 1 in 346 deliveries.⁵ In a study from Libya the rate of caesarean hysterectomy was 1.6/1000 deliveries⁶ while in our study it was found to be 4.32/1000 deliveries. Majority of the patients in our study were grand multipara (average parity 6) and more than 30 years of age (average 36 years) and

all were emergency cases. Thus unplanned reproductive pattern leading to high parity appears to be a significant factor leading to obstetrical hysterectomy.

The main indications were ruptured uterus (53%) and uncontrolled hemorrhage due to uterine atony (21.67%). The high incidence of rupture uterus indicates the widespread negligence and ignorance prevalent in the population about pregnancy and child birth. The main etiological factors of rupture uterus were injudicious use of oxytocin injection by traditional birth attendants, fetopelvic disproportion and neglected transverse lie. Previous caesarean section exposes the gravid women in subsequent pregnancies to the risk of rupture uterus, placenta previa, placenta accreta, which in turn increases the risk of undergoing caesarean hysterectomy. Clark et al and Thonet reported 44% and 52% of cases of gravid hysterectomies respectively that had one or more prior caesarean section⁷ while in our study only 5 patients (15.62%) had previous one caesarean section. This is probably due to the fact that the patients undergo caesarean section, when counseled about the risk of rupture in the subsequent pregnancies they prefer to deliver in the hospital rather than delivering at home by traditional birth attendants.

The other main indication of obstetric hysterectomy was uterine atony. Here again the main predisposing factors were high parity, placental abruption and prolonged and obstructed labour. All patients who underwent hysterectomies for atonic uterus were initially managed by uterine massage, oxytocin, methergine, PGF2 alpha, B Lench and internal iliac ligation and hysterectomy were done as a last resort to control hemorrhage and to save life. Subtotal hysterectomy was the preferred method. It is a safe and quick lifesaving operation when the condition of the patient is poor and urges arrest of hemorrhage. In such condition homeostasis and replacement of blood assumes priority over the removal of cervix. It is recommended that in the event of difficult dissection, only subtotal hysterectomy may be possible. Identification of cervix or remnant of it can be a daunting task and heroic attempts should not be made to remove it as injury to the ureter or bladder may occur.⁸

Internal iliac ligation was performed in cases where there was lateral rupture involving the uterus or in a situation where initially efforts were made to conserve the reproductive function. Also it was performed in cases of morbidly adherent placenta or placenta previa in when subtotal hysterectomy was performed. Thus, internal iliac ligation to control hemorrhage after hysterectomy was also found to be life saving measure. Luckily there were no urological complications of obstetrical hysterectomies in this study and those patients who were admitted with bladder rupture were successfully repaired at the time of

surgery. Thus, the practicing obstetrician should be fully prepared to face all the eventualities at the time of surgery and should be able to perform life saving procedures when the situation arises.

Post operative complications were mainly continuation of the sequelae of poor pre operative status rather than due to operative intervention. In addition to persistent anemia, febrile morbidity was the main post operative complication. This is mainly due to late presentation in labour and manipulation by traditional birth attendants.

Maternal mortality in cesarean hysterectomy is generally quoted as 0.7% in developed countries as compared to 0.05% in cesarean deliveries.³ In the current study maternal mortality was 18.75% and this is comparable to the studies conducted in Peshawar⁹ and Lahore¹⁰ where it was 17% and 16% respectively. In Faisalabad study⁵ maternal mortality was reported to be 9% while in Al Jamhiriya Hospital, Benghazi it was 8%.⁸ The high mortality in this study is probably not only due to the extensive surgery, but also due to pre disposing factors necessitating caesarean hysterectomies and poor referral system as majority of the patients were virtually exsanguinated on admission. The early non availability of blood was serious setback towards early intervention and outcome as usually the attendants were reluctant to donate their blood.

CONCLUSION

We concluded from this study that in spite of all conservative surgical procedures employed in postpartum hemorrhage; sometimes the hemorrhage is not controlled. So we need obstetrical hysterectomy as definite and last tool to control hemorrhage and is a life saving procedure. We also concluded that most of the indications of emergency obstetrical hysterectomies were preventable.

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ASSESSMENT OF THE COMPLICATIONS OF TOTAL THYROIDECTOMY

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ABSTRACT

Objective

This study was conducted to find out complications of total thyroidectomy in our unit.

Patients and Method

All the patients who had undergone total thyroidectomy for differentiated carcinoma and for large benign multinodular goiter, over a period of eight years at surgical unit I, JPMC, Karachi were included and complications were analyzed.

Results

Postoperative hypocalcaemia was the commonest complication occurring in 14 patients (17.2%) with 95% confidence interval of 5.26–37.24, voice changes occurred in 11 patients (13.5%), respiratory complications in 8 patients (9.8%), recurrent laryngeal nerve injury in 2 patients (2.4%) and postoperative haematoma in one patient.

Conclusion

Postoperatively clinical signs of hypocalcaemia should be looked for. In most of cases it is temporary and improves on supplementation.

KEY WORDS:- *Complication, Thyroidectomy, Hypocalcaemia*

INTRODUCTION

Complications following head and neck surgery are inevitable, and it is important to assess the work done to find out various complications occurring as a result of operation. Surgery on thyroid gland is done very frequently in our unit. Recurrent laryngeal nerve injury is the most common reported injury but in fact the most common and painful is the hypocalcaemia¹ causing carpopedal spasm. Laryngeal spasm and cardiac standstill are its dreadful consequences. This can be due to inadvertent ischaemia or removal of all four parathyroid glands. This complication can be prevented or reduced by careful dissection and identification of the parathyroid gland or it can be sliced and then implanted in the muscle. Total thyroidectomy is done for differentiated and

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medullary carcinoma, Grave's disease with severe or progressive ophthalmopathy, and large multinodular goiter². This study was undertaken to determine the frequency of complications of total thyroidectomy at our unit.

PATIENTS & METHODS

The record of patients admitted from 1995 to 2003 was examined and only patients who had undergone total thyroidectomy were selected. Patients who had undergone surgery for undifferentiated carcinoma, or had associated block dissection of neck or had parathyroid gland implanted were excluded from the study. In addition to the demographic information, postoperative complications including hypocalcaemia, cervical haematoma, recurrent laryngeal nerve injury and wound complications were recorded and analyzed statistically.

In immediate postoperative period the breathing, voice, wound and drains were checked. Any voice change on

the first and third day was noted. Hoarseness, dysphonia and difficulty in breathing were assessed by laryngoscopy. Symptoms of tingling and numbness of the lips, nose and extremities were recorded and clinical signs of carpopedal spasm (Trousseau's) and muscular twitch (Chvostek-Weiss sign) were recorded. Serum calcium levels were obtained in the post-operative period. The wound was examined on the third day and stitches were removed on the 6th day. Thyroid hormones and TSH levels were assessed after two weeks since the half life of thyroxine is 7 to 8 days. Patients were assessed clinically, with serum calcium levels and laryngoscopy done every month in the out-patient department.

RESULTS:

794 patients were operated for thyroid disease during the period of 8 years from 1995 to 2003. A total of 81 patients, 13 male (16%) and 68 female (84%) were identified out of 114 who had total thyroidectomy either for carcinomas (differentiated or medullary), Grave's disease, or large multinodular goiter. Of the patients excluded, 8 had undifferentiated carcinoma, 16 underwent associated neck dissection for lymph nodes while in 9 patients parathyroid gland was implanted in the muscle.

Among the patients with carcinoma, 36 patients (44.4%) with 95% confidence interval of 24.54-65.70 had papillary, 24 patients (29.6%) with confidence interval of 13.09-51.11 had follicular, and 9 patients (11%) with confidence interval of 2.2 - 29.39 had medullary carcinoma. Of these, 56 patients out of 81 (69%) had undergone completion thyroidectomy for carcinoma after the biopsy report. The difference in the percentage of these carcinoma patients was found to be statistically significant with $P = 0.001$, Chi-square = 22.22., while 12 patients (14.8%), underwent total thyroidectomy for large multinodular goiter.

Regarding the complications, postoperative hypocalcaemia was observed in 14 patients (17.2%) with 95% confidence interval of 5.26 - 37.24, only two of them had a permanent parathyroid insufficiency. Younger age was associated with an increased incidence of hypocalcaemia. Voice changes were observed in 11 patients (13.5%) confidence interval of 3.35 - 32.63, one had permanent change but the others improved within four months. Respiratory complication and dyspnoea occurred in 8 patients (9.8%) with confidence interval of 1.74 - 27.71. The recurrent laryngeal nerve injury was encountered in two patients (2.4%) 162 nerves at risk, confidence interval of 0.01 - 16.12, one being permanent. While only one patient had postoperative haematoma.

DISCUSSION

Permanent hypoparathyroidism was defined as hypocalcemic symptoms plus a requirement for oral

vitamin-D or calcium, 6 months after thyroidectomy⁹. The results revealed that parathyroid insufficiency was the most common complication (17.2%) in our study. This is much higher than Bhattacharyya's report from Harvard Medical School in Boston. He analyzed data from 517 total thyroidectomy cases performed between 1995 and 1999 and came up with a conclusion that the postoperative hypocalcemia was the most common (6.2%) complication^{4,5}. The difference in the incidence can be attributed to the fact that in our study 8 patients were operated for longstanding, large multinodular goiter and their inferior thyroid artery was ligated- in-continuity and that may have produced ischaemia of the parathyroid glands. While the rest of the 7 cases had completion thyroidectomy three to five weeks after the initial surgery. The study by Agarwal has shown that that there was no impact of timing of surgery on the rate of complication after completion thyroidectomy⁶. Though it was considered that completion thyroidectomy for thyroid malignancy should be performed either within 10days of the primary operation or after 3 months, to reduce the incidence of complications. The British Thyroid Association guidelines and booklets for patients' states that about one in three patients after total thyroidectomy will have temporary hypocalcemia and two percent of patients will have a permanently low calcium levels⁷. Another study conducted at Ayub Medical College complex at Abbottabad has reported the incidence to be about 15%⁸. The apparent wide variation in studies conducted abroad and in Pakistan is within the 95% confidence interval and therefore are comparable.

All these patients were placed on vitamin -D and calcium replacement, only two patients needed replacement permanently and were followed for 12 months. To avoid this complication parathyroid gland must be preserved whenever possible, or implanted in the muscle. It is usually possible to keep two glands on the non-involved contra-lateral lobe, where a small sliver of thyroid can be left to maintain an intact blood supply⁹. The other method is to identify the gland and then to implant at least one of them in the sternocleidomastoid muscle. The glands are removed, sliced into small pieces, and placed in a muscle bed in the neck (parathyroid auto-transplantation). If this is done appropriately, a 95% success rate should occur¹⁰.

Change in voice was the second most frequent complication (13.5%) noted in our study. It ranged from, inability to produce a high pitch sound to whispering sound. . In patients having a total thyroidectomy, voice weakness can occur because of traction on the thyroid and tension on the external branch of the superior laryngeal nerve. This can result in a bothersome voice weakness, which occurs at the end of the day. It may take several weeks to resolve.

Thyroidectomy for a large goiter carries a relatively high risk of postoperative respiratory obstruction. In this study 8 patients had respiratory problems, all these patients had retrosternal extension, tracheal deviation or long-standing large multinodular benign goiter, and the problem was attributed to tracheomalacia and trauma during intubation. One patient had to undergo temporary tracheostomy. The other causes are laryngeal edema, and haematoma deep to the strap muscles. Significant tracheal deviation, retrosternal extension, difficult endotracheal intubation, thyroid cancer and goiter of more than 5 years duration are regarded as preoperative predictive risk factors for respiratory obstruction¹¹.

Damage to one or both recurrent laryngeal nerves (RLN) can result in severe hoarseness, and stridor. The recurrent laryngeal nerve was injured unilaterally in two patients and both had completion thyroidectomy with re-exploration of the operated side. The chances of RLN injury are much more (5%) when exploration of the operated side is done^{9, 12} the reason being the fibrosis, and distortion of anatomy. The incidence quoted in literature varies from 0.31%¹² to as high as 13% when temporary paralysis is included¹³. Another study conducted by Bhattacharyya⁴ has reported the incidence of unilateral RLN injury as 0.77% and bilateral as 0.39%, both these findings are within the 95% confidence interval of our study.

A review article by Bergamaschi in 1998 revealed that nerve injury was significantly associated with surgery done for malignant disease rather than the extent of surgery¹⁴. This phenomenon was not seen in our study as both patients with nerve injury had benign pathology, but since our study had much less number of patients than the former study therefore it needs to be evaluated and larger study is needed to discuss this aspect.

In our unit we always attempt to expose the RLN completely during surgery. In a study conducted at the University of Vienna, Austria to evaluate the effect of RLN dissection on the incidence of RLN injury proved that recurrent laryngeal nerve dissection significantly reduces the risk of RLN injury. The rate being 0.9% for surgeons who only localize, 0.3% for those who partially expose and only 0.1% for those who completely dissected the nerve¹⁵.

CONCLUSIONS

Postoperative hypocalcaemia was the most common immediate surgical complication of total thyroidectomy, and needs to be clinically looked for in every case. Postoperative voice change and respiratory problems were high but were within the 95% confidence interval of other studies. Re-exploration of the operated side for completion total thyroidectomy is associated with higher incidence of nerve injury and therefore complete lobectomy should be the minimum procedure for the unilateral pathology.

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EMERGENCY CESAREAN HYSTERECTOMY

SHAKIRA PERVEEN

ABSTRACT

Objective

To evaluate clinical indications and associated risk factors of emergency cesarean hysterectomy.

Patients and Method

It was a case series comprising of patients managed at two private hospital. During three years study period 25 patients under went emergency cesarean hysterectomy. Records of all these patients were analyzed. Variable included clinical data, investigations, operative findings and pathological reports.

Results

A total of 18926 vaginal deliveries, 4894 cesarean section and 25 emergency cesarean hysterectomies were performed during study period. In our study frequency of cesarean hysterectomy was 1.3/1000 of vaginal deliveries and 5/1000 of cesarean section. Twenty one (84%) cases were non booked emergency admission, majority of them were multipara. Antepartum haemorrhage was indication of cesarean section in 84% and indications of cesarean hysterectomy was adherent placenta in 68%, uncontrollable haemorrhage in 24% and couvelair uterus in 10%. In 92% total abdominal hysterectomy was done.

Conclusion

In this series main indication of emergency cesarean section was adherent placenta in patients with placenta praevia and previous uterine scar.

KEY WORDS:- *Emergency cesarean hysterectomy, Cesarean section, Placenta praevia, Placenta accreta,*

INTRODUCTION

Cesarean hysterectomy is the process of removal of uterus at the time of cesarean section¹. Cesarean hysterectomy is either elective or emergency. Elective when there is need to remove the uterus due to existing disease and emergency when some complications arises during the course of cesarean section making it necessary to remove uterus¹. Patients are best considered as either emergency cases with life threatening haemorrhage or elective cases in which hysterectomy could be performed at another time².

Emergency cesarean hysterectomy has been accepted as a life saving procedure^{3,4,5}. Uncontrollable haemorrhage

due to adherent placenta is common indication. Couvelair uterus, uterine atony and infection are becoming rare indications of cesarean hysterectomy. As the number of cesarean deliveries is increasing the number of pregnant patients with a prior uterine incision is also increasing. The scar formed by the uterine incision exposes the gravid women to increased morbidity as placenta praevia, placenta accreta and other complications⁶ occur more frequently. Current understanding of coagulopathies and replacement of clotting factors along with increasing confidence in current oxytocic agents have reduced the necessity to remove the couvelair uterus⁷. Pharmacological modalities for the treatment of uterine atony like oxytocic agents and PGF2 _ may be responsible for the decrease in uterine atony as a cause of emergency cesarean hysterectomy⁸. The current practice of early intervention with ruptured amniotic membrane and failure to progress has prevented extensive uterine infection⁷.

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The standard operative technique of cesarean hysterectomy is same as in gynaecological cases. At the time of cesarean hysterectomy, the tissues of the pelvis are very lax, highly vascularised and edematous specially after labour and the ovarian and uterine vessels may be dilated up to six times their normal caliber because of these factors it is essential that all pedicles must be clearly identified, isolated and securely clamped and ligated⁹.

The incidence of morbidity and mortality of cesarean hysterectomy are high not because of removal of uterus at the time of cesarean section but because of its indications. Common intraoperative complications are haemorrhage and urinary tract injury and postoperative are soft tissue pelvic infection, abdominal wound infection and urinary tract infections.

PATIENTS AND METHODS

It was case series study carried out in two private hospitals from January 1999 to March 2002. During study period 25 patients underwent cesarean hysterectomy. All were emergency cesarean hysterectomies, for complications that were deemed by the responsible physician to be life threatening. Informed consent was taken prior to every hysterectomy.

Records of all these patients were analysed and identity of patient was kept confidential. The parameters included were age, parity, booking status, indication of cesarean section and indication of cesarean hysterectomy, technique of operation performed, operative and post operative complications, investigations, operative findings, post operative follow up at six weeks and three months and pathological reports, blood loss estimations. Findings were evaluated in terms of frequency and percentage.

RESULTS

In both centers a total of 18926 vaginal deliveries, 4894 cesarean section and 25 cesarean hysterectomies were performed during the study period. Frequency of cesarean section was 3.86 of vaginal deliveries and frequency of cesarean hysterectomy was 1.3/1000 of vaginal deliveries and 5/1000 of cesarean section. Twenty one (84%) cases of cesarean hysterectomy were non booked emergency admission, 4 (16%) were booked admission. Age group in 48% was 25 – 29 and in 52% 35 – 40. Median parity was 3 – 5.

Indications of cesarean section were antepartum haemorrhage in 76%, fetal distress in 8%, pre-eclampsia in 8% and non progress of labour in 8%. Placenta praevia type III and type IV were the causes of antepartum haemorrhage in 89.4% and abruptio placentae in 10.5%. In 76.4% placenta praevia cases uterine scar of previous

cesarean section was present, in 69.2% previous 3 cesarean section, in 15.3% previous 2 cesarean section, in 7.6% previous 6 cesarean section and in 7.6% previous 1 cesarean section uterine scar was present.

Indications of cesarean hysterectomy were abnormally adherent placenta in 68%, uncontrollable haemorrhage in 24% and couvelair uterus in 8%. All cases of cesarean hysterectomy due to adherent placenta had antepartum haemorrhage of placenta praevia and 76.4% cases also had uterine scar. Histopathology of adherent placenta revealed placenta accreta in 82.3%, placenta increta in 11.7% and placenta percreta in 5.7%. In 92% total abdominal hysterectomy and in 8% sub total abdominal hysterectomy was done according to circumstances.

All the patients were transfused. Maximum number of blood transfusions was 19 units and minimum 2 units. Hypovolemic shock was main intraoperative complication. Febrile illness (77.7%), urinary tract infection (22.2%) acute renal failure (11.1%) and paralytic ileus (11.1%) were postoperative complications.

Five mothers (20%) expired within 24 hours of surgery due to hypovolemic shock and 1 mother (4%) after 48 hours due to disseminated intravascular coagulation. Seven babies (28%) were still born due to severe antepartum haemorrhage. Both mothers and babies were healthy and fine at 6 weeks and 3 months follow-up in surviving subjects.

DISCUSSION

Emergency cesarean hysterectomy has been accepted as life saving procedure^{3,4,5}. Its frequency in our study is almost equal to literature^{4,10,11}. The combination of high parity, cesarean section, prior cesarean delivery, current placenta praevia have been identified as high risk factors and presence of them should alert the obstetrician that an emergency cesarean hysterectomy will be needed¹². As the number of cesarean deliveries increasing the number of pregnant patients with a prior uterine incision is also increasing⁶. This rising cesarean section rate is world wide phenomenon, more apparent in the developed than the developing countries¹³. Scar formed by the uterine incision exposes the gravid women to increased morbidity as placenta praevia, placenta accreta and other complications⁶ increases. Therefore this problem will have to be attacked on two fronts firstly by reducing the primary cesarean section rate and secondly by decreasing repeat cesarean section¹³.

Incidence of placenta praevia between nulliparous and multiparous is different. In nulliparous women lower segment formation occurs mostly in the weeks leading up to labour; in multiparous women this development is less

pronounced and may occur as part of the labour process¹⁴. Median parity in our study was³⁻⁵. Risk of placenta praevia is highest in the pregnancy immediately following cesarean section. This could be due to failure of appropriate lower segment development because of scar tissue¹⁵. Incidence of placenta praevia increases in linear way with increasing number of cesarean section¹³. Its incidence is 0.26% in an unscarred uterus, 0.65% after 1 cesarean section, rising to 10% in women with 4 or more abdominal deliveries¹⁶. Therefore diagnosis of placenta praevia with routine ultrasound is necessary in these high risk cases.

Abnormal placentation such as placenta accreta and percreta have an association with placenta praevia and in particular with the combination of previous cesarean section and placenta praevia¹³. All cases in our study with adherent placenta had placenta praevia and previous uterine scar. In another study 5% of women with unscarred uterus and placenta praevia and 24% of women with previous 1 cesarean section had placenta accreta. The risk of placenta accreta rises with each repeat cesarean section, such that 40% of women with 2 or 3 previous operations and 69% of women with 4 or previous cesarean section had placenta accreta¹⁷. For the assessment of a woman with an ultrasound diagnosis of placenta praevia who is at risk of abnormal placentation such as women with 3 or more previous abdominal deliveries magnetic resonance imaging is the most accurate technique for diagnosis of placenta praevia as it allows the precise localization of the cervix. It is also useful for identifying the presence and extent of placenta accreta and percreta^{17,18,19}. Color flow mapping is also useful in this context. Color flow mapping for myometrial invasion in a women with a prior cesarean delivery predicted myometrial invasion when smallest myometrial thickness was <1mm and large intraplacental lakes are demonstrated²⁰.

Total abdominal hysterectomy was preferred, as there was no difference in blood loss, operating time or hospital stay. It prevents subsequent possible cyclical bleeding from regenerated endometrium in the remaining cervix and to prevent cancer of cervix from developing at a later date.

Maternal mortality in our study was 24% and in one local study 13.7%²¹. So decision at proper time and lower threshold for emergency cesarean hysterectomy greatly influence the maternal mortality. Anticipation of complication at cesarean section is an important factor in reducing maternal mortality.

CONCLUSION

Emergency cesarean hysterectomy is life saving procedure. Its risk factors are high parity, cesarean section, placenta praevia and previous cesarean section

because of its tendency to cause adherent placenta. Therefore in hospitals with appropriate facilities, service and staff for prompt emergency cesarean birth in a proper selection of cases should permit a safe trial of labour and vaginal delivery for women who had a previous lower segment cesarean section.

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ASSOCIATION OF MATERNAL GLYCEMIA WITH NEONATAL COMPLICATIONS

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ABSTRACT

Objective

To find out the relation of maternal glycosylated haemoglobin (HbA1c), maternal weight at first antenatal visit and weight gain during pregnancy with birth weight of the baby.

Patients and Method

Sixty infants of diabetic mothers were enrolled over period of six months. The 3rd trimester glycosylated haemoglobin of the diabetic mothers was done at term or post term. The neonates were evaluated for macrosomia and screened for hypoglycemia, hypocalcemia, hyperbilirubinemia, birth asphyxia, birth trauma and congenital anomalies. Linear correlation analysis for bivariate data was performed to study the relationship between maternal HbA1c and birth weight. Correlation coefficient was also calculated for various maternal variables (weight at 1st antenatal visit and maternal weight gain) and birth weight.

Results

Twenty seven (45%) IDMs out of 60 were macrosomic. Correlation coefficient for HbA1c and birth weight was 0.44. This showed a mild linear relation of the two variables. Maternal weight at first antenatal visit showed an even weaker correlation with birth weight ($r=0.24$).

Conclusion

Maternal HbA1c level should be used to monitor the maternal glycemic control and thereby reduce the chances of macrosomia.

KEY WORDS:- Glycosylated hemoglobin, Birth Weight, Maternal diabetes

INTRODUCTION

Diabetes mellitus during pregnancy is associated with increased fetal as well as neonatal mortality and morbidity¹. Although the perinatal course of many infants of diabetic mothers (IDMs) is uneventful, they are still at an increased risk of complications¹. Macrosomia is a well-known characteristic feature of the off-springs of diabetic women. It has served as a marker for evaluating morbidity. It results from maternal hyperglycemia leading to fetal hyperglycemia and hyperinsulinemia². Multiple

studies have been carried out evaluating the relationship of macrosomia with different maternal variables including glycemic control during pregnancy, gestational age, maternal height and weight gain during pregnancy^{3,4}.

In some studies 15-18% variance in birth weight of infants has been attributed to glycemic control in 3rd trimester^{4,5}. Other studies document weight at 1st antenatal visit and maternal weight gain during pregnancy as significant predictors for macrosomia⁶. Determination of HbA1c is a good indicator of preceding glycemic status of the diabetic mother. Its measurements in the 3rd trimester (or post partum) provides, a time integrated, retrospective index of the maternal glucose concentration over the previous 4 to 8 weeks.

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PATIENTS AND METHODS

This study was an analysis of the infants of diabetic mothers. Data was collected over a period of 6 months. Sixty infants of diabetic mothers were admitted in the neonatal intensive care unit immediately after delivery. All the diabetic mothers were delivered in the department of obstetrics and gynecology. Maternal variables including weight at 1st antenatal visit, weight gain during pregnancy and maternal height were abstracted from the medical records of the hospital. Glycosylated hemoglobin (HbA1C) of diabetic mothers was estimated at the time of delivery. The test was performed on the IMX automated immunoassay analyzer of (Abbott diagnostic, USA). The value of HbA1c was taken as raised if HbA1c level was more than 6.45% (normal range 4.4-6.45%).

The IDMs were classified as macrosomic when the birth weight was in excess of 4000gm or birth weight and length were >90th centile when corrected for gestational age 7, 8. They were defined as appropriate for gestational age (AGA) when weight and length were between ten and ninety percentile for gestational age and small for gestational age (SGA) if weight and length were below tenth percentile.

Other parameters assessed were blood sugar level of IDMs at birth, hourly for 2 hours and later at 4,8,12 & 24 hours. Serum calcium was estimated at 6 hours and 24 hours of birth. Cardiac status was assessed as a routine. Screening of infection was done in suggested cases and ultrasound brain was done in IDMs with birth asphyxia or congenital abnormalities. Hb%, and serum bilirubin were also monitored at birth and later when required.

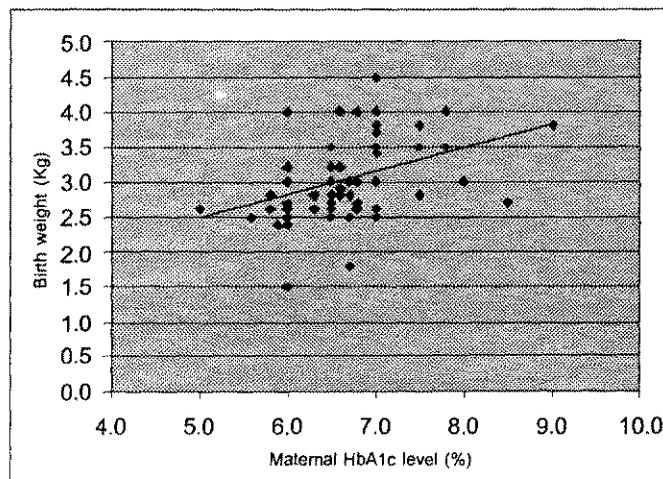
Linear correlation analysis for bivariate data was performed to study the relationships of various maternal variables with birth weight. Maternal variables being the independent variable and birth weight the dependent variable. Multiple regression model analysis was performed for association of maternal variables with macrosomia.

RESULTS

In our study a total of 60 IDMs and their mothers were enrolled. Twenty four (40%) diabetic mothers had normal HbA1c levels. Out of these 4 (16.6%) delivered large for gestational age babies, 18 (75%) were appropriate for gestational age and 2 (8.3%) were small for gestational age.

Thirty Six (60%) diabetic mothers had elevated HbA1c levels. Out of these 23 (63.8%) delivered LGA babies and 13 (36.1%) gave birth to AGA babies. The calculated correlation coefficient ($r=0.44$) for maternal HbA1c and macrosomia showed a mild positive relation between the two variables. (Fig. I)

FIGURE 1. HBA1C LEVELS AND BIRTH WEIGHT



53.7 Kg. The minimum weight was 42 Kg and maximum weight 80 Kg. Correlation coefficient for maternal weight at presentation and birth weight was 0.24. This showed a relatively weaker linear relation of these two variables than that of maternal HbA1c and antenatal visit. (Fig. II)

DISCUSSION

Before the discovery of insulin, it was unusual for the pregnancy of diabetic mother to have a successful outcome. Maternal mortality ranged from 20-40% and perinatal mortality exceeded 60%¹⁰. But since then there has been steady decline in the perinatal mortality and morbidity in the developed world. The decrease in the mortality and morbidity is due to improved metabolic control in the mother, close monitoring of the fetus throughout the pregnancy and adequate neonatal care^{9,10}. In our country there is still high perinatal mortality and morbidity among IDMs due to poor antenatal follow up, non booked deliveries, non compliance to therapy, lack of existence of neonatal services and unawareness of the magnitude of problem.

Macrosomia has been the hallmark of the IDMs. The overall incidence of macrosomia is reported as 20-50%^{5,8,11,12,13}. 45% children born to diabetic mothers in this study were macrosomic. Most authors have reported similar figures. Two studies reported figures of 50%⁸ and 21%¹¹. 75% of macrosomic IDMs in our study had evidence of ASH, whereas the reported incidence is 25-45%¹⁴. Similarly incidence of hypoglycemia in macrosomic IDMs was 72.2% whereas the reported incidence is 47%¹⁵. The increased incidence of both the above factors is probably due to poor control of diabetes in the study group.

Third trimester maternal hyperglycemia characteristic of uncontrolled diabetes in pregnancy is considered to be one of contributing factors to macrosomia. Studies have demonstrated a linear relationship between birth weight and maternal third trimester HbA1c levels¹⁶. A very recent study revealed that there was no simple relationship between maternal glycemic status and birth weight¹⁷. However our study showed that there is a significant linear relation of maternal HbA1c and birth weight; but the relation of weight at first antenatal visit and birth weight though linear and positive, is not strong ($r=0.24$).

CONCLUSION

It can be concluded that determination of HbA1c is a good indicator of preceding glycemic status of the diabetic mothers. Its measurements during pregnancy can be used as an indicator for neonatal complications especially macrosomia.

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SCREENING FOR ASYMPTOMATIC BACTERIA IN PREGNANCY

TAZEEN FATIMA MUNIM, SHAISTA RASHID

ABSTRACT

Objective

To find out the frequency of asymptomatic bacteria in pregnant women without any symptoms and to find out the common responsible microorganisms and to know their sensitivity pattern to commonly used antibiotics.

Study Design

An observational study.

Place & Duration

Obstetrics & Gynaecology unit III, Abbasi Shaheed Hospital, from March 2003 to June 2003.

Patients and Method

The subjects were from indigent group of population, 250 pregnant women, attending first antenatal clinic were included in the study. Midstream urine of all these women was subjected to urinalysis, culture and sensitivity.

Results

The frequency of asymptomatic bacteria was 7.2%. The most frequent pathogen identified was *Escherichia coli* (38.89%) followed by *enterobacter* species (16.68%) and *staphylococcus saprophyticus* (16.68%). Only one isolate of each of *staph aureus*, *streptococcus agalactiae*, *proteus mirabilis*, *serratia marcescens* and *candida albicans* (5.55%) was found. *Escherichia coli* was found sensitive to gentamycin, nitrofurantion, fosfomycin and quinolones and highly resistant to ampicillin and sulphonamides. *Enterobacter* species showed sensitivity to gentamycin, ciprofloxacin, norfloxacin, sulphonamides, fosfomycin and resistance for ampicillin, nitrofurantoin and oral cephalosporin. *Staphylococcus saprophyticus* were found sensitive to carbenicillin, oral cephalosporins, ceftriaxone, fosfomycin, erythromycin, sulphamethoxazole and nitrofurantoin and were resistant to ampicillin, gentamycin and sulphonamides. Sensitivity, pattern reflects that there are a number of antimicrobials available for treatment to which microorganisms are sensitive. An important fact was that these organisms showed resistance for the most frequently used antibiotics during pregnancy, that is penicillins and first generation cephalosporins.

Conclusion

Culture and sensitivity is must for the diagnosis/screening of asymptomatic bacteria during pregnancy to avoid maternal and foetal complications.

KEY WORDS:- Asymptomatic bacteria, Pregnant women, Urine culture and sensitivity.

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INTRODUCTION

The term asymptomatic bacteria refers to the presence of a positive urine culture in an asymptomatic person. Initial studies showed that colony count > or = 10⁵ cfu /

ml usually predicted persistently high level of bacteria while lower colony count predicted persistent low level of bacteria¹. The count > 10³ gram negative organism / ml in urine of acute symptomatic patient is also significant². The general definition of asymptomatic bacteriuria is > or = 10⁵ cfu / ml of a urinary tract pathogen on a single midstream clean catch specimen³. The prevalence of asymptomatic bacteriuria on a single culture is 3% to 6% in otherwise healthy ambulatory young to middle aged women⁴. Pyuria is defined as presence of 5-8 WBC/mm³. Presence of > 10 WBC / ml substantiate urinary tract infection⁵. Bacteriuria occurs in 6 to 7% of pregnancies particularly in multiparous women. This rate is only slightly higher than that in non pregnant women of same age. The organisms are similar in species and virulence factors in pregnant or non pregnant women, thus the basic mechanism of entry of bacteria into the urinary tract is likely to be same for both groups⁶. Bacteriuria usually develops in the first month of pregnancy and is associated with a reduction in concentrating ability, suggesting involvement of kidneys⁷. As a result, bacteriuria during pregnancy has a greater propensity to progress to pyelonephritis (up to 40% than in non pregnant women)⁸. Bacteriuria is also associated with increased risk of preterm labour and low birth weight babies⁹. Early screening for and treatment of asymptomatic bacteriuria in pregnancy has maternal and fetal benefits¹⁰. Antimicrobial treatment should be chosen based on antimicrobial susceptibility testing. The objectives of this study were: to find out the frequency of asymptomatic bacteriuria in pregnant women and to study the microorganisms involved and their sensitivity pattern.

SUBJECTS AND METHODS

This study was carried out in Obstetrics & Gynecology department Unit-III, Abbasi Shaheed Hospital, Karachi, during the period from March 2003 to June 2003. 250 pregnant women at their first antenatal visit were randomly selected. Those with urinary tract abnormality and infection were excluded. The midstream urine of these women collected according to the verbal instructions was subjected to urinalysis, culture and sensitivity.

A single sample of mid stream urine 30 – 50 ml of at least four hours stay in bladder was collected in sterile wide mouth covered container provided with verbal instructions for collection of urine sample. After collection the sample was sent to the laboratory for urinalysis, culture and sensitivity. The subjects were asked to wash their hands with soap and external genitalia with water before taking urine sample. They were advised to discard first portion of urine and to collect the midstream in a sterilized container provided by the laboratory which should be immediately covered and returned for processing.

Urinalysis was done by dipsticks (for PH, albumin and sugar). Microscopy and culture and sensitivity were also done

RESULTS

All subjects belonged to poor socioeconomic class. Only 7 pregnant women were employees of private sectors at lower pay scale, rests were housewives. The mean ages of pregnant women was 24.94 with minimum age 18 years and maximum age 44 years. Majority of culture positive women were between the age 18-25 years (72.22%).

The mean gestational ages of pregnant women were 25 weeks with minimum gestational age <20 weeks and maximum gestational age of 36 weeks. There were 110 samples in range of less than 20 weeks of gestation, 133 cases with gestation of 20 – 30 weeks and 7 cases of 31–36 weeks.

Out of 250 pregnant women screened, 18 (7.2%) were positive for significant bacteriuria. Significant bacteriuria was taken as pure growth of organisms of $\geq 10^5$ organisms per ml of urine. Total 18 cases were positive for culture. The most frequent bacteria isolated was *Escherichia coli* 38.89% (7 out of 18), followed by *Staphylococcus saprophyticus* and *Enterobacter* species having equal percentage i.e. 16.68% (3 out of 18 isolates), while *Staph aureus*, *Streptococcus B haemolyticus* group B, *Proteus mirabilis*, *Serratia marcescens* and *Candida albicans*, each of them was 5.55%. Gram negative bacilli accounted for asymptomatic bacteriuria in 66.67% (12/18), gram positive cocci in 27.78% (5/18), and yeast cells 5.55% (1/18). Other positive findings were glycosuria in 8 patients and proteinuria in 16 patients. Antibiotic sensitivity of various microorganisms is shown in table-I

DISCUSSION

The majority of urinary tract infections in pregnancy are asymptomatic. Urgency and frequency when present are overlooked as normal symptoms of pregnancy. Hence asymptomatic bacteriuria is difficult to suspect/diagnose and it may exist throughout the pregnancy. The diagnosis of asymptomatic bacteriuria is possible only on urine culture and sensitivity. Asymptomatic bacteriuria during pregnancy is a strong predictor of subsequent symptomatic urinary tract infections. The relative high frequency of asymptomatic bacteriuria during pregnancy and its relation to low socio-economic status, maternal and foetal morbidity necessitates screening of all pregnant women for asymptomatic bacteriuria by urine culture and sensitivity and to institute appropriate treatment¹¹

In our study 7.2% (18 out of 250) pregnant women were found positive for asymptomatic bacteriuria. Our findings are similar to the findings by Kiningham¹². Although the

FIGURE 1.

HBA1C LEVELS AND BIRTH WEIGHT

MICROORGANISM SENSITIVE (S) / RESISTANCE(R)	AMP	SXT	W	P	CAR	ER	KP	GN	CRO	NOR	OFX	F	FOS
ECOLI	R	R	R	R	R	--	R	S	--	S	S	S	S
ENTEROBACTER	R	S	R	-	R	--	R	S	--	S	S	R	S
STAPH SAPROPHYTICUS	R	S	R	R	S	S	S	R	--	S	S	S	S
SERRETTIA MARCESCENS	R	S	S	-	R	--	R	R	S	S	S	S	S
PROTEUS MIRABILIS	R	R	R	-	R	-	R	R	R	S	S	R	S
STAPH AUREUS	S	R	R	S	S	S	S	R	S	S	S	S	R
STREPTOCOCCUS GROUP B BHAEMOLYTICUS	S	R	R	S	S	S	S	S	S	R	R	S	S

KEY:

AMP	Ampicillin	CAR	Carbencillin	OFX	Ofloxacin	SXT	Sulphamethoeazole	ER	Erythromycin
F	Nitrofurantoin	W	Trimethoprim	KF	Cephalothin	FOS	Fosfomycin	P	Penicillin
GN	Gentamycin	CRO	Ceftriaxone	NOR	Norfloxacin				

prevalence 2.3% was found among the well educated and high socio-economic status but Little did not find difference in bacteria according to socioeconomic status in his subjects¹⁹. In our study all the subjects were from indigent population, so we are not able to comment as we have no idea of its frequency in high socio-economic group. In our study, the organisms recovered from urine order of frequency were Escherichia coli, staphylococcus saprophyticus and enterobacteria species. Ecoli was the most common organism (38.89%). Our study findings are similar to Wood and Dillon, who found 40% E.coli in urine isolates during pregnancy¹⁵. The second most common urine isolate detected was staphylococcus saprophyticus, which is according to findings by Stamm and Hooton¹⁵ was 5 – 15%. There was great variation in distribution and frequency of the third common pathogen of urine isolates reported as streptococcus Group D (9.6%) and proteus mirabilis (6.8%)¹⁷. The distribution of urine isolates as gram negative bacilli (66.67%), gram positive cocci 27.78% and yeast cells 5.55% In our study, were similar to findings of van Norstrand et al¹⁷, who also found gram – negative bacilli in 67%, gram positive cocci 25% and yeast cell 8%.

In our study 72% of asymptomatic bacteriuria was in age groups 18-25, 22% in age group 26-35 years. Our findings are similar to that of Little¹³, who found that the incidence of bacteria decreased with increase in age of fertile life. The findings of glycosuria, proteinuria and pyuria were not related to the significant culture positive results. In our study 61.11% of women were between 20 – 30 weeks of gestation, whereas 38.88% were about 20 weeks pregnant.

The antimicrobial susceptibility tests for Escherichia coli, the primary pathogen showed good sensitivity to gentamycin, fosfomycin and nitrofurantoin and high resistance to ampicillin and sulphonamides and oral cephalosporin. The second isolated organism staph saprophyticus showed sensitivity for sulphamethazole, carbencillin, erythromycin, cephalothin, norfloxacin, ofloxacin, nitrofurantoin and fosfomycin.

CONCLUSION

Our study showed that 7.2% asymptomatic significant bacteria in pregnant women on screening by culture and sensitivity. It is suggested that screening of pregnant women should be done by culture and the sensitivity reports of antimicrobial for appropriate treatment to prevent its possible complications. Pyuria because of its low sensitivity, can not be used as screening procedure for asymptomatic bacteria during pregnancy.

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ACUTE COMPARTMENT SYNDROME

A CLINICAL ENTITY NOT TO BE MISSED

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ABSTRACT

Acute compartment syndrome (ACS) is a dangerous condition which can cause gangrene of the involved muscles and nerves resulting into permanent disability, disfigurement and sometimes life threatening situation. Diagnosis of ACS is a bit complex. Although measurement of intra compartmental pressure is the investigation of choice but practically it is the clinical suspicion which forms mainstay of diagnosis and treatment. Treatment of ACS should never be withheld for confirmatory investigations if disaster is to be avoided. Wide open fasciotomy of the involved compartment is the only reliable treatment.

KEY WORDS:- *Acute compartment syndrome, Fasciotomy, Compartmental pressure.*

INTRODUCTION

Acute compartment syndrome is the rise of intra-compartmental pressure in an osseo-fascial compartment, which compromises the microcirculation and function of tissues in that compartment. Microcirculation starts compromising beyond 28 mm of Hg. Generally an intra-compartmental pressure of more than 30 mm of Hg for more than four hours or more than 40 mm of Hg for more than half an hour is taken as the values for diagnosing ACS. Fascial compliance decreases sharply at an absolute intra-compartmental pressure of 33 mm of Hg.

When due to any reason intra-compartmental pressure rises, initially the low pressure veins get compressed while arterial supply continues. This results into venous edema and further rise in intra-compartmental pressure occurs. This rise in pressure causes arteriolar and capillary vasculature to collapse, which causes gangrene of the muscles and the nerves involved.

All causes of crush injuries to limbs, long bone fractures (whether open or closed) and proximal vascular anastomosis should be observed with a suspicion. ACS has occurred after prolonged operation e.g. abdomino-

perineal resection when a prolonged lithotomy position is maintained. ACS may occur in thigh after intramedullary nailing of fracture shaft of femur.

Usual sites involved are lower legs and forearm followed by thigh, arm, gluteal region, hands, feet and abdomen. It is worth mentioning that unlike the popular belief open fracture is not a safety valve against ACS as haematoma is not the only cause of rise in intra-compartmental pressure. Clinically in addition to history of trauma, fracture, vascular anastomosis or operation on limb, the involved compartment is tense, swollen and tender. Ischemic pain is generally severe and does not respond well to analgesics. All movements (active and passive) are painful especially passive stretching but this sign may be unreliable due to associated injuries and is totally irrelevant in unconscious or non co-operative patients and in children. Initially there is hyperesthesia but in later stages hypoesthesia may be present. Remember distal pulse is usually palpable and its presence is not an indicator that ACS or ischemia of the soft tissues has not occurred in that compartment as the damage occurs at the microcirculation level. Although mainstay of diagnosis is the clinical suspicion but no one sign or symptom is diagnostic.

INVESTIGATIONS

Monitoring of intra-compartmental pressure was introduced in 1970's—since then several methods have been developed to measure and monitor intra-

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compartmental pressure with variable sensitivity and accuracy.

Different devices used to measure intra-compartmental pressure include

1. Needle manometers (Fig. I, II)
2. Wick and solid state catheters
3. Wick and slit catheters
4. Solid state transducers with intra-compartmental catheters
5. Transducers tipped probe

FIGURE 1 NEEDLE MANOMETERS

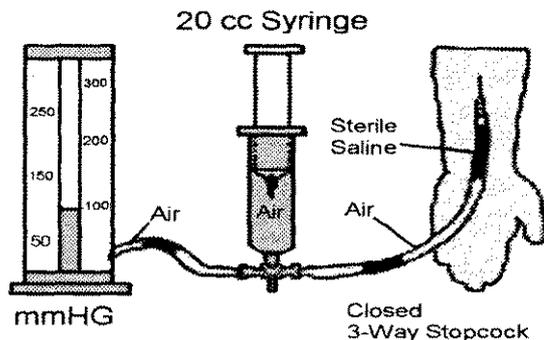
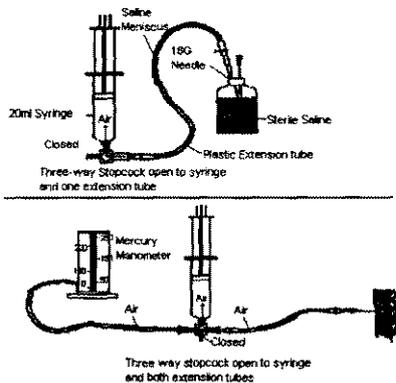


FIGURE 2 NEEDLE MANOMETERS



critically ill patient. Transducer tipped probe is a highly accurate and sensitive method and does not require heparinized saline pool to measure intra-compartmental pressure.

There are several other difficulties involved in measuring the compartmental pressure. Although the apparatus is

simple but it is not readily available even in tertiary care hospitals. Most of the clinicians/surgeons are not well conversant with the technique of measuring intra-compartmental pressure even if the apparatus is available. In one of the studies in London more than half of the clinicians in tertiary care centers were ignorant of the technique of measuring intra-compartmental pressure. A fluid volume is first created inside the compartment using heparinized saline into which the tip of the needle/catheter of measuring apparatus is dipped to measure the pressure. This fluid volume increases the intra-compartmental pressure temporarily which may be dangerous for a critically ill patient and may precipitate ACS or otherwise this temporary high reading may lead to unnecessary high number of fasciotomies. This heparinized saline is slowly absorbed so continuous monitoring of intra-compartmental pressure is difficult.

Another pitfall is that pressure even within the same compartment is not uniform. Studies show that it is maximum within 5cm from the fracture site and less in distal areas. Alternative methods that can be used to assess pressure inside a compartment include

1. Near infrared spectroscopy
2. MRI
3. Scintigraphy
4. Laser Doppler

TREATMENT

All suspected cases of A.C.S should be treated by wide open fasciotomy of that compartment. Treatment should be carried out in emergency and should not be withheld for confirmatory investigations. Skin and deep fascia are cut in longitudinal axis of the compartment which is under tension. Muscles bulge out and pressure is relieved. Primary or delayed primary closure of skin should not be attempted. Best is to put a partial thickness skin graft (PTSG) over the fasciotomy site after 4 to 5 days if muscles remain healthy. Closed or subcutaneous fasciotomy is not a very efficient way to treat a full blown case of acute compartment syndrome. In lower legs sometimes, middle segment fibulectomy is considered to decompress all the four compartments including anterolateral, medial, superficial posterior and deep posterior compartments. But it is always safer to decompress the particular involved compartment with wide open fasciotomy.

Another misconception is that open fractures are less likely to develop ACS. It is not as true as believed since rent in the deep fascia is generally very small which does not relieve pressure over the whole compartment.

Although some of the fracture haematoma is drained out in open fractures but accumulation of blood in the compartment is not the only mechanism by which ACS develops.

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CONGENITAL MEGALOURETHRA

SIKANDAR ALI MUGHAL, SIRAJUDDIN SOOMRO

ABSTRACT

Megalourethra is a rare condition characterized by dilatation of the penile urethra. We present two cases of congenital scaphoid variety of megalourethra. The first patient was a neonate with scaphoid megalourethra associated with urethral duplication. Urethrogram showed sac like dilatation of urethra. Reduction urethroplasty was done. The patient did well post operatively and voided with a normal stream. Our second patient was a newborn who had imperforate anus and megalourethra. Sigmoid colostomy was made for imperforate anus but the patient did not turn up for his urethral problem.

KEY WORDS:- Congenital Megalourethra, Urethral duplication, Urethroplasty

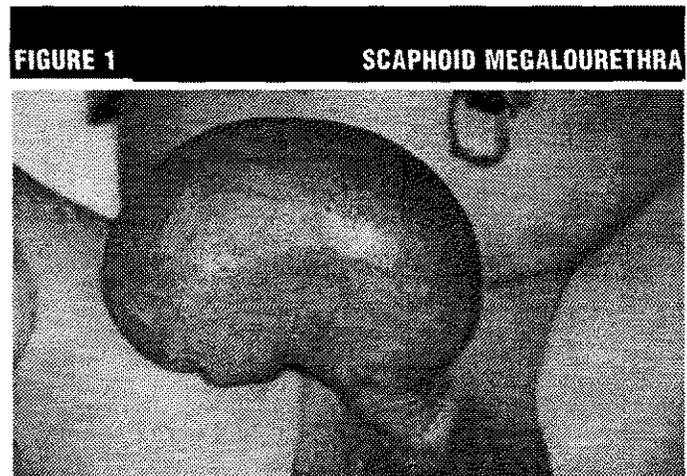
INTRODUCTION

Megalourethra, a rare congenital disorder of male urethra and is characterized by dilatation of the penile part of urethra without evidence of distal obstruction¹. The condition has a spectrum of pathologic manifestations. Two types, scaphoid and fusiform have been described². The condition is usually associated with congenital malformations of abdominal wall, genitourinary, gastrointestinal and vertebral systems³. We present two cases of congenital megalourethra with review of literature.

CASE REPORTS

Case 1

Our first patient was a healthy newborn male baby who was brought to the hospital soon after birth with enlarged and deformed penis (Fig 1). Examination of genitalia revealed a deformed and elongated penis with redundant skin on the ventral aspect of the shaft of the penis. Both the corpora cavernosae were palpable and normal. There



were two urethral openings, one situated at the normal position on the tip of the glans while the other was hypospadiac and present at the coronal sulcus. Both the testis were present in the fully developed scrotum. The urethrogram demonstrated a sac like dilatation of the penile urethra. Reduction urethroplasty was performed. At the time of operation we found two urethras, one was opening at the tip of the glans and was dilated (megalourethra) and was communicating with the urinary bladder, while the second urethra was small and not communicating with the urinary bladder and the external meatus was present at the coronal level on the ventral aspect of the glans penis (incomplete ventral urethral

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duplication). Excessive skin and accessory hypospadiac urethra was excised and urethroplasty performed (Fig 2).

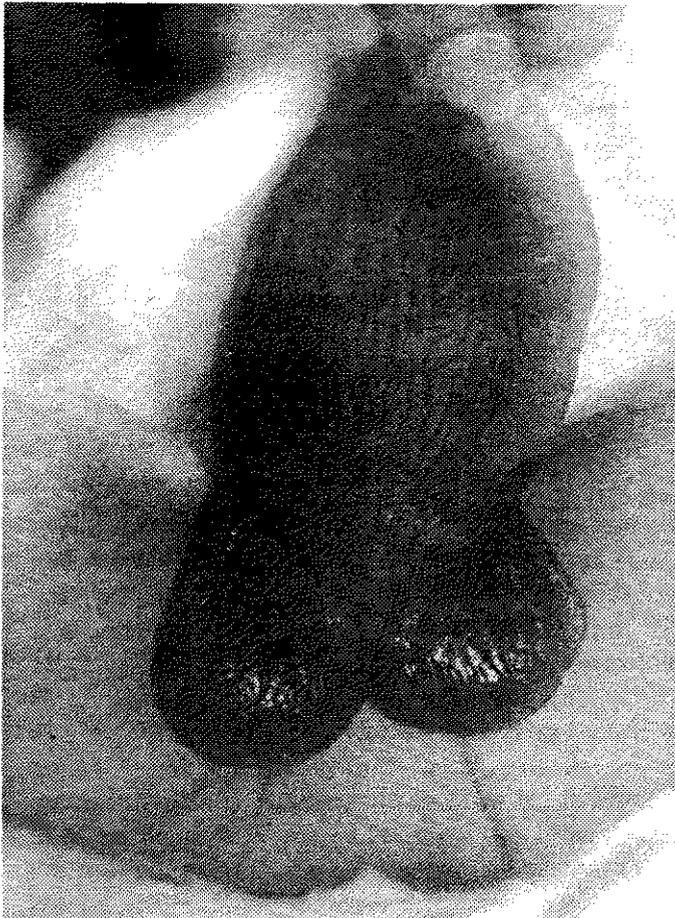
Case 2

A newborn male baby who was brought to the hospital soon after birth with complaints of absence of anal opening and enlarged deformed penis. The urethral opening was present on the tip of the glans. Penile

FIGURE 2 IMMEDIATELY FOLLOWING URETHROPLASTY



FIGURE 3 MEGALOURETHRA WITH IMPERFORATE ANUS



swelling increased at the time of voiding. Physical examination revealed distended abdomen. Perineal examination showed absent anal opening. Examination of genitalia revealed an elongated deformed penis with redundant skin (Fig 3). The corpora cavernosa were palpable and normal. The scrotum was bifid and containing both the testicles. Examination of rest of the systems was normal. X-ray invertogram showed a high variety of the imperforate anus. The patient underwent surgery for imperforate anus, and sigmoid colostomy was made. This patient was lost to follow up

DISCUSSION

Nesbit was the first who described the condition of megalourethra in 1954 as "a congenital dilatation of the penile urethra without distal obstruction"^{4,5}. This is a rare abnormality and fewer than 90 cases had been reported in the literature. The condition is characterized by severe dilatation of the penile urethra caused by deficiency of corpus spongiosum (scaphoid type) or absence of both corpora cavernosa and corpus spongiosum (Fusiform type)³. Children usually present with an abnormal appearance of penis and ballooning of the penis during voiding⁶. As was noticed in both of our cases.

In the fusiform variety both the corpora cavernosa and the corpus spongiosum are deficient. With voiding there is circumferential distention of the penis giving a fusiform appearance⁷. Patients with fusiform type of megalourethra often have associated lethal congenital malformations.

Various etiological theories like failure of urethral canalization⁸, defective development of the genital folds⁷, temporary obstruction during early development, failure of development of erectile tissue, developmental arrest of the mesenchymal elements of the penis³ have been put forward for this condition. Histologically, the corpora are replaced by fibrous tissue in a vascular network in both types of megalourethra⁹.

The defect is usually diagnosed easily on inspection of the penis, but it has been diagnosed prenatally as well^{8,9,10} and appears as cystic dilatation and enlargement of the penis. Renal and bladder ultrasonography are indicated in all cases to detect other abnormalities. Shromn et al⁷, recommend excretory urography alone, with a voiding film. In one of our patient retrograde urethrography was done which showed a sac-like dilatation of the penile urethra and complete filling of urinary bladder without any vesico ureteral reflux.

The scaphoid type can be treated by degloving the penile shaft skin back proximal to the urethral diverticulation, excising the excess urethra ventrally and closing over a

urethral stent⁷, as we did in one of our cases and the patient did well after removal of stent and voids with normal stream without any abnormality of the penile shaft.

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LETTER TO THE EDITOR

CIRCUMCISION WITH PLASTIBELL DEVICE: A WORD OF CAUTION

Dear Sir,

Circumcision probably is the oldest and the most frequently performed surgical procedure in the history of mankind. Mostly it is performed as a ritual for religious reason. The techniques and personnel performing the procedure vary from the one carried out in tertiary care hospitals by properly trained personnel to quacks in an ill equipped setting. All of the techniques have their strengths and their limitations together with their protagonists and critics. More often than not, however, complications arise as a result of operator inexperience rather than the method employed'. Many complications few of which have life long consequences including mortality have been reported.

All techniques of circumcision aim to provide the best cosmetic result together with the lowest possible morbidity rate. Of all the procedures it is generally accepted that one performed with plastibell (Hollister) technique is the safest with complication rate from 2% - 2.4% of minor nature have been reported^{2,4}. The Plastibell device is designed to cause circumcision by strangulating the blood supply to the distal foreskin. Necrotic tissue falls off seven to 12 days after the procedure is performed. Determining the appropriate size of the device is important. A fit too small can cause tissue strangulation and necrosis, and one too large may result in too much foreskin being removed and penile denudation.

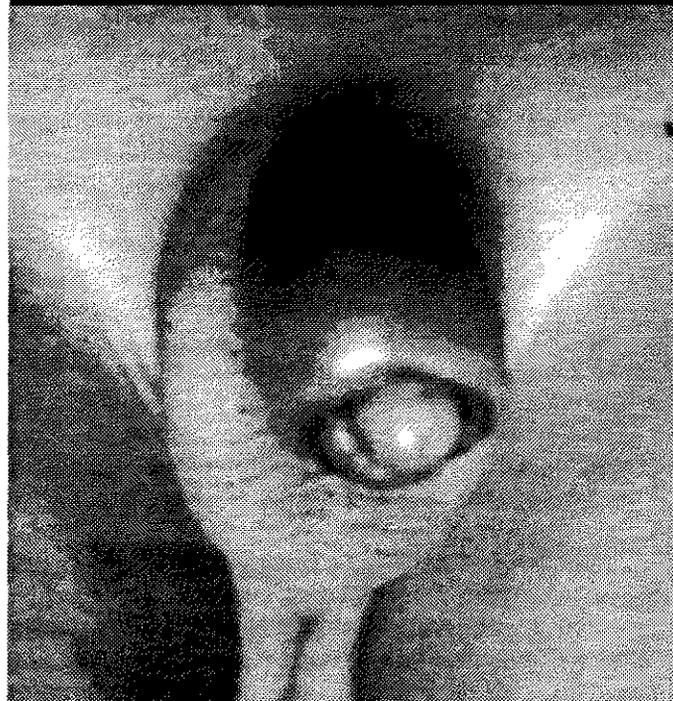
Some authors claim no advantages of the Plastibell technique over other techniques if properly carried out but "ease of use" is reported by almost all. Some studies have shown a small increase in the incidence of infection with the Plastibell device. Although drastic complications like acute urinary retention has been reported in one case where the Plastibell device employed resulted in rupture of the bladder⁵.

Recently over the last two months from July 2005 to August 2005 we came across eight patients who had undergone circumcision with Plastibell by untrained personnel. Their age ranged from 2 months to 7 years. In two cases Plastibell pushed over penile shaft, two presented with haematoma formation, in one patient parents failed to seek advise even after two weeks of un-shedding of the device. In this patient thread was not tied properly thus full necrosis of skin did not occur, in fact it resulted in edema of part of foreskin distal to the bell. In three patient of age above four years severe inflammation noted with impaction of the device (fig. 1).

The learning experience from the above mentioned report is that, circumcision with Plastibell should not be considered as a minor procedure. Training of personnel is very important before they embark upon this technique. Parents should be told properly as to what to expect with Plastibell device and it should not be performed if proper follow up in post operative period is not expected. It is also important to know how to select appropriate size device for an individual. As the final outcome is dependent upon necrosis of skin under the thread applied, so it is suggested that it should not be employed in older children, where skin is thick and takes long time to necrose out thus

increasing the chance of infection. A heightened awareness of the scope and potential for complications will definitely result in a reduced complication rate¹.

FIGURE 1
IMPACTED PLASTIBELL USED FOR
CIRCUMCISION RESULTING IN SEVERE
INFLAMMATION OF PENILE SHAFT IN A SEVEN
YEAR OLD CHILD



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