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EVALUATION OF PATTERN OF UTERINE AND CERVICAL ABNORMALITIES POTENTIALLY RESPONSIBLE FOR INFERTILITY IN ZARIA, NIGERIA: HYSTEROSALPINGOGRAPHIC ASSESSMENT.

Ibinaiye PO[1], Lawan RO[1], Polite O[2], Hamidu HU[1], Igashi B[1].

ABSTRACT

Background: Structural abnormalities are amongst the important causes of female infertility. Hysterosalpingography (HSG) is an invasive but safe method of detecting both cervical and uterine pathologies. **Objectives:** The objective of this study was to determine the relationship between types of uterine and cervical abnormalities and fertility outcome. **Materials and Methods:** A prospective study of 220 consecutive women who underwent hysterosalpingography using ionic water-soluble contrast media (urografin) between 1st December, 2011 and 31st May, 2013, at department of radiology, Ahmadu Bello University Teaching Hospital (ABUTH), Zaria. Clinical notes and radiological findings were analyzed for demographic data and abnormal uterine cavity and cervical canal findings. Abnormal findings were correlated with treatments and fertility outcomes. Fertility outcome in women with normal and abnormal findings were compared. P- Value of less than 0.05 was considered as statistically significant. **Results**: The mean age and duration of infertility were 27.37years ± 4.50 and 4.48years respectively. Women with secondary infertility were 133 (60.50%) while 87 women (39.5%) suffered from primary infertility. The uterine cavity was normal in 167 (75.9%) of the women while 53 (24.1%) women had uterine cavity abnormalities; among these were 16 (30%) with primary infertility and 37 (70%) with secondary infertility. Cervical canal was normal in 210 (95.5%) of the women while 10 (4.5%) women had abnormalities among whom are 5 (50%) that suffered from primary infertility and 5 (50%) that suffered from secondary infertility. The fertility outcome after one year follow up showed 7 (11.1%) of the 63 patients with abnormal findings (cervical canal and endometrial cavity) got pregnant, while 25 (34.72%) of the 72 patients with normal findings (cervical canal, endometrial cavity, tubal and pelvic peritoneum) got pregnant. The difference noted was statistically significant (p – value = 0.001). High (12: 34.3%) spontaneous pregnancy rate was noted in patient with normal HSG, hormone and semen analyses. **Conclusion:** Fertility outcome among women with uterine cavity and cervical canal abnormalities but with normal hormone and semen analyses was low. The high spontaneous pregnancy rate in patients with normal HSG, hormones and semen analyses may be due to therapeutic effect of HSG.

KEYWORDS : uterine cavity; cervical canal; abnormalities; infertility; HSG.

INTRODUCTION

Infertility is a major global problem and is regarded as a social stigma in the Nigerian society, affecting 5 – 15% of couples in developed countries and 10 – 20% of couples in developing countries.[1,2] Infertility is a failure of a couple of reproductive age to conceive after 12 months or more of regular coitus without the use of contraception.[3]

Factors from either or both partners may contribute to infertility. Factors in male account for 11.5%, while female factors account for 28.7%-37.8% of causes of infertility.[4,5] In the female, ovulatory dysfunction account for 40% of causes of infertility, with uterine, tubal and

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pelvic pathologies accounting for the remaining 60% of causes.[5] The uterus contributes about 10% of causes of female infertility. Intra uterine adhesion (Asherman's syndrome) may complicate curettage following pregnancy related disorders. The more common types of fibroid (leiomyoma) that adversely affect reproduction are sub mucous and intra cavitary types. Endometral polyps, if large enough can affect reproduction.[6]

Congenital uterine anomalies are seen in about 2 to 3 percent of all women and approximately 25% of these will have associated infertility[6]. The most common congenital defect associated with infertility is septate uterus.[7] Other uterine factors causing infertility include adenomyosis and endometritis due to tuberculosis.[2] Hysterosalpingography (HSG) is a diagnostic procedure in which there is radiographic visualization of the endocervical canal, the endometrial cavity and lumina of the fallopian tubes by the injection of radiopaque contrast medium.[8] Despite the development of other radiological methods e.g. Sono-HSG, computerized tomography (CT) and magnetic resonance imaging (MRI) of visualizing the female reproductive tract, HSG remains the main radiological method used in evaluation of infertile women in developing countries because it is relatively cheap and readily available method of assessing female reproductive tract.[9] The objective of this study was to determine the relationship between types of uterine and cervical abnormalities and fertility outcome.

MATERIALS AND METHODS

The study was carried out at Ahmadu Bello University Teaching Hospital (ABUTH), which is a tertiary health institution located in Shika-Zaria, Kaduna State, Nigeria. The city has a population of 975,153.[10] The hospital provides specialized gynecological services to women in the state and environs. The routine investigations carried out on infertile women at ABUTH include trans-abdominal or trans-vaginal ultrasonography as applicable, hormonal assay, hysterosalpingography, hysteroscopy, laparoscopy/dye test and their partners semen analysis while post coital test and endometrial biopsy are not done routinely. The study was carried out between 1st December, 2011 and 31st May, 2013 on 220 consecutive women referred from infertility clinics of Ahmadu Bello University teaching Hospital for hysterosalpingography. The women were counseled on the procedure, possible complications and consent obtained from them. Demographic data such as age, parity, and duration of infertility were extracted from the case files using a pro forma. After the HSG, the women were each followed up for a period of one year in the infertility clinic, during which details of therapeutic interventions and fertility outcomes were extracted from their medical records.

Those that were excluded from the study included: women with vaginal discharge, recent history of intra uterine instrumentation, ongoing vaginal bleeding, history of previous salpingectomy, pregnancy and palpable adnexa masses.

Ethical consideration

Prior to the commencement of the study, approval was given by the ethical and research committee of Ahmadu Bello University Teaching Hospital.

DATA ANALYSIS

Data was analyzed using statistical package for social sciences SPSS (version 16 Inc, Chicago, USA) computer software for statistical analysis. Analyses test used in this study was Pearson chi square Statistic. Primary infertility, secondary infertility, normal findings, pattern and prevalence of uterine and cervical abnormalities as demonstrated on HSG among patients with infertility were summarized in figures and percentages (%). Outcome of semen analysis and hormonal assay were summarized in figure and percentages. Also, reproductive outcome in patients with structural abnormalities and normal HSG findings were compared to determine the

effect of HSG findings on fertility outcome. Findings were presented in graphical and tabular forms. All tests of significance were two-tailed, and P- Value of less than 0.05 was considered as statistically significant.

RESULTS

Two hundred and twenty (220) patients with infertility were interviewed and investigated. The age ranged from 18 to 40 years with mean age of 27.37. The duration of infertility ranges from 1 to 8 years with a mean duration of 4.48 years as shown in table 1. Table 1 also shows that women with secondary infertility were 133 (60.5%) while primary infertility were 87 (39.5%). The first aged group of 18-30 years had a high proportion of primary infertile participants (46.4%) while high proportion of secondary infertile patients, 78.8% were in age group 31-40 years. However, there was more secondary infertility in both age groups. Table 2 shows that cervical synechiea was the most common cervical canal abnormality, accounting for 3.6% of all the patients, with cervical dilatation as the least finding (0.9%). Table 2 also shows that uterine adhesion (Arsherman syndrome) was the most common uterine cavity abnormality seen, accounting for 11.8% of all patients. Uterine fibroid, seen as filling defects, uterine dilatation and deformity, was seen in 9.5% of the patients (figure 1). Women who had congenital abnormality accounted for 2.8%, with bicornuate uterus (Figure 2) as the commonest and unicornuate and septate uterus the least. Hormonal assay was performed selectively based on clinical presentation of the patients and high index of suspicion for ovulatory dysfunction. Common causes of ovulatory dysfunction were; hyperprolactinemia, hyperthyroidism, polycystic ovarian syndrome and primary ovarian failure. Sex hormones evaluated for ovulatory dysfunction include: serum follicular stimulating hormone (FSH), Luteinizing hormone (LH), Estradiol, Prolactin and Testosterone.

A total of 33 (15%) patients were diagnosed with ovulatory dysfunction; 20 (9.1%) patients with normal HSG findings and 13 (5.9%) patients with abnormal HSG findings. Of the Patients with normal HSG findings, 9 (4.1%) had hyperprolactineamia, 5 (2.3%) patients with hyperthyroidism, 4 (1.8%) patients with polycystic ovarian syndrome, and 2 (0.9%) patients with primary ovarian failure. While in patients with abnormal HSG findings, 7 (3.2%) patients had hyperprolactinaemia, 3 (1.4%) had hyperthyroidism and 3 (1.4%) patients had polycystic ovarian syndrome.

In total, 16 (7.3%) cases of hyperprolactinaemia, 8 (3.6%) cases of hyperthyroidism, 7 (3.2%) cases of polycystic ovarian syndrome and 2 (0.9%) cases of primary ovarian failure were seen in patients with ovulatory dysfunction. Out of the 220 female patients, 180 male counterparts had semen analysis performed. These provided information on semen parameters. Abnormal semen analysis was seen in 23 males (10.5%); 17 males (7.7%) with normal HSG female counterparts and 6 (2.7%) males with abnormal HSG female counterparts. The distribution of likely cause of infertility among the 220 couples studied showed that abnormal HSG alone was seen in 63 (28.6%) women, ovulatory dysfunction alone was seen in 20 (9.1%) women, male factors (abnormal semen analysis) alone was seen in 17 (7.7%) women, combined factors (patients with various combination of infertility causes) were seen in 19 (8.6%) women. In 35 (15.9%) women, no abnormality was seen on HSG, also the hormones and semen analyses were normal.

Table 3 shows that after one year of follow up, 7 (11.1%) of the 63 patients with abnormal findings (cervical canal and endometrial cavity) got pregnant after blind and hysteroscopic adhesiolysis for cervical and uterine adhesions respectively, while 25 (34.7%) of the 72 patients with normal structural findings (cervical canal, endometrial cavity, tubal and pelvic peritoneum) got pregnant. The difference noted was statistically significant ($p = 0.001$).

In total, 32 patients became pregnant. Fifteen were spontaneous (without any therapeutic intervention) pregnancies after HSG, while 17 patients had therapeutic interventions like blind and hysteroscopic adhesiolysis, myomectomy, intrauterine insemination, ovulation induction and timed-intercourse before they conceived. Table 4 shows the distribution of pregnancy occurrence and therapeutic intervention in patient with abnormal HSG findings. Out of 8 patient with cervical adhesion, 1 (12.5%) got pregnant after blind adhesiolysis. Uterine adhesion was found in 26 patients, 2 (7.7%) got pregnant following hysteroscopic adhesiolysis. Uterine fibroid was seen in 21 patients, 3 (14.3%) became pregnant, 1 after myomectomy and 2 were spontaneous pregnancies. A total of 6 congenital uterine abnormalities were seen, of which 1 (16.7%) became pregnant spontaneously.

Table 4 also shows the distribution of pregnancy occurrence and therapeutic intervention in patient with normal HSG findings. Out of 20 patient with ovulatory dysfunction, 8 (40%) got pregnant (this includes 7 patients with hyperprolactinaemia and 1 polycystic ovarian syndrome) following ovulation induction and timed- intercourse. Male factors were found in 17 patients, in 5 patients with oligospermia (29.4%), their female partners got pregnant following intra uterine insemination. In 35 patients with normal HSG, hormone and semen analysis, 12 (34.3%) became pregnant spontaneously after HSG.

Table 1: Age group and type of infertility

Age group (Years)	Type of infertility		Total (%)
	Primary (%)	Secondary (%)	
18-30	76(46.4)	92(54.8)	168(76.4)
31-40	11(21.2)	41(78.8)	52(23.6)
Total	**87(39.5)**	**133(60.5)**	**220(100)**

Table 2: Uterine and cervical canal findings at HSG

Characteristic	Uterine findings Frequency (%)		Cervical canal findings Frequency (%)	
Normal	167	75.9	210	95.5
Adhesion	26	11.8	8	3.6
Fibroid	21	9.5	0	0
Bicornuate UT	4	1.8	0	0
Unicornuate UT	1	0.5	0	0
Septate UT	1	0.5	0	0
Dilatation	0	0	2	0.9
Total	**220**	**100**	**220**	**100**

UT = Uterus

Table 3: findings and fertility outcome after one year of follow up

HSG Findings	Pregnant	Not pregnant
Normal	25 (34.72%)	47 (65.27%)
Abnormal	7 (11.1%)	56 (88.9%)

Pearson Chi-square, $\chi 2 = 28.32$, df=1, p-value = 0.0001.

Table 4: Summary of the distribution of fertility outcome and therapeutic intervention in patients with normal and abnormal HSG findings

Abnormality	Frequency of abnormality	Frequency of pregnancy	%	Therapeutic intervention
Cervical adhesion	8	1	12.5	Blind adhesiolysis
Uterine adhesion	26	2	7.7	Hysteroscopic adhesiolysis
Uterine fibroid	21	3	14.3	1 Myomectomy 2 Spontaneous pregnancies
Congenital uterine abnormality	6	1	16.7	Spontaneous pregnancy
Ovulatory dysfunction	20	8	40	Ovulatory induction and timed- intercourse
Male factors	17	5	29.4	Intra uterine insemination
Women with normal HSG, hormones and semen analyses	35	12	34.3	Spontaneous pregnancies

DISCUSSION

The mean age of participants in this study was 27.37 years; this was similar to the mean age of infertile women in another study by Bello[11] in Ilorin, Nigeria. But this value is lower than that of Okafor *et al*.[12] in Nnewi, southeastern Nigeria where the mean age of their study was 32.41. The difference may be due to cultural differences influencing the age at marriage. The mean duration of infertility was 4.48 years which is similar to previous study done in Nigeria.[11] The mean duration of infertility is reported lower in previous studies conducted in India.[13] Most of the patients in this study had 4 to 8 years of infertility with majority of these patients, showing significant number of abnormalities (74%). This long duration could be attributed to lack of awareness of the

importance of early treatment among the infertile couple[5]. The presence of enormous local traditional healing practices and religious believes could be an important contributory factor for the delay in presentation to health facilities.[14]

In this study more patients had secondary infertility than those with primary infertility, which is similar to previous studies.[15,16] However this differs from other studies where it was found that primary infertility was commoner.[13,17,18] This higher rate of patients with secondary infertility compared to the primary infertility can be used as a crude indicator of the possible effects of pelvic inflammatory disease, post abortal sepsis and puerperal sepsis in our setting.[12,19]

From this study, cervical canal abnormalities accounted for 4.5% of all the patients, with cervical synechiae being the commonest (3.9%). This is similar to the findings of Ibekwe *et al*[20] in Ebonyi, south eastern Nigeria. Cervical adhesion may be due to previous instrumentation, obstetric accidents or infection.[20]

Congenital uterine abnormalities which are due to Mullerian ducts abnormalities during the early weeks of gestation, accounted for 2.5% of the abnormalities detected on HSG in this study. This is lower than 3.7% reported by Bukar *et al*.[21] in Maiduguri, but higher than 1.4% reported by Sanfilippo *et al*.[22] The most common congenital uterine abnormality in our study was bicornuate uterus (1.8%). This is in agreement with the findings of Bukar *et al*.[21] Uterine synaechia, (11.8%) was the most commonly acquired uterine pathology detected on HSG followed by uterine fibroid (9.5%).This is similar to the finding of Bukar *et al*.[21] but contrast with that of Mgbor[23] who found uterine fibroid as the leading uterine pathology. The high incidence of uterine synechia may be due to postpartum endometritis or overzealous curettage following abortion. The widespread use of manual vacuum aspiration for evacuation of the uterus is expected to lower the incidence of uterine synechia and consequently the contribution of uterine synechia to infertility in our environment.[21] Evaluation of female infertile patients is incomplete without hormonal assay for ovulatory dysfunction. The commonest cause of ovulatory dysfunction in this study was hyperprolactinemia (7.3%). This differs from the report of Ajibola *et al*[24] in Abuja, Nigeria which shows that polycystic ovarian syndrome is the commonest cause of ovulatory dysfunction. The reason for this difference is not known.

The fertility outcome after one year follow up showed 7 (11.1%) of the 63 patients with abnormal findings (cervical canal and endometrial cavity) got pregnant, while 25 (34.72%) of the 72 patients with normal findings (cervical canal, endometrial cavity, tubal and pelvic peritoneum) got pregnant. The difference noted was statistically significant. This is different from the findings in the work of Schankath *et al,*[25] in Switzerland, where they observed a higher pregnancy rate in patients with pathological HSG. The poor fertility outcomes associated with patients with structural abnormalities in this study are multifactorial. This includes lack of appropriate expertise necessary for infertility management, non-availability of advance equipment required for proper management of infertility and financial constrain on the part of the patients.[5]

Among the 32 patients that conceived, 15 had spontaneous pregnancies after HSG; while 17 patients had therapeutic interventions (adhesiolysis, myomectomy, ovulatory induction, timed-intercourse, and intrauterine insemination) before they conceived. High pregnancy rate noted in patients without therapeutic intervention may be due to the therapeutic effect of HSG. It is a known and undisputable fact that hysterosalpingography also has therapeutic value. Following hysterosalpingography, certain mild uterine

adhesion and partial tubal occlusion are lysed and hitherto infertile women have conceived months after HSG without any other gynecological intervention.[16]

Conclusion: Fertility outcome in patients with uterine cavity and cervical canal abnormalities at HSG was low. The high spontaneous pregnancy rate in patients with normal HSG and hormone and semen analysis may be due to therapeutic effect of HSG.■

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THE EFFECT OF GLYCAEMIC CONTROL ON CORTISOL LEVELS IN TYPE II DIABETICS IN UNIVERSITY OF CALABAR TEACHING HOSPITAL.

Bassey IE[1], OGBOLU IA,[1] GALI RM[2], ESSIEN OE,[3] USORO CAO[1]

ABSTRACT

Background: A high prevalence of subclinical hypercortisolism has been suggested in patients with type II diabetes mellitus with poor metabolic control and several observations have suggested that in type II diabetes patients, subclinical hypercortisolism may be more frequent than previously expected, however, results are inconclusive. **Objectives**: This study investigated the effect of glycemic control on serum cortisol levels in type II diabetics. **Materials And Methods**: The levels of serum cortisol, fasting plasma glucose and glycated haemoglobin were estimated in fifty five (55) type II diabetic patients attending the Diabetic Clinic of University of Calabar Teaching Hospital, Calabar and thirty three (33) non-diabetic controls. Consecutive sampling method was used. Serum cortisol was determined using enzyme immunoassay; fasting plasma glucose using colorimetric method and glycated haemoglobin using cation-exchange resin separation method. **Results**: The mean serum cortisol levels were significantly higher in diabetics as compared to the controls. The diabetics with poor glycemic control had significantly higher mean fasting plasma glucose and glycated haemoglobin compared to those with good glycemic control. However, there was no significant difference in the mean cortisol levels between the diabetics with poor control and those with good control. **Conclusion:** The diabetics in this study had elevated levels of serum cortisol. Cortisol levels in the diabetics were not affected by glycemic control.

KEYWORDS : Cortisol, type II diabetes, glycaemic control.

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INTRODUCTION

Diabetes is one of the major growing public health challenges, which threaten to overwhelm medical services in the near future[1]. The term diabetes mellitus describes a metabolic disorder of multiple etiology. It is characterized by chronic hyperglycemia with disturbances of carbohydrate, protein and fat metabolism resulting from defects in insulin action and/or insulin secretion[2]. The degree of insulin deficiency determines largely the metabolic alterations. Regardless of the etiology of diabetes mellitus, the disease manifests in hyperglycemia and glycosuria[3]. The classical symptoms of diabetes mellitus include: thirst, polyuria, polydypsia, polyphagia, blurring of vision and weight loss. In its most severe form, a non-ketotic hyperosmolar state or ketoacidosis may develop leading to stupor, coma and in absence of effective treatment, death[3].

According to Shaw et al,[4] "The world prevalence of diabetes among adults (aged 20-79) was estimated at 6.4%, affecting 285million adults, in 2010, with variations from 10.2% in the Western Pacific to 3.8% in the African region. It was further predicted that by 2030, the prevalence of diabetes will increase to 7.7%, afflicting 439million adults. Between 2010 and 2030, the prevalence of diabetes was projected with a 6.9% increase in the number of adults with diabetes in developing countries and a 20% increase in developed countries"[4].

In Africa, continent–wise prevalence was estimated to be 3 million in 1994 and 7.1 million in 2000. This figure is expected to rise by 2030 to 18.6 million, in Nigeria, that the figure will rise to 4.8 million by the year 2030[5]. According to the Diabetes association of Nigeria (DAN), the national prevalence rate of diabetes is 2.2% [6].

The adrenal glands secrete cortisol, a primary stress hormone, in response to inflammation from infection, injury, reactive substances such as allergens or toxins and certain digestive disturbances[7]. Its primary functions are to increase blood sugar through glycogenolysis; aid in fat, protein and carbohydrate metabolism as well as suppress the immune system[8]

There is a renewed interest in adrenal function in diabetic conditions. This is because cortisol may play an important role in the development of type 2 diabetes; it is possible that even small increases in cortisol, within the range of normal, may have a detrimental influence by worsening diabetes itself and increasing the risk of diabetes-related complications[8]. Diabetes (mainly type 2 diabetes) have been shown to be associated with cortisol levels because hypothalamic-pituitary-adrenal activity is enhanced in patients with diabetes complications and the degree of cortisol secretion has been shown to be related to the presence and number of diabetes complications[9].

High levels of cortisol in the body, decreases the metabolism of glucose and increases mobilization and breakdown of fats. Decreased metabolism of glucose contributes to hyperglycaemia, and increased blood fat levels contribute to insulin resistance. Hyperglycemia and blood fats are classic symptoms of diabetes. An elevated level of cortisol antagonizes the effect of insulin on blood glucose[10].

A high prevalence of subclinical hypercortisolism has been suggested in patients with type II diabetes mellitus with poor metabolic control. Though several observations have suggested that in type II diabetes patients, subclinical hypercortisolism may be more frequent than previously expected, however, results are inconclusive[11]. This study therefore will investigate the effect of glycemic control on cortisol levels in diabetics.

MATERIALS AND METHODS

Subjects

A total of 88 subjects of Nigerian origin were involved in this study. Fifty-five confirmed type II diabetic patients (males and females) attending the Diabetic clinic of the University of Calabar Teaching Hospital (UCTH) were recruited as test subjects. Thirty-three apparently healthy non-diabetic subjects were recruited from Calabar metropolis as controls. Consecutive sampling method was used. Ethical approval was obtained from the ethical committee of the University of Calabar Teaching Hospital. The purpose and nature of the research was explained to the participants and they gave their consent.

Inclusion criteria

All the subjects were 30years and above.

Exclusion criteria

Type I diabetics, terminally ill diabetics as well as anyone who did not consent to participating in the study were excluded.

Sample size calculation

The number of samples in this research was determined using the formular

$$N = \frac{Z\alpha^2 pq}{d^2}$$

where N = desired sample size

Zα = the α level of the coefficient interval at 95% (1.96)

p = proportion of non-occurrence

q = (1-p) proportion of non occurrence

d= precision

Substituting the expected occurrence of p= 2.2% i.e. 0.022 from DAN[6] we have

$$N = \frac{1.96^2 \times 0.022(1 - 0.022)}{(0.05)^2}$$

$$= 33$$

After calculating the sample size, a response rate of 80% was assumed and so the actual sample size was 33/0.8 = 41 cases.

Sample Collection

Fasting blood samples were collected between 8.00am and 9.00am owing to diurnal variation of cortisol secretion. With minimal constriction and stasis, 6 milliliters of venous blood was aseptically collected by venepuncture from each subject. Two milliliters of blood from each subject was dispensed into a tri-potassium ethylene diamine tetra-acetic acid (EDTA) bottle for glycated hemoglobin estimation and 2ml into a fluoride oxalate bottle for glucose estimation.

The remaining 2 milliliters of blood was collected into plain containers for serum extraction, which was used for cortisol assay. Serum not used immediately was kept frozen till used.

Glucose Analysis

Fasting plasma glucose was estimated using a test kit of glucose-oxidase-peroxidase method produced by Giesse Diagnostics Inc., Italy. Normal range 3.5 – 5.5mmol/L

Glycated Hemoglobin Estimation

Glycated hemoglobin was estimated using kits by Teco diagnostics, Anaheim, USA. The kit employed a weak binding cation-exchange resin for the rapid separation of glycohemoglobin (fast fraction) from non-glycated hemoglobin (HbA_o). Normal range : <6%

Serum cortisol Estimation

Serum cortisol was determined by the DRG cortisol enzyme immunoassay kit. It was obtained from DRG international Inc. USA. The DRG cortisol ELISA kit is a solid phase enzyme-linked immunosorbent assay (ELISA), based on the principle of competitive binding. Absorbance was read at 450nm with an ELISA microtiter plate reader. Normal range of serum cortisol - 138nmol/L – 635nmol/L

Statistical analysis

This was done using the PAWstatistic 18, a statistical package from SPSS Inc, California, USA. The results were expressed as Mean ± SD. The data was analyzed by Student's t-test and Analysis of variance (ANOVA) followed by a post hoc test using least significant difference (LSD). The level of significance was set at 95% confidence interval, where p-value less than 0.05 ($p<0.05$) was considered as statistically significant.

Definition of terms

Good glycaemic control: was defined as HbA1c value of < 7% in the diabetic patients

Poor glycaemic control: was defined as HbA1c value of ≥7% in the diabetic patients[12]

RESULTS

A comparison of the mean values of fasting plasma glucose, glycated haemoglobin and serum cortisol levels in diabetics and control subjects showed that the mean fasting plasma glucose, glycated haemoglobin and serum cortisol levels were significantly (p =0.000)

higher in diabetics when compared to the control subjects. Among the physical parameters measured only the mean values of systolic BP in the diabetics was significantly higher (p=0.025) than that of the controls (Table 1). Table 2 shows a comparison of fasting plasma glucose, glycated haemoglobin, serum cortisol in diabetics and controls based on glycaemic control. The mean fasting plasma glucose, glycated haemoglobin and serum cortisol levels were significantly lower (p=0.000) in controls when compared with the two groups of diabetics. The diabetics with poor glycemic control had the highest levels of mean fasting plasma glucose (FPG) and glycated haemoglobin.

Table I: Comparison of some physical parameters, fasting plasma glucose, glycated haemoglobin and serum cortisol in diabetics and non diabetics

Parameter	Diabetics	Non diabetics	Calc. t-value	Crit. t-value	p-value
Age (year)	47.2±10.10	44.8±10.65	1.076	2.00	0.285
BMI (Kg/m^2)	27.4±3.78	27.0±4.29	0.469	2.00	0.640
Systolic BP	140.2±22.98	129.6±17.07	2.282	2.00	0.025
Diastolic BP	83.1±17.20	79.6±13.0	1.014	2.00	0.314
Fasting plasma	8.42±3.30	4.25±0.53	7.187	2.00	0.000
HbA1c (%)	7.96±1.78	5.04±0.62	9.082	2.00	0.000
Serum cortisol (nmol/L)	442.9±179.68	296.3 ±88.36	5.110	2.00	0.000
n	55	33			

TableI I: Comparison of some physical parameters, fasting plasma glucose, glycated haemoglobin and serum cortisol in diabetics and non diabetics

Parameter	Diabetics with poor glycaemic	Diabetics with good glycaemic	Non Diabetics	Calc. F value	Crit. F value	p-value
Age (year)	45.5±10.65	50.4±10.11	44.8±10.65	2.042	3.103	0.136
BMI (Kg/m^2)	28.1±3.76	26.1±3.54	27.0 ±4.29	1.756	3.103	0.179
Systolic BP	140.7±24.22$^{\#}$	139.1±21.03	129.6±17.07	2.614	3.103	0.079
Diastolic BP	84.8±13.95	82.2±18.81	79.6±13.0	0.680	3.103	0.509
Fasting plasma	9.59±3.45$^{*\#}$	6.18±1.18	4.25±0.53	47.251	3.103	0.000
HbA1c (%)	8.91±1.38$^{*\#}$	6.15±0.70	5.04±0.62	130.427	3.103	0.000
Serum cortisol (nmol/L)	438.9±172.10$^{\#}$	450.5±197.91$^{\#}$	296.3 ±88.36	9.500	3.103	0.000
n	36	19	33			

KEY: *- higher than that of diabetics with good glycaemic control
- higher than that of controls

However, there was no significant difference (p= 0.790) in the mean cortisol levels between the diabetics with poor glycaemic control and those with good glycaemic control.

DISCUSSION

Given the documented deleterious role of glucocorticoids on glucose metabolism[13-16] it is possible to speculate that an increased cortisol secretion may contribute to a deterioration of the metabolic control of diabetes. In our study, the mean level of cortisol was significantly higher in type 2 diabetics when compared with controls. Elevated cortisol induces hyperglycemia. The value found in this study indicates that cortisol may be a contributor to the diabetic condition. Elevated cortisol is associated with increase hepatic gluconeogenesis and glycogenolysis and consequently hyperglycemia.

Cortisol is a glucocorticoid, which ensures that blood glucose level remains elevated. Its role in diabetes mellitus may however be undesirable as it tends to sustain hyperglycemia. This observation points to the need to measure this hormone in diabetics as part of monitoring and control. There are patients despite good management and treatment of diabetes do not respond to treatment. Management of some of these hormonal imbalances may help alleviate their particular situations.

Cortisol alters blood glucose levels by affecting glucose transporters in peripheral tissues such as skeletal muscle and fat[17]. Thus cortisol can contribute to elevated blood glucose levels by causing inefficient uptake of glucose in diabetics in the peripheral tissues. It is likely that even small increases in cortisol levels, within the normal range, may have an unfavourable influence by worsening diabetic condition and increasing complications[8]. Higher levels of cortisol in the body can increase glucose production in the liver, increase lipid accumulation, inhibit glycogen synthesis, and decrease insulin secretion[18,19]. This combination of events is a probable contributor to the development of type 2 diabetes.

In this study there was no significant difference in the mean cortisol levels between poorly controlled diabetics and diabetics with good glycaemic control. This suggests that in people with diabetes there may be altered cortisol secretion and/or metabolism irrespective of their glycaemic status. This may be an underlying reason for the increased susceptibility of diabetics to diabetic complications such as poor wound healing and hypertension.

A study carried out by Chiodini [20] reported that the degree of cortisol secretion as reflected by F24 was directly associated with both the type 2 diabetes and number of complications. However, they also reported that the patients in their study with diabetic complications showed higher glycated heamoglobin levels and longer duration of disease with respect to diabetic patients without chronic complications. Oltmanns *et al* [21] also reported that HbA1C to be directly associated with cortisol secretion in type 2 diabetic subjects with normal HPA activity.

These findings differ from those in this study. The differences observed may be a consequence of variation in study design.

Conclusion

The diabetics in this study had elevated levels of cortisol. There was however, no significant difference between the cortisol levels of diabetics with poor glycemic control and those with good glycemic control. ▬

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ORIGINAL ARTICLE

ARE ROADSIDE PETROL DISPENSERS AT RISK OF RENAL DYSFUNCTION? A STUDY FROM GOMBE, NORTH EAST NIGERIA.

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ABSTRACT

Background: Occupational exposure to toxic chemicals is a major public health concern worldwide. Gasoline, especially the leaded form is a leading cause of this occupational exposure in developing countries such as Nigeria. Exposure to gasoline has been shown to generate oxygen free radicals which are implicated in the pathogenesis and progression of many diseases including renal dysfunction. The objective of the study is to evaluate the possibility of increased risk of renal dysfunction among roadside petrol dispensers in Gombe, Nigeria. **Objectives:** To determine the risk of renal dysfunction among road side petrol dispensers in Gombe. **Materials And Methods:** A cross sectional analytic study, where serum levels of uric acid, urea and creatinine were compared between 90 road side gasoline dispensers and 90 matched controls. These were measured using standard colorimetric methods. **Results:** The mean age of the exposed and control groups are 29.03 ± 3.7 and 29.24 ± 3.5 years respectively. The plasma level of uric acid (5.35± 0.9mg/dl) of the exposed group was significantly ($p < 0.05$) higher than the control (4.48± 0.9mg/dl). There was no significant difference in the plasma levels of urea and creatinine in the two groups studied. **Conclusion:** This study has shown that road side gasoline dispensers may be at a higher risk of renal impairment. Creating awareness of this risk among roadside gasoline dispensers could help reduce the burden of renal disease associated with exposure to gasoline.

KEYWORDS : Occupational Exposure, Petrol, Chemical Exposure, Renal Function.

INTRODUCTION

Gasoline is one of the fractionated products of crude oil used for fuelling automobiles and some power generating machines. It is made from processed crude oil and is a pale brown liquid with a strong odour. It can form explosive mixture in air. It is very complex, volatile and inflammable with many organic and inorganic saturated and unsaturated hydrocarbons containing 3 to 12 carbons[1-2]. The constituents depend on the location of origin, processing techniques, the season and the additives added (anti knock) to enhance performance. Its composition also varies with the source of crude petroleum, the manufacturer and time of the year. Commonly, gasoline contains about 62% alkanes, 7% alkenes and 31% aromatics, alcohols, ethers and additives[2].

Studies have shown that chronic exposure to gasoline pollutant gases is more common in oil drillers, refinery workers, petrochemical industry workers, refuel station attendants, drivers and motor mechanics[2-4]. Increase plasma levels of some constituents of gasoline

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like benzene, lead and cadmium is found to be associated with increase reactive oxygen production and the chronic diseases associated with it including renal impairment[5]. Other constituent of gasoline associated with renal diseases are alkylbenzenes (Toluene and xylene**)**. They are single ring aromatic hydrocarbons with one or more saturated aliphatic side chains. They are mainly absorbed by inhalation and through the skin. Studies have found association of these compounds with various chronic diseases such as kidney diseases, hearing loss, CNS disorders, liver, and heart diseases[5-6].

Other components of gasoline implicated in nephrotoxicity are the organic compounds of leads such as tetramethyl and tetraethyl lead which are alkyls of lead and were developed as octane enhancers. Tertiary butyl alcohol (TBA) has also been found to be associated with nephropathy and renal tubular acidosis. Some studies have also found them to be neurotoxic[7]. Other effects found by investigators are, haematologic alterations, hypertension, growth and development deficiencies, and impairment of immune system responses[8].

Risk of occupational exposure to gasoline is found even in well-organized setting of gasoline stations. This risk could even be higher among roadside dispensers of gasoline in Nigeria. They often use their mouth to create vacuum pressure to dispense the products through pipes into receivers. Like other known xenobiotics, the chemical pollutants from gasoline vapours may be metabolically transformed into various metabolites in the body. Some of these metabolites may be very reactive, interacting in various ways with the metabolizing, transporting and excretive tissues to elicit toxic effects. The interaction of these metabolites with renal tissues may cause cellular injury and hence damage to the tissues[5]. Once the renal tissues are damaged, the overall functionality of the kidneys maybe compromised. Individuals with renal dysfunction may have a variety of different clinical presentations[9]. Some of these presentations may be asymptomatic, only detected on routine laboratory investigations which may include abnormal serum catabolites (such as uric acid, urea and creatinine) and electrolytes like the sodium, potassium and chloride[9].

There is paucity of studies that looked at occupational exposure to gasoline especially in Northern Nigeria and to our knowledge, there was no study conducted among roadside dispensers of gasoline. This study, therefore evaluated the renal function among roadside gasoline dispensers in Gombe State, Nigeria.

MATERIALS AND METHODS

Study Area

This is a cross sectional analytic study conducted in Gombe, the capital city of Gombe State, Nigeria. Gombe metropolis has an estimated population of 319,875 and lies within latitude 10° 17' N and 10° 283' N and longitude 11° 10' E and 11° 167'E of the Greenwich Meridian. Is a tropical area with two seasons (rainy – May to October and dry –November to April). The climate is Sudan Savanna with temperatures ranging between 18° to 39° and annual rainfall of about 954mm[10]. The study was conducted in the dry season between January and April, 2012.

Study Sample

Ninety apparently healthy roadside dispensers of gasoline and 90 matched controls in Gombe were recruited using random sampling method in two randomly selected motor packs in Gombe (Dukku and Bauchi packs). The study was explained to the participants and their voluntary consent was obtained.

Ethical Consideration

The study was approved by the joint Ethical Review Committee of the University of Ibadan/University College Hospital, Ibadan and Ethical Review Committee of Gombe State Ministry of Health.

Inclusion Criteria
Aapparently healthy, full time roadside dispensers of gasoline that are one year and above in the trade were included in the study.

Exclusion Criteria
People with occupational exposure to gasoline or occupational exposure that can lead to renal dysfunction are excluded from the study. These include mining, welding, battery, roadside mechanics, petrol station attendants and people around Ashaka cement company. People with acute or chronic illnesses that can affect renal function were also excluded. They include malaria, diabetes, chronic renal failure, hypertension and cigarette smokers.

Anthropometric Measurments
Height: - This was measured to the nearest centimetre against a flat, vertical surface with the subjects standing upright. A sliding headpiece was brought to the vertex of the subject's head and the reading at this level was taken.

Weight: - This was taken with Salter bathroom scale placed on a flat surface. The reading was recorded to the nearest 0.5kg. Body mass Index (B.M.I) was then calculated using the formula

$$BMI\ (kg/m^2) = \frac{\text{weight in (kg)}}{\text{Height in } (m^2)}$$

Blood pressure was measured using digital sphygmomanometer. Random plasma glucose was done using Acucheck glucometer.

Sample Collection and Laboratory Procedures
Four milliliters of fasting venous blood was collected from each of the 180 participants into a heparinised plastic tube. Plasma was separated by centrifugation and frozen. Samples were stored at -20^{o}C till the time of analysis.

Uric Acid, Urea And Creatinine Assay
Plasma uric acid, urea and creatinine were measured using standard colorimetric methods.

Statistical Analysis
The data was analyzed using SPSS (version 20 Chicago IL). Qualitative data were reported using percentages. The mean, standard deviation, skewness and kurtosis were used to measure the normality of distribution of the quantitative variables. The mean and standard deviation (SD) was reported for quantitative data and comparison was made between the cases and controls.

The normally distributed variables were compared between the two groups using two tailed unpaired Student's T-test. The level of significance was fixed at the 5% probability level. Pearson correlation coefficient was used to establish correlation between uric acid and the duration of exposure among the exposed groups.

RESULTS
Fifty per cent (90) of the respondents were roadside dispensers of gasoline. Among the controls, 34 (37.8%) were traders, 17(18.9%) were students, 10(11.1%) were teachers, 9(10%) were peasant farmers, and 20(22.2%) were other occupations (Tables 1). Fulanis made up 103(57.2%) of the respondents while 46(25.6%) were Hausa. Bolewa, Tera and others made up the remainder 30(17.2%). None of the exposed population uses face mask.

Table 2 shows the average duration of exposure among the exposed group. Plasma uric acid was significantly higher (P = 0.001) in the exposed (5.35 ± 0.9) than the control group (4.48 ± 0.9). Urea and creatinine were not significantly different between the exposed and the controls as detailed in table 3. Table 4 shows the Pearson correlation between total duration of exposure in hours and uric acid. There was a significant positive correlation between the duration of exposure and uric acid level ($r = 0.63$, $p < 0.001$).

Table I: Occupational distribution of the respondents

OCCUPATION	Frequency	Percent
GASOLINE SELLER	90	50.0
TRADER	34	18.9
TEACHER	10	5.6
FARMER	9	5.0
STUDENT	17	9.4
OTHERS	20	11.1
Total	**180**	**100.0**

OTHERS: Doctors, nurses, fisher men, photographers, drivers and tailors.

Table II: Average duration of exposure among the exposed population

	Mean	Std. Deviation
DURATION OF EXPOSURE (YEARS)	6.4	2.4
AVERAGE WORK HOURS PER DAY	7.9	0.71
TOTAL EXPOSURE (HOURS)	18332	6931.3

Table III: Student's t- test for equality of means between exposed and controls

VARIABLE	EXPOSED MEAN (SD)	CONTROLS MEAN (SD)	P-VALUE
Uric acid(mg/dl)	5.35(0.9)	4.48(0.9)	0.001
Urea(mg/dl)	36.19(5.1)	35.10(5.6)	0.167
Creatinine(mg/dl)	0.76(0.13)	0.77(0.15)	0.526

TABLE IV: Pearson correlation (r) of duration of exposure and uric acid

	R	p
Total exposure (hours)	0.63	0.000
Duration of exposure (years)	**0.61**	**0.000**

R (Pearson correlation), p (p value)

DISCUSSION

This study found significantly higher levels of uric acid among the exposed group compared to the control group with significantly positive correlation with the duration of exposure. The mechanism of increased serum uric acid concentration in conditions associated with exposure to hydrocarbons has been largely described as unknown[11-16]. Some suggested it could be due to increased breakdown of nucleic acids in DNA and RNA caused by oxidative injury. This is in addition to the renal tubular damage that may cause increase in reabsorption or decrease secretion of uric acid by the tubules[3,17-18]. Other suggested mechanisms are increased metabolism of adenosine generated by ischaemic tissues[19], loss of the inhibition of xanthine oxidase caused by nitric oxide[20], and impaired oxidative metabolism[21]. The uric acid elevation may be a protective response, to reduce the harmful effects of reactive oxygen species (ROS) generated by the petrochemicals. Therefore, although both clinical and experimental evidences suggest that uric acid has antioxidant properties, it is conceivable that its antioxidant activity could be overcomed by the pro-oxidant and pro-inflammatory effects of ROS accumulation under certain conditions[22].

The higher levels of uric acid among the roadside petrol dispensers found in this study is a risk for renal dysfunction which may be mediated through inducing hypertension by uric acid[23]. Some studies have found uric acid to be an independent predictor of microalbuminuria which is by its self a predictor of renal dysfunction[24], and is also found to have correlated with electronic GFR (eGFR)[25]. Renal dysfunction may also be mediated through urate crystals deposits in the kidney[26].

The finding in this study of higher levels of uric acid among the petrol exposed group is similar to the finding of some researchers in Nigeria. In Nnewi, Dioka et-al found elevated uric acid among occupationally exposed individuals. However, urea and creatinine were not elevated. This is in keeping with our findings. The considerable reserve capacity of the kidneys and uric acid been an early marker for renal dysfunction may explain the lack of significant differences in urea and creatinine between the two groups[15]. In Port Harcourt, Nigeria, Alasia et-al made a finding of elevated uric acid, urea and creatinine among occupationally exposed individuals. Similar findings were observed in Gaza when petrol station workers were studied[14,18,27]. Impaired markers of renal function were also observed in Owerri[11], South-East Nigeria among petrol station attendants which also agrees with the finding in our study. Although the effects of inhaled gasoline on renal tissue might not be dependent on age and sex, it is probable that the effects could depend on the exposure time, as suggested by the finding of positive correlation between uric acid and the duration of exposure in this study. Exposure time dependent renal dysfunction was also observed among petrol station attendants in Owerri, Nigeria[11]. This is possibly as a result of the phenomenon of bioaccumulation which is associated with the direct transfer of compounds through body surface into the circulatory fluids in a process known as bioconcentration[28].

LIMITTATIONS OF THE STUDY

Measurement of urinary benzene or its metabolites, lead or cadmium would have given a more objective level of exposure than the duration used in the study. A study that will monitor the progression of the renal function indices or their reversal by interventions is needed to produce a more causal relationship.

CONCLUSION

In conclusion, this study has demonstrated the probability of some risk for renal impairment among roadside gasoline dispensers. Further study to establish a link between gasoline exposure and serum urea and creatinine is recommended. ■

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TOTAL ABDOMINAL HYSTERECTOMY AT THE CENTRAL HOSPITAL, WARRI: A FIVE YEAR REVIEW.

OKHIONKPAMWONYI O & OKONTA PI

ABSTRACT

Background: Hysterectomy is a common gynaecological surgical procedure which improves womens's quality of life. **Objectives:** To determine the indications and complications of Total abdominal hysterectomy (TAH) at the Central Hospital, Warri (CHW). **Materials and Methods:** This was a retrospective descriptive study of TAH performed at the CHW from 1st January 2007 to 31st December 2011. Medical records of all patients that had TAH were reviewed. **Results**: Two hundred and thirty six patients had TAH. It constituted 11.6 % of all gynaecological surgeries at the CHW. The mean age was 44.78 ± 1.28 years. The mean parity was 3.79 ± 1.08. Uterine fibroids accounted for majority of cases (66.1%). About 54.2% of patients had TAH with bilateral salpingo-oophorectomy (BSO). Fifty patients (21.2%) had complications. Wound sepsis/breakdown, anaemia, prolonged hospital stay, urinary tract infection and pyrexia were the common morbidities. **Conclusion:** The indications for, and surgical outcome following TAH is comparable to that from other public hospitals across the country.

KEYWORDS : TAH, Indication and Complication.

INTRODUCTION

Total abdominal hysterectomy (TAH) is a major gynaecological operation involving the removal of the uterus including the cervix.[1-4] Depending on the patients conditions and risk factors, the ovaries, fallopian tubes, upper portion of vagina and pelvic nodes may also be removed.[5] Hysterectomy is mostly performed for uterine fibroids and menstrual problems. This is the case in both developed and developing countries, although the uterine size is generally larger in the later.[6,7]

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The history of hysterectomy is long and varied.[8] The first reported abdominal hysterectomy was attempted by Langerbeck in 1825.[8] However the first TAH in which the entire uterus was removed was performed by Richardson MD in 1929.[9]

Most women are satisfied with hysterectomy as a definitive form of treatment for their menstrual problems on follow up[10]. However in developing countries, most women would reject hysterectomy for the fear of surgery, loss of feminity and sexual rejection by their spouses.[1,7] Some prefer to have regular periods for as long as possible while others believe that when they reincarnate in future they will live without a uterus or suffer primary infertility.[1,7,11]

The indications for TAH include menstrual disorders, uterine fibroids, adenomyosis, chronic pelvic pain, endometriosis, cervical dysplasia, carcinoma in situ amongst others[1,4,8,12-16].

The incidence of TAH varies from country to country. In the United Kingdom, about 20% of the women must have undergone hysterectomy by the age fifty five years mainly for uterine fibroids and menstrual disorder[17,18]. It is estimated that by age 65, one third of women in United State would have had a hysterectomy.[8] Hysterectomy is the second most frequently performed surgical procedure, after caesarean section for women of reproductive age in the United Stated of America.[8,19] Approximately 600,000 hysterectomies are performed annually in the United States of America, and an estimated 20 million United States women have had a hysterectomy.[8,19] In Nigeria, it accounted for between 3.8% to 14% of all major gynaecological operations in University of Benin Teaching Hospital(UBTH), University of Ilorin Teaching Hospital(UITH), University College Hospital(UCH), Federal Medical Center (FMC) Gombe, Jos University Teaching Hospital (JUTH), Central Hospital, Benin, University of Maiduguri Teaching Hospital (UMTH) and University of Nigeria Teaching Hospital (UNTH) Enugu.[12-16,20-22]

The Central Hospital, Warri (CHW) is a secondary health facility in Delta State. It is the largest secondary health facility under the Delta State Hospital Management Board and has three Gynaecologists. It was recently granted accreditation for the post graduate training in Obstetrics and Gynaecology by both West African College of Surgeon and National Postgraduate Medical College of Nigeria. There is no study from the centre on TAH hence the need to review the cases done to find out the incidence, indications and associated morbidities and or mortalities.

MATERIALS AND METHODS

The medical records of patients who had TAH at the CHW over a five year period between 1st January 2007 and 31st December 2011 were reviewed. The gynaecology ward and operating theatre registers were used to identify the total number of gynaecological surgeries performed over the period and the hospital numbers of patients that had TAH. Case notes of patients who had TAH were retrieved from the medical record department and data extracted.

Information on age, parity, level of education, indication for TAH, type of oophorectomy (when done), type of incidental surgery, intra and post-operative complications were extracted from the casenotes into a data collection proforma.

The completed data collection proforma were collated, coded and inputted into the computer using the statistical package for social scientist (SPSS) computer software version 20.0. The data were analyzed using proportions and percentages and the results presented in narrative and tabular forms.

In this study packed cell volume less than 30% was regarded as anaemia and was corrected by blood transfusion or haematinics[23]. Some patients had more than one complications arising from the operation. Pyrexia was defined as fever $\geq 38^0$C on two consecutive occasions 24 hours after surgery.

RESULTS

During the five year period under review, there were 2,132 gynaecological surgeries and 248 of them were TAH, giving a TAH incidence of 11.6%. Twelve case notes could not be retrieved for analysis. Two hundred and thirty-six casenotes with complete information that were retrieved (giving a retrieval rate of 95.2%) formed the basis for further analysis.

Majority (67.0%) of the patients who had TAH were greater than or equal to 45 years. The mean age was however 44.78 ± 1.28 years. Also, majority of the patients who had TAH were grand multipara (47.9%) followed by women of parity 3 – 4(30.9%). Nulliparous women (0.8%) were the least and these were intra-operative decisions following myomectomy for huge uterine fibroid (Table I).

The most common indication for TAH was uterine fibroids which accounted for 66.1%. This was followed by cervical dysplasia (high grade squamous intraepithelial lesion in multipara), cervical neoplasm (invasive carcinoma diagnosed by biopsy), ovarian cysts/malignancy and endometrial hyperplasia/neoplasm in 8.9%, 6.8%, 6.4% and 5.5% respectively (Table II). One hundred and forty-two patients (60.2%) had oophorectomy. Of these, 128 (54.2%) had bilateral salpingo-oophorectomy while 14 (5.9%) had unilateral oophorectomy.

Table III shows the associated morbidities. Anaemia, wound sepsis/breakdown, urinary tract infection, prolonged hospital stay and post-operative pyrexia were the common morbidities.

TABLE I: Socio-Demographic Characteristics of Patients

AGE	**NO (%)**
25 – 29	1 (0.4)
30 – 34	3 (1.4)
35 – 39	18 (7.6)
40 – 44	56 (23.7)
⩾ 45	158 (67.0)
TOTAL	**236 (100)**
PARITY	**NO (%)**
0	2 (0.8)
1 – 2	48 (20.3)
3 – 4	73 (30.9)
5	113 (47.9)
TOTAL	**236 (100)**

TABLE II: Indication for TAH

INDICATIONS	NO (%)
UTERINE FIBROIDS	156 (66.1)
CERVICAL DYSPLASIA	21 (8.9)
CERVICAL NEOPLASM	16 (6.8)
ENDOMETRIAL NEOPLASM / HYPERPLASIA	13 (5.5)
DYSFUNCTIONAL UTERINE BLEEDING	8 (3.4)
OVARIAN CYSTS / MALIGNANCY	15 (6.4)
CHORIOCARCINOMA	2 (0.9)
POSTOPERATIVE HAEMORRHAGE FOLLOWING MYOMECTOMY	2 (0.9)
ADENOMYOSIS	1 (0.4)
OTHERS	2 (0.9)
TOTAL	**236**

TABLE III: Post-Operative Morbidities

COMPLICATION	NO (%)
WOUND SEPSIS / BREAKDOWN	24 (11.0)
URETERIC INJURY	1 (0.4)
ANAEMIA	27 (11.4)
PYREXIA	16 (6.8)
PROLONGED HOSPITAL STAY > 10 DAYS	21 (8.9)
ANAESTHETIC COMPICATION (Post spinal headache)	5(2.1)
URINARY TRACT INFECTION(UTI)	23 (9.8)
BLOOD LOSS (MLS) < 500	173 (73.3)
500 – 1000	45 (19.1)
> 1000	18 (7.6)

*Some patients had more than one morbidity.

DISCUSSION:

TAH accounted for 11.6% of gynaecological surgeries during the 5 year period of study. It is comparable to 10.8% reported by Abe in Central hospital, Benin and 13.8% reported by Ezenwafor in UITH, Ilorin[13,24]. It is however lower than over 30% reported in women 65 years and above in the United States and 20% in the United Kingdom[8,17,18]. The reasons for the higher figures in developed countries are because of their preference for small family size, their higher literacy level coupled with a diminished influence of culture and myths on health decisions[7,18].

The mean age was 44.78 ± 1.28 years and this bears a good relationship with 45.5 ± 6.7 reported by Okafor, 45.7 ± 11.1 by Bukar, 45.7 by Abe, 42.22 ± 8.36 by Omole-Ohonsi and 46.8 by Umeora[1,12,13,25,26]. At this age majority of the women would have completed their family size.

The mean parity in this study was 3.79 and this is lower than 5.5 and 5.84 reported by Bukar and Omole-Ohonsi respectively[12,25]. It is however, higher than reported figures by other researchers in developed countries[8,19,27]. The higher parity recorded in this study compared to that from developed countries is a reflection of the desires of women from developing countries to have a higher total fertility rate.

Two (0.8%) of the patients who had TAH were nulliparas. This is lower than 8% reported by Lambaudie in a developed country[28]. The surgery followed unsuccessful myomectomy due to the huge size of the uterus, distorted architecture and adhesions. The possibility of proceeding to a hysterectomy is a reality therefore, patients should have careful and detailed counseling before the planned myomectomy and double consent always obtained, as was done for these patients. This would reduce the possibility of developing post operative regret, major psychological trauma or major depressive episode and resort to litigation[29,30].

Our finding of uterine fibroid as the commonest indication for TAH is similar to findings by other workers both in developing and developed countries[1,8,12-16,19,22].

Majority of the patients 54.2% had TAH with bilateral salpingo-oophorectomy. This is higher than 13.3% reported by Okafor in a private specialist hospital in Nnewi[1]. While 5.9% had unilateral salpingo-oophorectomy and they were all below the age of 40 years. This was done to prevent premature surgical menopause which can be very distressing especially in developing counties where access to natural conjugated equine oestrogens for hormone replacement therapy is limited[31].

Fifty patients had postoperative complications giving a complication rate of 21.2%. This is lower than 33%, 45%, 26.9% and 44% reported by Daru, Geidam, Omole-Ohonsi and Verol respectively[14,15,24,32]. It was however, higher than 17.7% reported by Anzaku[33]. There was no associated mortality following TAH during the five year period similar to reports by Daru, Anzaku and Omole-Ohonsi[14,25,33]. This could be attributed to safe anaesthethic technique, careful surgical technique including achieving satisfactory haemostasis and inspection of the abdominal cavity after surgery to identify any bowel injury that may lead to fecal peritonitis, which is a major cause of mortality following a TAH.

CONCLUSION

TAH is a common surgery in this hospital, though the incidence is lower than that in developed countries. The indications for the operation are similar to those from other studies both within and outside the country. It is a relatively safe procedure and more women who require the procedure should be encouraged to do so.■

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GLAUCOMA AWARENESS AMONG TERTIARY HEALTH CARE WORKERS IN MAIDUGURI, NIGERIA.

ASKIRA BH, WAZIRI MA, MUSA ZY, RIBADU DY, KYARI FA.

ABSTRACT

Background: Glaucoma is second only to cataract as the leading cause of preventable blindness in the world. The devastating effect of this disease is often neglected. Most people with glaucoma are usually unaware that they have the disease until significant loss of vision has occurred. **Objectives:** The aim of the study is to establish the level of awareness to glaucoma among staff of University of Maiduguri Teaching Hospital. **Materials and Methods:** This cross sectional descriptive study conducted as part of glaucoma awareness campaign to mark the World Glaucoma Week. The entire staff of the University of Maiduguri Teaching Hospital that voluntarily consented to the study were recruited. A structured questionnaire was designed and administered in the clinic during the screening exercise. **Results:** A total of 285 participants were recruited. The ratio of male (M) to female (F) was 1.4:1. The most frequent age group was 40-49. Glaucoma awareness was found to be 60.4% .The sources of awareness of glaucoma were 41.8% from doctors, 29.7% from news media and 14.0% from nurses. A total of 40.7 % know that glaucoma can cause blindness and 32 % know that glaucoma blindness is irreversible. **Conclusion:** In this study the awareness of glaucoma is high. Further studies to determine the knowledge and adverse affect of glaucoma on vision are advocated.

KEYWORDS : Glaucoma, Awareness, Tertiary, Maiduguri

INTRODUCTION

Glaucoma is a multifactorial optic neuropathy with characteristic acquired loss of retinal ganglion cells (RGC), atrophy of the optic nerve head typified by pale cupped discs and characteristic visual field defects. It is second only to cataract as the leading cause of preventable blindness in the world[1]. It is estimated that over 65 million people throughout the world are affected by glaucoma[2]. In Africa glaucoma accounts for 15% of blindness and it is the region with the highest prevalence of blindness relative to other regions of the World[3]. The Nigeria National Blindness and visual impairment survey reported the prevalence of glaucoma related blindness at 0.75%; second only to cataract induced blindness[3]. Olurin reported the incidence of glaucoma in people over 40 years of age in Nigeria to be over 10%[4].

The devastating effect of this disease is often neglected. Most people with glaucoma are usually unaware that they have the disease until significant loss of vision has occurred[5]. A study by the Glaucoma Research Foundation found that 8.8% of Caucasians and 16.1% of African-Americans were unfamiliar with glaucoma[6]. . About 6% of Americans have glaucoma and only about 50% of those who have glaucoma know that they have it [7]. Ntim-Amposaah et-al [8] in Ghana reported 94% of the glaucoma cases diagnosed in their series were unaware that they had glaucoma.

As glaucoma related blindness is only

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avoidable with early detection and treatment, it is imperative to find asymptomatic individuals in the target population[9]. However, for people to present to eye care providers they need knowledge about glaucoma and the benefits of early detection and treatment[10]. Awareness and knowledge of a disease are major determinants in seeking medical help early and may also influence drug compliance.[11]

This study was done to establish the level of awareness of glaucoma among the members of staff of University of Maiduguri Teaching Hospital (UMTH), their spouses and dependants.

MATERIALS AND METHODS

This is a descriptive cross sectional study, conducted as part of glaucoma awareness campaign to mark the World Glaucoma Week from 10th to 16th March, 2013. During the period the entire staff of the UMTH, their spouses and dependants who voluntarily consented to the study were recruited. The approval of the Hospital management for the screening and the study was sought for and obtained. A circular was issued to individual department requesting staff members to participate in the screening exercise and a public lecture was organized to sensitize members of staff on glaucoma awareness and the screening exercise.

A structured questionnaire was designed to capture information about the demography and awareness of glaucoma. The age, sex, tribe and educational levels of the respondents was obtained. The questionnaire also sought information about whether the respondents have ever heard of glaucoma before presentation, the source of information, and if the respondent knows glaucoma causes blindness and whether it can be treated or prevented. Respondents were also asked if they know how blindness from glaucoma can be prevented.

The questionnaire was self administered in the eye clinic during the screening exercise. It was administered to all consecutive current/retired staffs of UMTH, their spouses and dependants. Those who needed help were assisted in the administration of the questionnaire by either of the consultant ophthalmologist in the eye clinic. All those who were not serving/retired, spouses or dependants of members of UMTH staff were excluded from the study. The data obtained was presented in simple tables and percentages.

RESULTS

A total of 285 members of staff of the UMTH, their spouses and dependents who voluntarily presented themselves for glaucoma screening were recruited. There were 164 males and 121 females with a ratio of 1.4:1. The mean age of the respondents was 49.4 years while the most frequent age group was 40-49 years as shown in table I. Table II shows the educational levels of the respondents. Majority of the respondents (56.1%) attended tertiary institutions. Table III shows the sources of information of glaucoma awareness among the respondents. The majority of respondents were informed by doctors (41.8%). One hundred and sixteen respondents (40.7%) know that glaucoma can cause blindness and 51.2 % (146) do not know that glaucoma can cause blindness while 33.7 % (96) know that glaucoma blindness is irreversible. Of the respondents who know glaucoma can cause blindness 35.1% know that glaucoma blindness can be prevented by regular eye examination or screening of first degree relations of glaucoma patients while 63.9% of the respondents have no idea that glaucoma blindness is preventable.

Table I: Age group of respondents

Age (years)	Number	Percentage (%)
< 40	8	2.8
40-49	170	59.6
50-59	84	29.5
60-69	17	6.0
70 and above	6	2.1
Total	**285**	**100**

Table II: Educational level of respondents

Educational level	Number	Percentage (%)
Primary	30	10.5
Secondary	33	11.6
Tertiary	160	56.1
Qur'anic	55	19.3
None	7	2.5
Total	**285**	**100**

Table III: Sources of information on glaucoma by the respondents

Source of glaucoma awareness	Number	Percentage (%)
Doctors	72	41.8
Mass Media	51	29.7
Nurses	24	14.0
Optometrists	12	7.0
Social organizations	7	4.0
Relatives	6	3.5
Total	**172**	**100**

DISCUSSION

A total of 285 respondents answered the questionnaires. The majority were males. This may be due to the fact that majority of the hospital employees were males.

Glaucoma awareness before presentation was found to be 60.4% in this study. This compares favorably with studies in Abuja[12] (74.5%) and Makkah[13] (69.1%). The high level of awareness seen in this study may be attributed to the fact that the study was conducted amongst workers in a tertiary health facility with participants cutting across various health professionals. The curriculum of the medical, nursing schools, and other allied health care training colleges in Nigeria involves period of lectures and rotation through ophthalmology during which some important eye diseases are covered[10].

In this study the source of information about glaucoma was mainly through doctors (41.8%). This may be in line with the fact that the study was done among workers in a tertiary health facility where some of the participants may have had formal education on glaucoma. This is in contrast to a survey done in Germany[14], where friends were reported to be the main source of glaucoma awareness; and among people attending ophthalmic outreach services in Southwestern Ethiopia where the source of glaucoma awareness was through close acquaintances[15].

Other studies on glaucoma awareness reported a close association of awareness with family history of glaucoma[15,16,17] because glaucoma patients in the family may have volunteered the information to their relatives, friends and guides. In this study only 3.5% of the respondents gave relations as sources of glaucoma awareness. Interestingly, Onabolu OO, Bodunde OT.[11] in a study on Awareness and knowledge of glaucoma among primary care givers in a developing country found a positive family history of glaucoma in 26% of their respondents did not influence knowledge of glaucoma. Generally, patients in developing countries and their relatives are reticent about discussing their health problems, thereby reducing information about inheritable diseases. This setback will have a negative influence on awareness of glaucoma.

In a study conducted in rural India[18] mass media was the main source of glaucoma awareness. In this study 29.7% of the respondents' sources of glaucoma awareness were mass media. While Onabolu OO[11] reported 3.3% of the respondents' sources of glaucoma awareness were mass media. This is suggesting relative paucity of information from mass media. Perhaps health workers are at work when health programs are being aired. However, this source should be explored so that health education on glaucoma could be aired and printed in both English and local languages.

Glaucoma awareness was also found to be related to educational level. In this study we found that majority of the respondents (56.1%) have obtained tertiary education. Some studies have reported an association between high educational level and glaucoma awareness[15, 18, 19].

Only 32% of the respondents know that glaucoma can course blindness and 35% know that glaucoma blindness is preventable. This finding is similar to studies in Saudi[13] (33.2%).

In conclusion, in this study the awareness of glaucoma is high. Further studies to evaluate the knowledge and implication of glaucoma to visual loss need to be undertaken.

There is therefore, a need to establish information, education and communication strategies to increase the awareness of glaucoma to aid early diagnosis and treatment thus preventing blindness from glaucoma.■

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CASE REPORT

ENDOSCOPIC TRANS-NASAL CHOANOTOMY: A CASE SERIES

KOLO ES

ABSTRACT

Choanal atresia is a rare congenital failure of communication of the nasal cavity and the nasopharynx. The technique for the surgical repair of choanal atresia has evolved from the blind transnasal puncture to the currently favored endoscopic transnasal approach. This study aims at assessing the technique of endoscopic transnasal choanotomy; and highlight if any its benefits in our practice. This is an on-going study of all consecutive patients with choanal atresia, who had endoscopic transnasal choanotomy at the Otorhinolaryngology department of Aminu Kano Teaching Hospital from January to October, 2014. Four patients were recruited into the study and they all had endoscopic transnasal choanotomy with stenting of the neo- choanae. There were 3 females and 1male and their ages ranged between 12days and 18years. They all presented with varying degrees of persistent nasal obstruction, rhinorrhea and respiratory distress. Diagnostic nasal endoscopy and CT scan confirmed 1 patient had a bilateral membranous type atresia, 1 had bilateral bony atresia and 2 had right sided mixed membranous/bony atresia. Post-operative complications included rhinosinusitis, stent extrusion and granulation tissue formation. Follow ups at various intervals revealed 3 patients had adequate neo-choanal patency and 1 had a re-stenosis and was re-operated. This study found endoscopic choanotomy safe and effective in the treatment of choanal atresia in our practice.

KEYWORDS : Congenital abnormality, choanal atresia, endoscopic choanotomy, intra-nasal stents.

INTRODUCTION

Choanal atresia is a congenital failure of communication of the nasal cavity and the nasopharynx[1]. This condition may be unilateral or bilateral and it may be membranous, mixed bony-membranous or purely bony[2]. It is a rare condition occurring in about 1 in 10000 live births and it is commoner in females the ratio being 2:1[1,2]. This condition results in varying degree of nasal obstruction and is associated with nasal discharge and impairment in the sense of smell. It is best diagnosed using a high resolution axial computed tomographic scan (CT scan).

The technique for surgical repair of choanal atresia has evolved from the blind transnasal puncture described by Emmert in 1854, through the transpalatal approach, to the currently favored endoscopic transnasal approach[3]. Endoscopic transnasal approach has the reputation of being quicker, minimally invasive, has less complications and a high success rate[2]. Regardless of the surgical approach, controversy still exists on whether to use stents or mitomycin C in the post-operative period[3]. However, despite the unacceptably high rates of serious complications associated with the "head light assisted puncture technique" it is still commonly practiced in many centers[2].

This study aim at assessing endoscopic transnasal choanotomy and highlighting if any the benefits of the technique in our practice.

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CASE 1
A 12 day old female was referred from the Special Care Baby Unit to our ENT clinic with complaints of difficulty in breathing since birth. There was associated profuse nasal discharge, occasional bluish discoloration of the body and difficulty in breast feeding.

On examination, the child was found to have a Mc Govern nipple in her mouth and was occasionally restless. A cold spatula test showed there was absent misting. A diagnostic nasal endoscopy revealed copious purulent discharge in both nasal cavities. The atretic plates were observed in both nasal cavities with absent communication with the nasopharynx. A fine cut (0.5mm) axial CT scan showed a thick bony plate separating the nasal cavities from the nasopharynx. As a result, a diagnosis of a bilateral bony choanal atresia was established. The patient was reviewed by a paediatrician and other possible congenital abnormalities were ruled out.

The pre-operative PCV was 38.2%, platelets $234x10^9$/L and the other blood and urine tests were within normal limits. A day after presentation, she had endoscopic transnasal choanotomy under general anaesthesia and the neo-choanae were stented with trimmed endotracheal tubes for 2weeks. Her post-operative period has been uneventful apart from a few repeated episodes of acute rhinosinusitis. Her neo-choanae has remained patent (3months after surgery) and is still on follow up.

CASE 2
A 3 month old male was referred from a peripheral health facility to the ENT clinic of Aminu Kano Teaching Hospital with complaints of difficulty in breathing since birth. There was associated nasal discharge, refusal of feeds and failure to thrive. He was said to have cried at birth but the breathing was noticed to be abnormal.

Clinical examination revealed a child who was mouth breathing. A diagnostic nasal endoscopy showed bilateral nasal purulence and absence of communication between the nasal cavities and the nasopharynx. The atretic areas were visualized and had firm consistency. Other system examinations were normal and there were no other congenital abnormality. The pre-operative investigations were within normal limits. An axial CT scan confirmed a diagnosis of bilateral membranous choanal atresia and he had endoscopic choanotomy with stenting of the neo-choanae for 2weeks. After discharge from the hospital, patient had his stent extruded for 4 days and it had to be re-inserted. Patient's neo-choanae is still patent 2 months after surgery.

CASE 3
A 1-year old female presented with a history of a right sided nasal discharge and obstruction. The discharge was mostly colorless but occasionally greenish and with an offensive odor. There was no epistaxis or cough. She was seen at several private hospitals and a suspicion of a foreign body impaction was contemplated but none was ever found.
Clinical examination revealed a healthy looking child, not in respiratory distress, anicteric and acyanosed. The heart rate was 126 beats/minute and had vesicular breath sounds. The right nasal cavity was not patent and a size 6FG nasogastric (NG) tube could not be passed into the nasopharynx. Nasal endoscopy showed a thick yellowish discharge which was suctioned and the atretic plate was exposed. The left nasal cavity was normal. A fine cut axial CT scan showed the presence of a right bony choanal atresia. She had an endoscopic transnasal choanotomy with stent in place for 2weeks. There were no post-operative complications and the neo-choana is still patent 5 months after surgery.

CASE 4
An 18-year old female student presented to our facility with a history of a right sided nasal

discharge and persistent obstruction since childhood. There was no associated epistaxis.
On general examination, the patient appeared healthy and was not in any respiratory distress. The external nasal pyramid was normal and the right nasal cavity was not patent. Nasal endoscopy showed copious greenish discharge in the right nasal cavity. After clearance of secretions, the atretic region of the right nasal cavity was visualized and it had a bony hard consistency. A pure tone audiometry revealed normal hearing threshold in both ears. The patient was evaluated for the presence of CHARGE association and found to have none. CT scan showed features of bony atresia of the right choana, however, there were no ear abnormalities on review of the temporal bones. The patient had endoscopic canalization of the right choanal atresia with a stent in place for 2weeks. The patient defaulted follow up and re-presented a month later with a right nasal discharge and obstruction. Endoscopic evaluation showed stenosis and obliteration of the neo-choana with granulation tissue.. As a result, she had a repeat surgery and stenting for another 4weeks to ensure adequate healing. The post-operative period was uneventful and neo-choana has remained patent after 6 months of the repeat surgery.

DISCUSSION

Since the first description of choanal atresia repair by Johann George Roderer in 1755, many methods of surgical correction have been described. However, the transnasal and transpalatal approaches are now the most commonly used world-wide[4]. In this study, we report on endoscopic transnasal approach which is the preferred technique in our practice. This approach has been found to be quicker and associated with minimal blood loss. Moreover, it has the reputation of not interfering with palatal growth in children unlike the transpalatal approach[1]. On the other hand, endoscopic transnasal approach has this drawback of exposing a limited surgical field especially in the new born and endoscopes do not offer binocular vision[1].

Endoscopic transnasal technique has been facilitated not just by advances in instrumentation and anaesthesia, but also by improvements in the imaging technique. CT imagining has the unique advantage of differentiating membranous and bony choanal atresia[5]. In this study, all our patients had fine cut CT scans (0.5mm) before surgery. These scans did not only confirm the diagnosis, but were useful as surgical roadmaps and also ensured adequate pre-operative preparations. A previous study in our center relied on plain x-ray findings as CT scan was either not readily available nor was it affordable like it is today[6]. Likewise, the transnasal puncture technique even though prone to serious complications remained a valuable therapeutic option at that time.

Controversy still exists in the literature on whether placing of stents in the post-operative period after choanotomy provides improved outcome. In this study, all our patients had post-operative stenting using trimmed endotracheal tubes. On follow up, they all had patent neo-choanae except for one patient who defaulted and re-presented 4 weeks after surgery with severe granulation tissue formation obscuring the choana. This corroborates the findings of some researchers who emphasize that these stents aid healing around the neo-choana and allow for patency until scaring occurs[7,8,9]. On the contrary, the antagonists of stenting argue that with the high quality vision offered by the endoscope and with specialized instruments; damage to surrounding tissue is minimal and as a result obviates the need for stents[10,11]. Also, stents are burdensome to the patients and if not well managed are associated with complications such as crust formation, granulation tissue and septal perforation[1]. These workers concluded that aggressive nasal irrigation with saline and topical application of intra-nasal steroids is all that is required post operatively.

In addition to stents, it has been reported that topical application of the anti-neoplastic agent mitomycin C has been used as an adjunct to reduce risk of choanal stenosis. It works by inhibiting fibroblast growth and proliferation which may help keep granulation tissue at bay[1]. In this study, we did not use this agent on any of our patients as it is not readily available in our setting. Moreover, the potential oncogenic capacity of mitomycin is currently been investigated[2].

In conclusion, this study has found endoscopic transnasal choanotomy safe and effective in the treatment of choanal atresia in our practice. However, the authors acknowledge the limitations inherent in this study. Even though choanal atresia is a very rare condition, the relatively small sample size and the short follow up periods are obvious draw backs of this study. Hopefully, a large case series in due course will provide more valid observations.

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UTERINE RUPTURE FOLLOWING A MOTORCYCLE ACCIDENT AT N'DJAMENA (CHAD). A CASE REPORT.

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ABSTRACT

Rupture of a gravid uterus is a rare complication of motorcycle accident. We report the case of a 33-year old woman, gravida 6, referred as a case of uterine rupture with intrauterine fetal death at 36 weeks gestation, following a motorcycle accident. Emergency laparotomy revealed an anterior - lateral uterine rupture on the right side about 11 cm which involved the ipsilateral uterine artery. A conservative surgical treatment was employed. Splenectomy was also performed.

KEYWORDS : Uterine rupture - Pregnancy - Abdominal trauma - Road traffic accident.

INTRODUCTION

Uterine rupture is defined as a solution of non-surgical continuity of the uterus[1]. It became exceptional in the industrialized countries[2]. In Africa to the south of the Sahara; it constitutes a major obstetric problem. Its frequency is in order of 0.6% in Central African Republic[3], 1.01% in Enugu (Nigeria)[4], 1.15% in Bamako (Mali)[5] and 2.33 % in Niger republic[6]. Uterine rupture still remains one of the obstetrician's essential preoccupations. The main reported aetiologies are[7,8]: foeto-pelvic disproportion, dystocic presentations and the inappropriate use of the oxytocin. Among these aetiologies trauma is a cause in less than 1% [9]. We report a case of uterine rupture by direct abdominal trauma during a road accident in N'djamena (Chad).

CASE REPORT

Mrs. B.A. 33 years, 6th pregnancies, 5th deliveries with 5 living children (in her first marriage), was referred to our hospital in March 25, 2014 at 2 P.M by a peripheral health center for suspicion of uterine rupture post road accident. The pregnancy was dated to 36 weeks gestation based on an early ultrasound scan at 10 weeks of gestation.

The accident occurred two hours before presentation. The patient was a passenger on a motorcycle which collided with another motorcycle during a rush hour. Her abdomen knocked the handlebar of the motorcycle. She was first transported to a center of heath situated close to the place of accident.

Then she was evacuated to the maternity of the Mother and Child Hospital for better treatment. Pregnancy has been uneventful; she has made 5 prenatal consultations (of which the last was 2 days prior to the accident). All previous childbirths were normal and the patient has never been operated. On admission, she complained of generalized abdominal pain. She was conscious. The general examination revealed a general stage kept with pale conjunctivae mucous, an arterial tension of 80/60 Hg mm, a radial pulse of 120/minute and a temperature of 37.3°C.

The obstetric examination especially noted a painful abdomen in her whole mostly in sub umbilical area and to the left upper quadrant. It's difficult to delimit the uterus,

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but we noticed a sensation of fetus under skin and the absence of the fœtal's heart during auscultation. On vaginal examination, the vulva was clean and the cervix was anterior, soft and closed.

The rest of the clinical exam didn't note any other anomaly. An assessment of uterine rupture was made and the patient was prepared for laparotomy. Finding at the laparotomy revealed hemoperitoneum of 1500 ml and an intra-abdominal fetus with its placenta (weight = 2850g, feminine sex, born death, size = 49 cm, cranial Perimeter = 33 cm, thoracic Perimeter = 28 cm). After the extraction of the fetus an anterior - lateral uterine rupture in the right side reaching the vascular pedicle of about 11 cm of length was observed. A hysteroraphy was performed.

The exploration of the abdominal cavity discovered a lesion of the spleen about 3cm situated on the anterior face. The visceral surgeon conducted a splenectomia. The abdomen has been closed on a drain (blade of Delbet) put in place in the right parieto-colic gutter. The blood loss was compensated intra operatively by transfusion of 4 units packed red blood cells type (O +). The postoperative course was simple with discharge at the 7th postoperative day. In order to prevent pregnancy, contraceptive method based of progesterone (implanon[R]) was used during follow up.

DISCUSSION

Uterine rupture that occurs following violent trauma on healthy uterus seat typically affects the anterior face or the uterine bottom. These lesions are often associated with placental detachment. The consequences are more on the mother than for the fetus [9-11]. Most uterine rupture following road accidents occur at term [12] as seen in the index case.

The diagnosis of uterine rupture is usually clinical and straightforward as in the case presented. This obvious diagnosis found in our case is imputed on the one hand to the clinical stage and on the other hand to the circumstances of intervening. The uterine trauma followed by abdominal pains and the hemodynamic stage at the presentation are all in favor of uterine rupture.

At laparotomy the option are either conservative or radica1[12]. Our approach was conservative like those reported by earlier authors[12, 13]. The lack of tubal ligation in this case can be explained by social reasons. In Chad, to perform tubal ligation we need before a written consent. The second reason is related to the family's situation of our patient. She never gave birth with her new husband.

Maternal prognosis depends more on the extent of the lesions and the speed of the treatment. The quick treatment appears like a factor reducing blood loss and limiting its impact on the maternal hemodynamic stage. The spleen rupture found in our case was a factor that exacerbated the blood loss.

The high fetal mortality associated with uterine rupture has been reported in the literature[14-16]. However, according to Dao[12] the fetal lethality is not directly related to the severity of the accident, but result from the complications related to placenta' detachment.

CONCLUSION

Uterine rupture in pregnancy is a rare phenomenon. The diagnosis is often obvious and straightforward. Resuscitation and laparatomy should go in tandem. In per operative period the search for associated visceral lesion is always necessary. Beyond contraceptive treatment aimed to prevent pregnancy, the obstetrical prognosis is compromised. Then caesarean section should be indicated for future delivery. ■

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COLLISION COLORECTAL ADENOCARCINOMA AND HODGKIN LYMPHOMA: A CASE REPORT.

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ABSTRACT

Collision cancers of the gastrointestinal tract involving lymphomas are very rare. We report a case of collision cancer involving a well differentiated colonic adenocarcinoma and corresponding mesenteric Hodgkin lymphoma. The sentinel lymph node shows metastatic adenocarcinoma however, lymph nodes further away within the mesentery revealed mixed cellularity Hodgkin lymphoma. We want to emphasise that collision adenocarcinoma and Hodgkin lymphoma especially of the mesenteric lymph nodes is a very rare event.

KEYWORDS : Hodgkin lymphoma, Adenocarcinoma, Colon, Mesenteric lymph nodes, Collision.

INTRODUCTION

Collision cancers are defined as malignant neoplasms that occur simultaneously within a period of not more than six months and must be distinct enough that no possibility of one being the metastasis of the other cancer[1]. Hodgkin lymphoma does not commonly affect mesenteric lymph nodes (<5%) and its most frequent presentation is asymptomatic supraclavicular lymphadenopathy with or without symptoms[2]. Colorectal cancer is however the third most commonly diagnosed cancer in males and females and the rate of synchrony with lymphoma is estimated at 2%[3]. Coexistence of colonic adenocarcinoma and Hodgkin lymphoma in the same patient is rare and even rarer is occurrence in the same anatomical region[3]. We therefore describe here a patient with primary diagnosis of sigmoid colon adenocarcinoma and incidentally found to have Hodgkin lymphoma that involved mesenteric lymph nodes of the specimen removed.

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CASE REPORT

A 26-year old Nigerian male presented with a recent history of rectal bleeding and mass that was initially reducible but subsequently irreducible. On examination he was well looking but had external haemorrhoids at 12, 5 and 9 o'clock positions. His base line haematological and biochemical investigations were normal. CT scan of the abdomen revealed an iso-dense heterogeneously enhancing mass measuring 4.5x3.4cm in the region of the rectum inseparable from the posterior bladder margin. He had examination under anaesthesia (EUA) and a mass 10cm from the anal verge was found and a biopsy was taken which on histological examination revealed a well differentiated adenocarcinoma. He subsequently had anterior resection of the rectum. Intraoperatively, the mass had involved the posterior bladder wall and seminal vesicles with paracolic and para-aortic lymphadenopathy. The histopathology Department received a 12 cm segment of recto-

sigmoid colon with a mass bearing portion measuring 8x4x4 cm along with 13 lymph nodes. Histologically the mass was a well differentiated adenocarcinoma and 5 of the 13 lymph nodes revealed mixed cellularity Hodgkin lymphoma. There were metastatic deposits in 3 sentinel lymph nodes. Post-operatively the patient did well and had six courses of chemotherapy using Leucovorin, 5 Fluorouracil and Oxaliplatin for the dominant cancer (Adenonocarcinoma). He had been on follow-up since then and was last seen on 28/4/2014 with no complains.

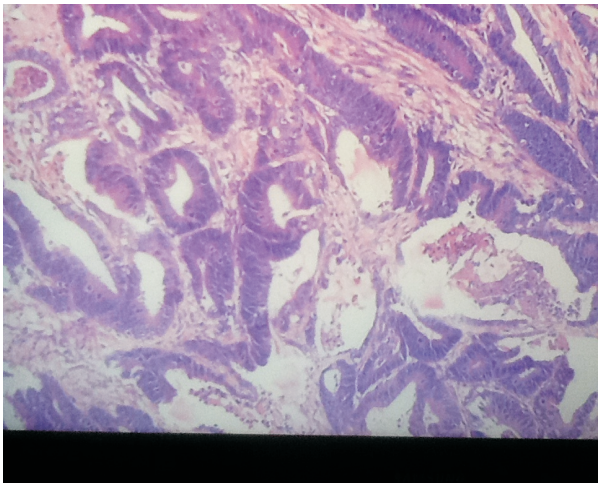

Figure 1: Well differentiated adenocarcinoma from the colonic mass.

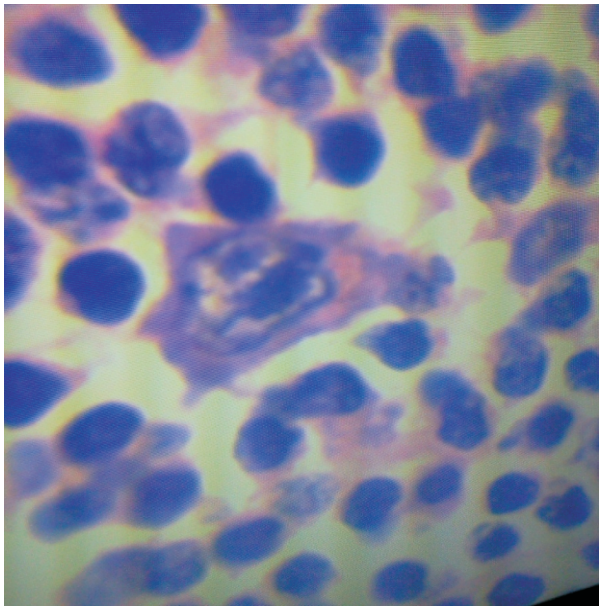

Figure 2: Classical Reed-Sternberg cell in an inflammatory background composed of plasma cells, polymorphs and lymphocytes from the mesenteric lymph nodes.

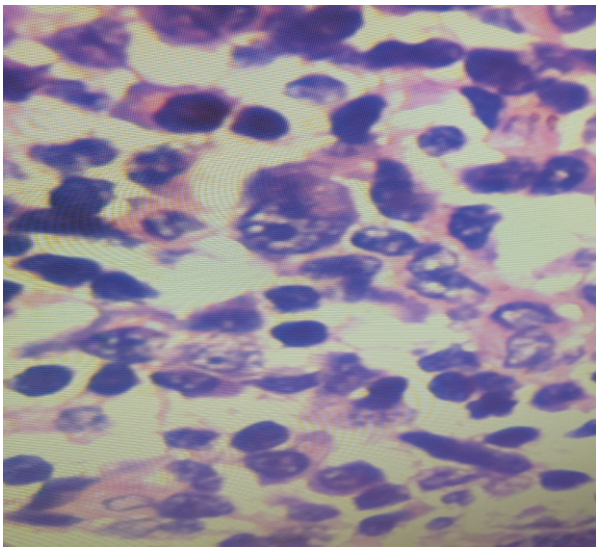

Figure 3: Hodgkin cell in an inflammatory background composed of plasma cells, polymorphs and lymphocytes from the mesenteric lymph nodes.

DISCUSSION

Collision cancers are uncommon and even more uncommonly found in the same anatomical region[3]. Further rare is also the primary occurrence of Hodgkin lymphoma in the mesenteric lymph nodes[4]. This happens in less than 5% of cases[4]. The most common site for involvement by Hodgkin lymphoma is supraclavicular region with or without symptoms[2]. Our patient had a combination of two cancers in the same anatomical region in the form of rectal adenocarcinoma and mesenteric lymph node Hodgkin lymphoma. The probability of having Hodgkin lymphoma coexisting with colonic adenocarcinoma is estimated to be 2%[3]. There have been literature reports of Hodgkin lymphoma and gastrointestinal carcinoma as either synchronous or metachronous coexistence[5,6]. As at 2012, 13 cases of synchronous colonic adenocarcinoma and malignant lymphoma were said to have been reported in the literature[7]. These cases were non-Hodgkin lymphoma with mantle cell lymphoma accounting for 5 of the 13 cases[7]. Two cases of synchronous Hodgkin lymphoma and colonic adenocarcinoma were reported in 2004 and 2009 respectively and were not among the 13 cases reported[8].

Our patient had an earlier histological diagnosis of a rectal adenocarcinoma (Figure 1). He had anterior resection of the rectum and the mass was further confirmed to be an adenocarcinoma. However, of the 13 lymph nodes dissected, three of them showed metastatic adenocarcinoma while five of those further away showed mixed cellularity Hodgkin lymphoma (Figure 2 & 3). Some factors and mechanisms have been proposed to be responsible for synchronous colonic carcinoma and lymphoma. Such factors include viral agents, immune abnormalities and the genetic make-up of the patients[7].

The overall prognosis of patients with collision lymphoma and carcinoma of the gastrointestinal tract is not available due to absence of long term follow-up but it is said to be generally dependent on the carcinoma as the lymphomas are usually of low grade or stage for non-Hodgkin and Hodgkin lymphoma respectively[9].

CONCLUSION

Multiple malignant neoplasms in the same patient are an important consideration in the treatment of patients with adenocarcinoma. The appropriate use of sensitive staging modalities makes the discovery of synchronous cancer a distinct possibility. The detection of concurrent cancer changes the modalities of treatment which will now depend on the dominant cancer (histological malignancy and stage of the dominant cancer) to maximise any chance of cure or cancer control. ▬

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PROLAPSED VAGINAL MULLERIAN CYST MASQUERADING AS UTERO-VAGINAL PROLAPSE: A CASE REPORT.

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ABSTRACT

A 20 year old para 2, presented at our gynaecological clinic with a 4 year history of "something protruding from her vagina". She was referred to us with a diagnosis of utero-vaginal prolapse. Examination revealed a 6x6 cm, cystic, anterior vaginal wall mass, which was confirmed to be a vaginal cyst on ultrasound. Surgical excision of the cyst was done and histopathology confirmed it was of mullerian origin. Vaginal mullerian cysts are usually small and asymptomatic, but may rarely enlarge as reported in this case. They are therefore important in the differential diagnosis of utero-vaginal prolapse or cystocele.

KEYWORDS : Vaginal cyst, Mullerian cyst, Prolapse.

INTRODUCTION

Cysts in the vaginal wall are relatively uncommon and are usually incidental findings in gynaecological practice[1]. Mullerian cysts are the commonest congenital vaginal cysts[2,3]. Mullerian cysts are embryological remnants of the Paramesonephric (mullerian) ducts. These paired ducts extend caudally to reach the urogenital sinus at about 9 weeks gestation. Their lower ends fuse in the midline and develop into the uterus and cervix, while the cephalic ends remain separate to form the fallopian tubes. Both the mullerian ducts and the urogenital sinus are believed to contribute to the formation of the vagina [4]. During replacement of the mullerian epithelium with squamous epithelium of the urogenital sinus, mullerian tissue can persist anywhere in the vaginal wall, from which cysts may arise. The most common location is along the antero-lateral aspect of the vagina[3,5]. Mullerian cysts are usually less than 2cm in size and asymptomatic. They usually require no treatment but occasionally may be large enough that the symptoms require surgical excision[1,3,5]. We report a rare case of a large prolapsed vaginal mullerian cyst.

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CASE REPORT

A 20 year old para 2 (last child birth, 2 years earlier), presented at the gynaecological clinic of our hospital with a 4 - year history of "something protruding from her vagina". It was first noticed a few months after her first delivery. It was initially small-sized, but gradually increased to its present size. It also became non-reducible, with associated pelvic pressure and coital difficulty, but no history of pain, vaginal discharge, bleeding or urinary symptoms. There was no antecedent history of vaginal trauma, repair of perineal lacerations or episiotomy. She had been referred to the clinic as a case of utero-vaginal prolapse.

Her general and systemic examination findings were unremarkable. Vaginal examination revealed a non-tender, non-reducible, 6 x 6 cm, cystic mass, arising from the anterior vaginal wall, which displaced the urethra laterally. The uterus was retroverted and normal-sized, no prolapse or stress incontinence. A provisional diagnosis of a cystocele to rule out bladder diverticulum or

vaginal cyst was made. Ultrasonography revealed a clear, cystic mass, obscuring the vaginal echo, with a well-defined border, separating it from the lower part of the posterior bladder wall. It measured 5.0 X 2.3 X 6.4 cm. Diagnosis was Paravaginal Cyst. She was scheduled for surgical excision of the cyst after satisfactory pre-operative work-up. A metal catheter passed into the bladder intra-operatively showed it was displaced laterally and not connected to the cyst. Incision was made on the anterior vaginal wall and the cyst sac separated from the vagina by blunt and sharp dissection (Figure 1). The cyst accidentally ruptured in the process with drainage of mucinous fluid. Excess vaginal tissue was excised and vaginal mucosa closed with absorbable sutures, haemostasis was secured. A vaginal pack was applied and urinary catheter drained clear urine. Adequate antibiotic cover was provided and the vaginal pack removed 8 hours post-operatively, with no bleeding or haematoma formation noticed. She remained stable and was discharged on the 4th day post-operatively.

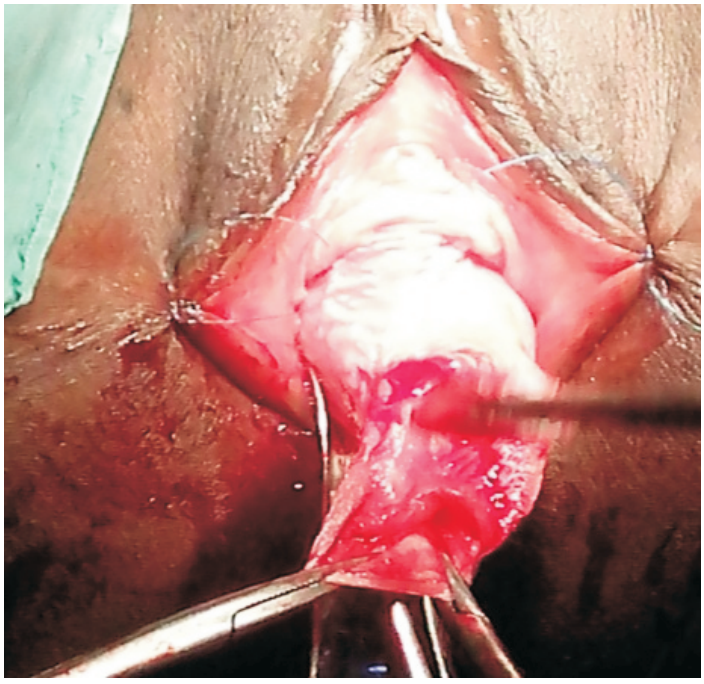

Figure 1: Mullerian Vaginal cyst

Histology showed cystic space lined by tall columnar cells with apical mucin. Epithelium was attenuated at some foci and seen within a fibro - collagenous stroma, with some foci showing blood vessels and muscle fiber, diagnosis was Mullerian Vaginal Cyst.

She was followed up in the clinic 2 weeks and 6 weeks later. She was stable with no complaints. Vaginal wound healing was satisfactory.

DISCUSSION

Cystic lesions of the vagina are relatively uncommon, usually an incidental finding on gynaecological examination and are classified histologically, based on the lining epithelium. They include the Mullerian cyst, Gartner's duct cyst, Epidermal inclusion cyst, Bartholin's duct cyst, Dermoid cyst among others[6].

Mullerian cysts are the commonest congenital cysts of the vagina. They occur predominantly in the reproductive age, typically less than 2cm in diameter and asymptomatic. Larger cysts tend to be symptomatic, presenting with voiding or defaecation problems, dyspareunia, visible or palpable mass, vaginal discharge and pain[1,7,8]. This patient presented with a vaginal mass which was initially mistaken for a utero-vaginal prolapse.

Mullerian cysts are commonly located in the antero-lateral vaginal wall[3,5] in relation to the bladder, where it may mimick a cystocele[9] as occurred with our patient. Rarely, they may extend posteriorly, presenting as an enterocele[5,7]. In this case, the location of the cyst ruled out Bartholin's cyst which is located in the postero-lateral vaginal wall, while lack of antecedent history of vaginal trauma or perineal surgeries precluded the likelihood of an inclusion cyst.

Ultrasonography revealed a clearly defined mass with no communication with the bladder, thereby ruling out a cystocele or bladder diverticulum. Pre-operative characterization

of the exact nature of a vaginal cyst may be difficult, but the clear cystic nature of the cyst, will exclude a dermoid cyst, characterized by echogenic material[10].

Histopathology confirmed the diagnosis of mullerian cyst with tall columnar cells having apical mucin[1,8]. This is unlike gartner's duct cysts which are composed of non-mucin secreting low columnar or cuboidai epithelium, though differentiating between the two is of little clinical importance[11]. Transvaginal surgical excision of the cyst was a satisfactory treatment modality as the patient remained stable on follow-up.

In conclusion,not all masses protruding from the vagina are cases of utero-vaginal prolapse, cystocele or enterocele. Vaginal cysts, though relatively uncommon, are important in the differential diagnosis. Mullerian cysts are the commonest congenital cysts of the vagina and are satisfactorily managed by surgical excision.∎

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CASE REPORT

AN UNUSUAL BLEEDING FOLLOWING CIRCUMCISION: A CASE REPORT.

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ABSTRACT

Male circumcision is a common surgical procedure that involve excision of the prepuce, which is practiced all over the world for religious and cultural reasons. Medically it has the advantages of preventing phimosis, paraphimosis, balanitis, and decreases the risk of cancer of the penis. Common complications of circumcision are hemorrhage, sepsis, and inadvertent trauma. Excessive unusual bleeding may follow circumcision in hemophilia and other bleeding disorders. We report a case of such bleeding that necessitated transfusion of blood and fresh frozen plasma.

KEYWORDS : Circumcision, Bleeding, Hemophilia, Fresh Frozen Plasma.

INTRODUCTION

Male circumcision is performed in 1 of 6 males globally[1]. The main potential benefits in support of the practice include prevention of phimosis, paraphimosis, balanitis, a decrease in the risk of cancer in the penis and reduction in the risk of urinary tract infections[2-3]. Common complications of circumcision include hemorrhage, sepsis and trauma[4,5] with overall complication rate of 0.2 – 5 %[6]. We report hemorrhagic complication from circumcision in a hemophilic patient.

CASE SUMMARY

The patient is a 9 year old boy who was brought in for circumcision the indication of which was cultural. He neither suffers from sickle cell disease nor any systemic disorder. He is the eighth child in the family of eleven children. On examination, he was fit, not pale, anicteric, with good hydration status and normal male external genitalia with intact prepuce.

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Circumcision was done as a day case under local anesthesia. Two days after the procedure patient was admitted with history of persistent bleeding. He was found to be pale with PCV of 18%. Circumcision wound was actively bleeding Fig. 1, necessitating transfusion of 3 units of fresh whole blood which improved the PCV to 31% however bleeding persisted, and this raised our suspicion of bleeding disorder. The liver function test did not suggest liver disease. The family history revealed the fourth child (male) died in infancy following bleeding after uvulectomy, the sixth child (male) died at the age of nine years of excessive bleeding from a minor scalp laceration. Therefore, in retrospect, a working diagnosis of bleeding complicating circumcision in a patient with hemophilia was made. The platelet count was 180 $x10^9$/l, Prothrombin (PT) Time was 24sec (range 11 – 14sec), Partial Thromboplastin Time Kaolin (PTTK) was 66sec, and control is 47sec. The factor viii activity was found to be < 10% activity confirming the diagnosis of hemophilia. The wound was reviewed and dressed with suffratulle daily. Recovery was uneventful and patient was referred to hematologist for further management, and hospital stay was 2 weeks.

DISCUSSION

Hemophilia A, and B are bleeding disorders caused by genetic mutations in the factor V111, and 1X genes that result in deficiencies of the respective factors, inherited as x-linked

recessive inheritance. The incidence of Hemophilia A is 1 in 5000 while B is 1 in 25000 live births. The clinical presentation of Hemophilia A and B varies from spontaneous bleeding, or bleeding following trivial injury or surgical procedures. The disease in most cases is detected before the age of 5 years. The diagnosis is based on clinical presentation of abnormal bleeding confirmed by low level of factor V111 and 1X, prolonged PTTK, prolonged or normal PT, with normal platelets count which were seen in this patient. In mild disease (6-35% factor activity) bleeding may only occur with major trauma or surgery and not spontaneous. In moderate disease (1-5% factor activity) bleeding may occur with minimal trauma or minor surgery, while severe disease (< 1% factor activity) they have high risk of severe spontaneous bleeding. In this patient the diagnosis was made at nine years in retrospect following mishap of bleeding post circumcision in keeping with milder form of the disease. Where diagnosis is made before surgery, patients are adequately prepared by infusion of appropriate amount of coagulation factor concentrates, fresh frozen plasma or cryoprecipitate[7].The post circumcision bleeding is treated by supplementary coagulation therapy as systematic approach. Though the international guidelines for surgery in hemophilia has been established, it is sometimes not practicable in developing countries due to limited availability of factor concentrates[8-9] In this patient the diagnosis was made after surgery therefore no preoperative preparation was made. In the management of this patient fresh blood and fresh frozen plasma were given in the absence of specific factor concentrate in keeping with standard practice. The circumcision wound was dressed with suffratulle, however abnormally bleeding wound are best dressed with fibrin glue dressing[10,11]. Circumcision, though a minor procedure with potential medical benefits also has serious life threatening risks.

In conclusion, circumcision is a frequent minor surgical procedure carried out from time in memorial as a religious and or cultural obligation. Patients for circumcision should be thoroughly evaluated to avoid potential risk including uncontrolled bleeding in patients with undiagnosed bleeding disorders.

We recommend that all patients going for circumcision should be thoroughly clerked and appropriate investigations carried out before the procedure. ▬

Fig.1: Haemophilic patient post circumcision.

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