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QUARTERLY

**JSP**

**JOURNAL OF**  
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INTERNATIONAL

**EDITORIAL**

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## **EDITORIAL:**

### **POSTGRADUATES, PUBLICATIONS, EDITORS AND REFEREES IN PAKISTAN**

Academic advancement in Pakistan requires publications, a process that is well established elsewhere. In addition the CPSP has allowed postgraduates to submit sanctioned publications in place of dissertations and the PMDC has attempted to ensure quality of publications by issuing a list of acceptable journals.

So far so good, but the editorial input and peer review process so essential for rigorous critical analysis and hence the publication of reliable upto-date information does have problems. The widely used internet proves the importance of this process as, on analysis, only 2% of net derived information in such areas as infertility, orthopaedics and E.N.T. fulfill J.A.M.A.'s 4 criteria for acceptability - including the websites of many prestigious institutions.

In the developed world, submission of high quality articles far outnumber publications, so an editor's lot is not a happy one. The more prestigious highly cited journals have a large editorial staff, therefore diluting the experience of senior editors and biasing against innovations towards statistical rectitude. Private society journals such as the New England Journal of Medicine have been accused of xenophobia although a high quality Pakistani study of thalassaemia was published and praised in an editorial in 2002 as was a study on lead toxicity in the Bulletin of the World Health Organization, so there is no shortage of Pakistani potential.

In order to deal with these problems and ensure transparency, many editors in the developed world insist upon naming referees and editorials to avoid bias as well as a declaration of links to the pharmaceutical industry. The "LANCET" has had an ombudsman for the last 6 years for dissatisfied authors and an annual report is published.

In the developing world, as in Pakistan, additional problems are apparent. Editors are usually part time with many other commitments and adequate referees are few and far between as very few read the 17 clinical articles daily that are necessary simply to keep up in a world where high quality information and advances are doubling every 3 years (in 1996). References are often obsolete and statistical criticism is often apparent rather than critical analysis and biological plausibility. Very seldom is geographic pathology and the relevance to Pakistan evoked. Perhaps the appropriate solution in Pakistan is an ombudsman, which has already proved effective in legal matters.

The problems of medical publications in Pakistan do not all lie with the editorial process. The audience wants a quick fix to information without the development of an academic enquiring intellectual environment. This lies at the door of senior clinicians and supervisors, and a heavy responsibility rests with this cadre. Many journal submissions are simply descriptive with inappropriate intrastudy statistics of a hospital population rather than easily obtained case control studies at the very least.

All of these matters need urgent and concerted action if the future viability of medical publications in Pakistan, desired by all, is to be achieved.

PETER BALLIE

# FREQUENCY OF LIPID ABNORMALITIES IN ESSENTIAL HYPERTENSION

RUKHSANA ABDUL SATTAR, SYED AHMAD, S. SHABEER HUSSAIN,

S. M. IRTIAZ RIZVI, JAMAL ARA

## ABSTRACT:

Hypertension is one of the three primary risk factors responsible for coronary heart disease. The other two risks being Hyperlipidemia and smoking. Purpose of this study was to determine the frequency of lipid abnormalities in patients with essential hypertension. Study subjects were 50 patients with essential hypertension. Their lipid profiles were studied as per National Cholesterol education guidelines; 20(40%) had cholesterol level above 200mg/dl, While 11(22%) patients had triglyceride over 250mg/dl. 12(24%) patients had LDL-c > 130mg/dl and 26(52%) patient had HDL-c <40mg/dl. The results indicate that decreased HDL-c is the most common variety of dyslipidemia in patients with essential hypertension and dyslipidemia frequently co-exist with essential hypertension.

**KEY WORDS:** Hypertension, Hyperlipidemia

## INTRODUCTION

A number of risk factors for coronary Artery disease are known to present in hypertensive patients, most important being hyperlipidemia. Recent data have shown that hypertension frequently co-exist with hyperlipidemia and patients with hypertension have an exaggerated vulnerability to consequences of lipid abnormality and likelihood of coronary artery disease is exaggerated when the two coexist.<sup>1,2,3,4,5</sup> Therefore, stricter treatment of hyperlipidemia is necessary when hypertension is concomitant and it is reasonable to consider metabolic effects when selecting antihypertensive agents, particularly in young hypertensive patients with pre-existing lipid disorders.

## METHOD

The study subjects were 50 patients with essential hypertension attending medical out patient department (OPD) of Jinnah Post Graduate Medical Centre, Karachi during August 2000 to August 2001. Adults over 21 years of age

of either sex were included in the study. Patients with malignant or secondary hypertension diabetes or with clinical hepatic or cardiovascular disease were excluded from the study. Patients on lipid lowering drugs were also excluded.

Blood pressure was measured in both sitting and lying positions in the both arm. A blood pressure reading above 140/90mm of Hg for two consecutive weeks was taken as hypertension.

Lipid measurement included total cholesterol, triglyceride, HDL-c and LDL-c plasma samples for lipid analysis were obtained after at least overnight fast (12 Hours). Total cholesterol, LDL-c and HDL-c were measured by enzymatic-colorimetric (CHOD-PAP) method, and triglycerides were estimated by enzymatic-colorimetric (GPO-PAP) method.

Blood CBC, BUN, Serum Creatinine, Blood Sugar and ECG are performed.

Data was collected and analyzed using statistical test. Results were expressed as mean $\pm$ SD. Students' t test was used.

## RESULT

Table I shows the age and sex distribution of patients with essential hypertension. Thirty two patients were male with

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mean age  $59.96 \pm 10.16$  years, and eighteen were female with a mean age  $47.22 \pm 6.03$ . The age range of male patients was 32-78 years and female was 35-62 years. The mean age of the total (50) patients was  $53.90 \pm 1.50$ . The mean blood pressure of the fifty patient was  $159.60 \pm 14.13$  mm of Hg systolic and  $99.60 \pm 8.91$  mm of Hg diastolic.

As shown in table IV the mean total cholesterol was  $184.28 \pm 38.53$  mg for LDL-c  $107.84 \pm 39.64$  mg/dl, for HDL-c  $39.22 \pm 4.94$  mg/dl and for triglyceride was  $170.08 \pm 127.78$  mg/dl.

The table III summarizes the data frequency of dyslipidemia among the screened subjects. Twenty patients (40%) had a total cholesterol  $>200$  mg/dl, while 11(21%) patients had triglyceride over 250mg/dl among study subjects. 12(24%) patients had a LDL-c of  $>130$ mg/dl and 26(52%) had HDL-c of  $<40$ mg/dl. The results indicate that the decreased HDL-c is the most common variety of dyslipidemia in patients with essential hypertension.

**TABLE-I AGE AND SEX DISTRIBUTION**

Sex	No. of Cases	Age (years) Mean + SD	Range (Years)	P value
Female	18 (36.00%)	$47.22 \pm 6.03$	35 - 62	
Male	32(64.00%)	$59.96 \pm 10.16$	32 - 78	T = 4.85
Total	50	$53.90 \pm 1.50$		P<0.001

Female to Male ratio = 1 : 1.78

**TABLE-II MEAN +/-SEM BLOOD PRESSURE OF SCREEN SUBJECTS N = 50**

Systolic blood pressure mmHg	Diastolic blood pressure mmHg
$159.60 \pm 14.13$	$99.60 \pm 8.91$

## DISCUSSION

Essential hypertension has acquired epidemic proportions and this seems to be the price for the civilization. In the developed countries it has high prevalence and this is increasing in the developing countries. The recent PMRC (Pakistan Medical and Research Council) health survey,<sup>6</sup> of various populations and subpopulations has confirmed the impression by earlier survey's,<sup>7</sup> that hypertension is a very common disorder in Pakistan.

This study was done with the aim and objective to assess the coincidence of two important risk factors for cardiovascular and cerebrovascular disease those are essential hypertension and dyslipidemia as their presence together multiply the risk.

**TABLE-III FREQUENCY OF ABNORMALITIES OF LIPOD PROFILE IN SCREENED SUBJECTS [ N = 50 ]**

Parameters	Males (n = 32)	Females (n = 18)	Total
Total cholesterol $>240$ mg/dl	01(02%)	04(08%)	05(10%)
Total cholesterol $>200$ Mg/dl	08(16%)	07(14%)	15(30%)
LDL-c $>130$ Mg/dl	05(10%)	07(14%)	12(24%)
HDL-c 40mg/dl	17(34%)	09(18%)	26(52%)
Triglyceride	10(20%)	01(02%)	11(22%)

Key: LDL = Low density lipoprotein; HDL = High density lipoprotein  
C = Cholesterol

**TABLE-IV MEAN ± SEM PLASMA LIPIDS OF PATIENTS WITH ESSENTIAL HYPERTENSION [N = 50]**

Parameters	(Mean + SD)
Total Cholesterol (mg/dl)	$184.28 \pm 38.53$
LDL-c (mg/dl)	$107.84 \pm 39.64$
HDL-c	$39.22 \pm 4.94$
Triglyceride (mg/dl)	$170.08 \pm 127.78$

In this study we observed the serum lipid pattern in patients with essential hypertension As per National Cholesterol Education Programme Guidelines, 40% patient had Total cholesterol level above 200mg/dl, while 22% patients had triglyceride over 250 mg/dl among the study subjects 24% had a LDL-c of  $>130$ mg/dl and 52% had HDL-c of  $<40$ mg/dl.

These results indicates that decrease HDL-c is the most common variety of dyslipidemia In patients with essential hypertension. These results coincide with the previous studies.<sup>8,9</sup> This apparent association of hypertension and dyslipidemia may seems to be due to more frequent measurement of serum lipids in hypertensive patients or the observation that hypertensives tend to be obese; but many studies have revealed the co-existence of hypertension and dyslipidemia so frequently that it does not appear to be a chance finding. The mechanism of this association is not well understood but there is a strong induction for routine estimation of serum lipids in hypertensive patients.

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# SCREENING FOR GESTATIONAL DIABETES

KHALIDA JAVAID, RUBINA SOHAIL, FARRUKH ZAMAN

## ABSTRACT:

*Objective of the study was to determine the prevalence of Gestational Diabetes Mellitus (GDM) in pregnant women. One thousand consecutive pregnant women attending antenatal clinic in Services Hospital, Lahore at 24-28 weeks were enrolled in the study. A 50 gm glucose challenge test (GCT) was carried out; and at a value of 140mg/dl or above, glucose tolerance test (GTT) was also performed. GCT was repeated in high risk patients and those with negative GTT at 32 weeks.*

*Out of 1000 pregnant women screened, 104 (10.4%) were found diabetics. 14 (1.4%) were diagnosed as to have glucose intolerance while frank diabetes was found in 8 cases (0.8%). The test was repeated at 32 weeks in 230 patients; ten patients were again screened positive with impaired glucose tolerance and gestational diabetes was present in 2 (0.2%) of women. Overall prevalence of GDM was 1% in the study.*

**KEY WORDS:** Gestational diabetes mellitus, GCT, GTT

## INTRODUCTION

Pre-gestational diabetes mellitus complicates one in 200 pregnancies and 5 in every 200 pregnant women develop gestational diabetes.<sup>1</sup> Diabetes is estimated to be amongst the most common medical complications of pregnancy and affects 3-6% of obstetric population in USA with about 135,000-cases per year.<sup>2</sup>

All women develop insulin resistance in the second half of pregnancy but only 10% will have GDM. This suggests that these women have an additional defect of insulin secretion.<sup>3</sup> The prevalence of GDM varies worldwide among different racial and ethnic groups.<sup>4</sup> In a comprehensive study of a multiethnic population in London, it was found that 2% of pregnant population develops significant glucose intolerance.

Other screening protocols include, glycosylated hemoglobin and 'timed random' blood glucose estimation; but neither has been found useful as screening tool for GDM. Timed random blood glucose estimations are fairly specific but lack sensitivity and cannot be repeated throughout pregnancy.<sup>5</sup> The American Diabetes Association recommends 50 gm oral glucose test as gold standard for screening of gestational diabetes. GCT has both high sensitivity (80%) and specificity (90%).<sup>6</sup>

## MATERIALS AND METHODS

This screening study was carried out on 1000 consecutive pregnant women booking at or before 28 weeks of gestation at the antenatal clinic of Services hospital, unit II, Lahore, over a period of eight months starting February 2000. At booking besides routine workup, history regarding the potential diabetic risk factors was taken. The women were counseled regarding objectives, procedure of the test plus the possibility of repeating the test later in pregnancy. Those between 24 and 28 weeks of pregnancy were given an oral load of 50 gm glucose without any dietary preparation. Plasma level of glucose was measured after an hour. Glucose intolerance test was indicated if the glucose challenge test revealed a reading of 140mg/dl or more. The screening test was repeated at 32 weeks in women who had prior negative test but were clinically high risk.

## RESULTS

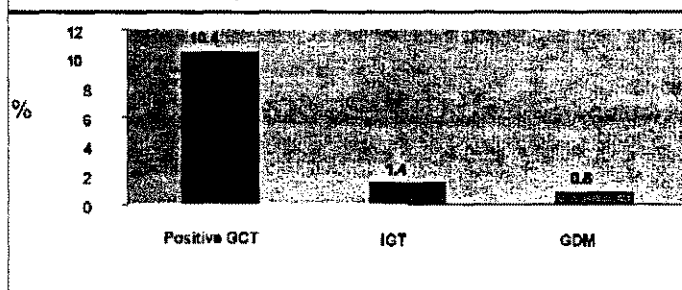
Out of a thousand pregnant women screened in the study one hundred and four (10.4%) were found to be positive while 896 (89.6%) were negative. Glucose tolerance test was performed in all the 104 patients. Impaired glucose tolerance (IGT) was present in 14 (1.4%) and 8 (0.8%) were found to be gestational diabetics.

43.8% of the women were less than 25 years of age and 51% were between 25 and 35 years. Gestational diabetes mellitus was 5.76% in women greater than 35 years as compared to 0.5% in women less than 25 years.

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Graph.1: GCT at 24-28 weeks



GCT was repeated at 32 weeks in two hundred and thirty patients. Out of these 10 had positive GCT, two each had IGT and GDM.

Graph.2: GCT at 32 weeks

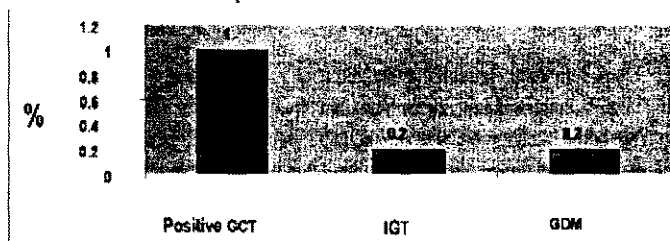


TABLE-I PREVELANCE OF GDM (1%)

Positive GDM	Percentage
24 - 28 weeks gestation	0.8%
32 weeks gestation	0.2%

TABLE-II AGE DISTRIBUTION

Age	Number (%)
< 25	438 (43.8 %)
25 - 35	510 (51%)
> 35	52 (5.2%)

TABLE-III RELATIONSHIP OF AGE AND PREVELANCE OF GDM

Age	GDM (%)
<25	0.5%
>35	5.76%

## DISCUSSION

The prevalence of GDM in this study was 1%, which is comparable with the results of the study conducted in Southern India at Diabetes Research Centre, Madras.<sup>7</sup> In another study conducted at Dow Medical College and Civil Hospital Karachi, Pakistan, the incidence was 0.6%.<sup>8</sup>

Our results were at variance with those of the studies conducted in Italy and Poland, where the prevalence was between six and seven percent,<sup>9,10,11</sup> respectively. This was possibly due to the difference in the ethnic origin and races of the two regions. The incidence of GDM is high amongst Asians, Native Americans and African- American women. The prevalence of GDM in the antenatal clinics at Sri Jayawardenepura General Hospital Sri Lanka was 5.5%. Our study showed a prevalence of 1% contrary to other studies and the results matched those of other studies carried out in Pakistan.

Maternal weight, parity, family history of diabetes all predispose to IGT. Impaired glucose tolerance is more prevalent in pregnant women.<sup>12</sup> In our study as well, IGT was present in 1.6% of the patients and GDM in 1%.

Advancing maternal age was noted to be associated with an increased chance of developing GDM. In a study, Coustan et al found GDM in 0.5% in women less than 20 years of age. It rose to 4.0% in pregnant women in the age group of 35-39 years. Our results are comparable with this study in which GDM was diagnosed in 0.5% of the patients <25 years of age and 5.76% of patients >35 years.<sup>13</sup>

The prevalence of GDM in our obstetrical population is 1%. The question to be answered is: Does a prevalence of 1% warrant screening of all pregnant women?

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# EFFECTS OF PROMETHAZINE ON UTERINE CONTRACTIONS, PRODUCED BY PROSTAGLANDIN E<sub>2</sub> (PGE<sub>2</sub>)

SIBGHATULLAH SANGI, KAUSAR AAMIR, JAMAL ARA, SABA TASNEEM,

ARSHAD QURESHI, NIGHAT KAFIL, SHAH MURAD MASTOI

## ABSTRACT:

*To observe the extent to which promethazine effect uterine contractions produced by prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) and to see the presence of peripheral benzodiazepine receptors in rat uterus. A study was conducted to see the interaction between promethazine and PGE<sub>2</sub> in experimental rat uterus in vitro as both these drugs are being used simultaneously in eclampsia. It was for the first time that tocolytic effects of promethazine were being studied. Results of this study show that promethazine is significantly tocolytic invitro.*

**KEY WORDS:** Promethazine, Prostaglandin E<sub>2</sub>, Tocolysis.

## INTRODUCTION

Pregnancy is a physiological process which encompasses the implantation of embryo in the womb after fertilization in the fallopian tubes. It continues for about 37 calendar weeks i.e. from conception to parturition. During this period several changes occur in maternal anatomy and physiology. Which may give rise to some pathological conditions.<sup>1</sup> Pregnancy can induce hypertension in normotensive women or aggravate already existing hypertension.<sup>2</sup> If hypertension is untreated, convulsions may develop. It has been estimated that world wide, approximately 50,000 women die each year from eclampsia.<sup>3</sup> Treatment of eclampsia consists of; control of convulsions and blood pressure, correction of hypoxia and acidosis, and termination of pregnancy by inducing labour (Termination of pregnancy).<sup>4</sup>

Termination of pregnancy is now a days brought about by the use of prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) pessaries. Prostaglandins belong to eicosanoid group of compounds. The main source of eicosanoids is arachidonic acid.<sup>5</sup> There are three subgroups of receptors for PGE<sub>2</sub> termed as EP<sub>1</sub>, EP<sub>2</sub>, and EP<sub>3</sub>. The prostanoid

receptors have been cloned and all belong to the G-protein coupled family.<sup>6</sup> On EP<sub>1</sub> receptors it causes contraction of bronchial and GIT smooth muscle. On EP<sub>2</sub> receptors it causes bronchodilation, vasodilatation, stimulation of intestinal fluid secretion and relaxation of GIT smooth muscle. On EP<sub>3</sub> receptors it causes contraction of intestinal smooth muscle, inhibition of gastric acid secretion, increased gastric mucus secretion, inhibition of lipolysis, inhibition of autonomic neurotransmitter release and stimulation of contraction of pregnant uterus.<sup>7</sup> The prostaglandins are most commonly considered as uterotonins. PGE<sub>2</sub> at low concentration act to stimulate adenylyl cyclase, CAMP accumulation and smooth muscle relaxation; but at higher concentration, PGE<sub>2</sub> inhibits adenylyl cyclase or activate phospholipase C, thereby causing increased myometrial cell Ca<sup>++</sup> and contraction.<sup>8</sup>

Promethazine is one of the most important members of phenothiazine group. Phenothiazine is usually considered as first generation antihistamines. It produces its effects by blocking D<sub>1</sub>, D<sub>2</sub>, H<sub>1</sub>, M and 5HT<sub>2</sub> receptors, it produces sedation; has antiemetic effect, by blocking muscarinic receptors; causes relaxation of smooth muscle, causes postural hypotension due to blockade and may also produce local anaesthesia.

Promethazine is widely used as anticonvulsant, it is given alone or in combination with Diazepam.

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This study was conducted to observe the effects of promethazine over uterine contractions induced by prostaglandin E<sub>2</sub> (PGE<sub>2</sub>).

## MATERIALS AND METHODS

Full term pregnant between day 22-25 albino rats of Sprague Dawley strains were used in the present study. They were supplied by the Animal House of Jinnah Postgraduate Medical Centre, Karachi and were fed on lever brother (Pak) mouse feed, ripened uterine tissue of all the animals was used for this purpose. De-Jalon's solution was used as a nutrient fluid for uterine tissue. A grass polygraph (model 7B) was used for recording the activity of the tissue. Sensitivity used was 0.5 mv/cm. The speed was adjusted at 10 mm/min.

A full term pregnant rat was killed by blow on the head. The abdomen was opened by midline incision and intestine placed on one side. Fetus removed and uterus was freed from its ligaments and fat. The whole uterus was then transferred to petridish containing oxygenated De-jalon's solution. A 25 mm piece was cut from the middle portion of one horn of uterus. One end of the tissue was attached with the hooked lower end of the glass rod by means of the thread, while the other end of the tissue was attached to the forced displacement transducer connected to the 7B polygraph and was subjected to the tension of 0.5 gram. The nutrient solution was oxygenated (95% oxygen and 5% carbon-dioxide). Temperature of organ bath was maintained by thermostat at 37°C. The pH of bath fluid was maintained at 7.4. The other horn of the uterus was kept in refrigerator to be used later.

The tissue was allowed to equilibrate in organ bath for half an hour, till the activity became reasonably stable. The tissue, which showed irregularities in its activities were discarded (Hollingsworth 1985).

After mounting the tissue in organ bath, it was left for half an hour to equilibrate. Then normal contractile response of isolated tissue preparation was recorded for 10 minutes. PGE<sub>2</sub> was added to organ bath containing the ripened uterine preparation and the effect of PGE<sub>2</sub> was recorded for other 10 minutes. After this, promethazine was added to the same above preparation of isolated tissue and its antagonizing effect of PGE<sub>2</sub> was recorded for 10 minutes.

### Group I

Six animals were sacrificed and uterus was removed. Both horns of the uterus were exposed individually to PGE<sub>2</sub>. Different concentrations of the drug were used i.e. from 10<sup>-6</sup> to 10<sup>-3</sup>. the concentration which gave maximum response was used in further study. It came out to be 10<sup>-3</sup> i.e. 1 mg/ml so this dose was taken as standard dose.

### Group II

The tissue was saturated with PGE<sub>2</sub> 1 mg/ml for 1 minute. Effects were recorded then promethazine in different concentrations was used i.e. from 10<sup>-6</sup> to 10<sup>-3</sup>. The results were based upon the concentration which maximally affected the contractions and it came out to be 10<sup>-3</sup> i.e. 1 mg/ml.

## RESULTS AND OBSERVATIONS

1. Effect of 1 mg/ml PGE<sub>2</sub> on isolated ripened uterine preparation of rat. In this group which was taken as control group:
  - i. Rate of spontaneous contractions/15 minutes (Table 1a) were recorded. Six experiments were performed. The mean value of spontaneous contractions was 6.5±0.22. After exposure to PGE<sub>2</sub> 1 mg/ml, mean value was increased to 10±0.25. this difference was statistically significant.
  - ii. The amplitude of contractions was measured in centimeters, it showed a rise in the height as compared with the control (Table 1b). the mean value of control was 3.45±0.05. After exposure to PGE<sub>2</sub> 1 mg/ml, the height rose to a mean value of 4.4±0.07. this difference was statistically significant.
2. Effect of promethazine 1 mg/ml after exposure to PGE<sub>2</sub> 1 mg/ml on the isolated ripened uterine muscle of rat.
  - i. Six experiments were performed. Rate of contractions/15 minutes was recorded with promethazine, after exposure to PGE<sub>2</sub> (Table 1la). The rate was reduced from a mean value of 9.5±0.09 with PGE<sub>2</sub> to a mean value of 7.90±0.20 with promethazine. This reduction in the rate with promethazine after exposure to PGE<sub>2</sub> was significant.

**TABLE I (A) EFFECTS OF 1 MG/ML PGE<sub>2</sub> ON RATE OF CONTRACTIONS ON ISOLATED RIPENED UTERINE MUSCLE OF RAT**

	Rate of contractions/15 minutes			Percentage (%)
	Control	PGE <sub>2</sub>	pvalue	
Mean	6.5	10	10.50	34.96
SD	0.54	±0.63		
	±0.22	±0.25		
(6)	(6)	(6)	<0.001	

Each value represents mean of total observations.

SD = Standard deviation.

+ represents standard error.

Figure in parenthesis indicates the number of observation

P value between control and PGE<sub>2</sub>.

Control represents the rate of contractions without addition of drugs

**TABLE I (B) EFFECTS OF PGE<sub>2</sub> 1 MG/ML ON AMPLITUDE OF CONTRACTIONS ON ISOLATED RIPENED UTERINE MUSCLE OF RAT**

Amplitude of contractions in cm			Percentage (%)
Control	PGE <sub>2</sub>	pvalue	
Mean	3.45	4.40	21.6%
SD	0.13	0.18	
	±0.05	0.07	11.04
(6)	(6)	<0.001	

Each value represents mean of total observations.

SD = Standard deviation.

+ represents standard error.

Figure in parenthesis indicates the number of observation

P value between control and PGE<sub>2</sub>

Control represents the rate of contractions without addition of drugs

**TABLE II-(B) EFFECTS OF PROMETHSINE ON AMPLITUDE OF CONTRACTIONS ON ISOLATED RIPENED UTERINE MUSCLE OF RATE AFTER EXPOSURE TO PGE<sub>2</sub> 1MG/ML**

Amplitude of contractions in cm			Percentage (%)
PGE <sub>2</sub>	Promethazine	pvalue	
Mean	3.75	2.60	42.40%
SD	0.22	0.15	10.63
	±0.09	±0.06	11.04
(6)	(6)	<0.001	

Each value represents mean of total observations.

SD = Standard deviation.

+ represents standard error.

Figure in parenthesis indicates the number of observation

P value between control and PGE<sub>2</sub>

Control represents the rate of contractions without addition of drugs.

**TABLE II (A) EFFECTS OF PROMETHSINE (1 MG/ML) ON RATE OF CONTRACTIONS ON ISOLATED RIPENED UTERINE MUSCLE OF RATE AFTER EXPOSURE TO PGE<sub>2</sub> 1MG/ML**

Rate of contractions/15 minutes			Percentage (%)
PGE <sub>2</sub>	Promethazine	pvalue	
Mean	3.45	4.40	21.6%
SD	0.13	0.18	
	±0.05	0.07	11.04
(6)	(6)	<0.001	

Each value represents mean of total observations.

SD = Standard deviation.

+ represents standard error.

Figure in parenthesis indicates the number of observation

P value between control and PGE<sub>2</sub>

Control represents the rate of contractions without addition of drugs

ii. Amplitude of the contractions also showed a reduction by promethazine when the tissue was challenged with PGE<sub>2</sub>. The mean value with promethazine was  $2.6 \pm 0.06$  as compared to PGE<sub>2</sub>, which was  $3.75 \pm 0.09$ . This difference was significant (Table IIb).

## DISCUSSION

The process of inhibition of myometrial contractions is termed as tocolysis. Many drugs have been found to have tocolytic effects like (receptor agonists, salbutamol, terbutaline and Ritodrine. Other tocolytics include magnesium sulfate, calcium channel blockers, sedatives, nitric oxide, etc.<sup>10</sup>

Eclampsia is a condition in which termination of pregnancy is required as soon as possible, at the same time anticonvulsants are given to control the fits along with antihypertensives and other palliative therapy.<sup>11</sup> The anticonvulsants in vogue now a days are magnesium sulfate, diazepam, phenytoins and phenothiazines.<sup>12</sup> Promethazine is one of the important members of phenothiazine group. It is used alone or in combination with diazepam. Statistically, results of this study show that the uterine contractions induced by PGE<sub>2</sub> are significantly reduced by promethazine. A total of twelve experiments were performed for this study 1 mg/ml of PGE<sub>2</sub> caused a 21.6% rise in amplitude and 34.96% increase in the rate of contractions of a fullterm pregnant isolated uterus. Whereas 1 mg/ml promethazine caused a decrease of 40.43% and 42.4% in number of contractions and amplitude of contractions respectively, produced by 1 mg/ml PGE<sub>2</sub>.

## CONCLUSION

It is obvious from the results of this study that by blocking cholinergic and muscarinic adrenergic receptors, promethazine is tocolytic in vitro. As this drug is being used widely in obstetric practice it is concluded that phase II and phase III studies should be carried out to observe its tocolytic effects in humans.

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# RISK FACTORS FOR RESPIRATORY COMPLICATIONS IN THYROIDECTOMY

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## ABSTRACT:

*Respiratory obstruction is a serious complication of Thyroidectomy, which may require urgent intervention in order to restore airway and save life. This is an observational study to find out the frequency of risk factors and causes of obstructive respiratory complications. The study was conducted in the surgical unit-I Bahawal Victoria Hospital Bahawalpur from August 1999 to December 2001. One hundred patients of goiter were included in the study. Data of each patient was collected on a Proforma and analyzed, on SPSS for X2 (Chi Square), to assess an association between respiratory complications and the risk factors. The p value of less than .05 was considered statistically significant.*

*The presence or absence of predictive factors for the development of serious postoperative respiratory obstruction were recorded. These factors were Goiter for more than 5 years, Large goiter, Preoperative recurrent laryngeal nerve palsy, Postoperative recurrent laryngeal nerve palsy, Tracheal deviation and narrowing, Retrosternal extension and Thyroid Cancer, Progressive Stridor, Difficult intubations and tracheomalacia.*

*Complications were managed on the basis of clinical judgment and not influenced by the presence of any of these factors.*

*Postoperative respiratory complications occurred in 27 patients and were obstructive in 19 patients and non obstructive in 8 patients. Removal of stitches and Re-exploration in emergency operation theater was done in 8 tracheostomy in 7 and re-intubation in 4 patients. There was no death. At least four or more of the recorded risk factors were present in 13 of 19 patients who developed respiratory obstruction compared with the 81 patients who did not.*

*Identification of multiple risk factors in patients undergoing thyroid surgery is useful for anticipating of respiratory complications. It is also useful for better and prompt management of respiratory complications.*

**KEY WORDS:** Goiter, Respiratory obstruction, Thyroidectomy, Risk factors.

## INTRODUCTION

Respiratory complications are not only associated with increased mortality and morbidity but also accounts for 2-3% of all medico legal claims in west.<sup>4</sup> Thyroid surgery for the large goiter carries the risk of postoperative respiratory obstruction, which may be a serious complication.<sup>3</sup>

Some patients are high risk patients for thyroid surgery.

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The preoperative known risk factors associated with postoperative respiratory obstruction are: Presence of goiter for more than 5 years, Size of neck more than 40 cm, Radiological evidence of marked tracheal narrowing or deviation, Retrosternal extension, Thyroid Cancer and Preoperative recurrent laryngeal nerve palsy.<sup>5,6,7</sup>

Important causes of post-thyroidectomy respiratory obstruction reported in literature include: hemorrhage 6.7%,<sup>8</sup> recurrent laryngeal nerve (RLN) palsy 5.9% laryngeal edema and tracheomalacia. Permanent palsy reported in literature for euthyroid nodular goiter is 1.7%.<sup>9,10</sup> However laryngeal Oedema is usually associated with wound haematoma but can result from traumatic endotracheal intubation.<sup>8</sup>

The incidence of haematoma and consequently respiratory failure due to tracheal obstruction in patients with intra-thoracic goiter is greater than cervical goiter and greater in larger than smaller goiters.<sup>11</sup> Unilateral involvement of RLN causes hoarseness, whereas bilateral damage leads to adductor paralysis, which is life threatening.<sup>12</sup> Postoperative close monitoring and timely intervention of the patients for signs and symptoms of respiratory obstruction such as expanding haematoma, development of stridor and respiratory difficulty, is important. In case of expanding haematoma in postoperative period, removal of the stitches, immediate resuscitation and exploration in Operation Theater are vital.

In case of bilateral RLN palsy, intubation followed by tracheostomy should be done.

### PURPOSE OF STUDY

The aims of the present study were: To find out the frequency of risk factors for obstructive respiratory complications in thyroid surgery and to see the frequency of causes of obstructive respiratory complications, their relation with preoperative risk factors, their management and lay out to prevent the complication.

### PATIENTS AND METHODS

This observational study was conducted in Surgical Unit-I, Bahawal Victoria Hospital, Bahawalpur from August 1999 to December 2001. One hundred patients regardless of their gender and age were included in the study.

All patients were assessed clinically and examined for thyroid status (hypothyroidism, hyperthyroidism), malignancy and retrosternal extension etc. Signs of airway obstruction were noted. Patients with cardiac or chest diseases were excluded. Preoperative indirect laryngoscopy was performed in all patients to assess vocal cord palsy.

Investigations carried out included routine blood C/E, urine C/E, thyroid function test; X-ray chest, ECG and thyroid scan if required. Before operation all patients were made euthyroid. Pre-operatively the risk factors were recorded and the patients were staged according to the Perez ET al<sup>13</sup> criteria.

At operation, the followings were documented: A special note was made about the endotracheal intubation, identification of the RLN and its variations in course, Ligation of vascular pedicles, extent of thyroidectomy and evidence of tracheomalacia. Tracheomalacia was diagnosed at the end of the operation, when the trachea was obviously collapsed or deformed, or when it indented to gentle pressure between thumb and fingers.

Postoperatively vital signs were recorded. Assessment included respiratory obstruction defined as dyspnoea and stridor, significant haematoma causing respiratory obstruction and laryngeal edema diagnosed by laryngoscopy in the absence of tracheomalacia or a haematoma. Patients with laryngeal edema were managed initially with steroid therapy. RLN palsy was diagnosed clinically by the presence of respiratory obstruction or hoarseness and was confirmed by indirect laryngoscopy, carried out on all patients before discharge. Operative measures taken to cope with the respiratory complications were recorded. Non-obstructive respiratory complications were, cough, excessive sputum, chest signs of consolidation and fever.

The data regarding each patient was collected on a Proforma, then analyzed on SPSS for  $\chi^2$  (chi-square) to assess an association between respiratory complication and risk factors. The p value, less than 0.05 was considered (chi-square test) statistically significant, showing an association between the risk factors and the outcome variable.

**TABLE-I** ASSOCIATION OF RISK FACTORS AND RESPIRATORY COMPLICATIONS

S.No.	Variables	Total patient	Post-operative complication	Percentage	Chi-square P value
1	Duration				
	Below 5 years	30	2	10.6%	C=4.236
	Above 5 years	70	17	89.4%	P=.04
2	Progressive stridor	13	8	42.1%	C=17.569
	No stridor	87	11	57.9%	P=0.00
3	Neck size				
	<40cm	9	5	26.3%	C=8.588
	>40cm	91	14	73.7%	P=0.003
4	Tracheal Deviation/narrowing	14	6	31.6%	C=6.020
	No deviation	86	13	68.4%	P=.14
5	Restrosteral extension	9	5	26.3%	C=8.588
					P=.03
6	Malignancy	9	4	21.1%	C=4.161
	No	91	15	78.9%	P=.04
7	Preoperative RLN palsy	8	4	21.1%	C=5.430
	No palsy	92	15	78.9%	P=0.02
8	Postoperative RLN palsy	7	4	21.1%	C=13.444
	No Postoperative palsy	93	14	73.7%	P=0.00
9	Tracheomalacia	4	4	21.1%	C=41.166
	No	96	15	78.9%	P=0.00
10	Intubation problem				
	More than 2 attempts	7	7	36.8%	C=41.166
	With satellite	7	7	36.8%	P=0.00
	No problem	86	5	26.4%	

## RESULTS

The mean age of the 100 patients was 40 years ranged from 15-70 years. Sixteen (16%) were aged less than 20 years but most (71% patients) were over 30 years old. The remaining 13% were in between 20-30 year of age. The female: male ratio was 9.1:1. At presentation 40% of patients had subjective feeling of dyspnoea and 13% patients had neck pain, while progressive stridor were recognized in only 13 patients (13%)

Risk factors for respiratory complications in thyroid surgery are shown in Table I.

Preoperative asymptomatic unilateral RLN palsy was diagnosed in 8% of the patients who underwent indirect laryngoscopy. Five of these were benign goiter and 3 malignant, further 7 patients had RLN palsy after operation due to iatrogenic injury. However in 10 patients recovery was complete during follow up. Three of the remaining had a malignant goiter infiltrating the RLN and two patients had a benign goiter. There was no bilateral RLN injury postoperatively.

**TABLE II TYPE OF GOITRE FOR SURGERY**

Goitre	Frequency	Percent	Obstructive respiratory complications	
			Yes	No
Simple.	69	69	8	61
Toxic	8	8	1	7
Thyroiditis	3	3	2	1
Carcinoma	12	12	4	8
Status not confirmed	8	8	4	4
<b>Total</b>	<b>100</b>	<b>100</b>	<b>19</b>	<b>81</b>

*Incubation Obstructive respiratory complication Cross tabulation*

Endotracheal intubation was difficult in 14 patients. In 7 it was possible to introduce the endotracheal tube following two failed attempts while in 7 patients a stilette was used after two failed attempts by an experienced anesthetist. The goiters subjected to operation are shown in table II. Operations performed are shown in Table III.

**TABLE III OPERATION PERFORMED**

Operation	Frequency	Percent	Obstructive respiratory complications	
			Yes	No
Isthmusectomy	3	3.0		3
Lobectomy	21	21.0		21
Subtotal	61	61.0	10	
Thyroidectomy				
Near total				
thyroidectomy	8	8.0	5	3
Total thyroidectomy	7	7.0	4	3
<b>Total</b>	<b>100</b>	<b>100.0</b>		

Tracheomalacia was identified in 4 patient (4%) of whom three underwent tracheostomy. In two patients the trachea was obviously collapsed at the end of the operation while in the other two it was deformed following thyroidectomy.

RLN was identified in 86% of the patients and in the remaining 14 patients the thyroid capsule was incised leaving a posterior rim to safeguard the nerve. After completion of the procedure 91% of the wound were drained.

**TABLE IV CAUSE OF AIR WAY OBSTRUCTION**

Complications	Frequency	Percent
Haematoma	8	8.0
Laryngeal edema	4	4.0
Nerve injury	3	3.0
Tracheomalacia	3	3.0
Tracheal injury	0	0.0
Invasive malignancy	1	1.0
<b>Total</b>	<b>19</b>	<b>19</b>

Postoperative respiratory complications occurred in 27 patients (27%) and were obstructive in 19 patients and not obstructive in 8 patients. The causes of obstructive respiratory complication are shown in Table IV. Those who developed respiratory complication were managed on standard lines according to the cause (Table V).

**TABLE V URGENT INTERVENTION**

Complications	Frequency	Percent
Tracheostomy	7	7.0
Removal of stitches	8	8.0
Re Intubation	4	4.0
<b>Total</b>	<b>19</b>	<b>19</b>

Non-obstructive respiratory complications occurred in 8 patients (8%); 4 patient (4%) developed cough with fever, 3 patients (3%) aspiration pneumonia and 1 patient (1%) had pulmonary collapse.

The risk factors for obstructive respiratory complication identified were duration of goiter more than 5 year, Progressive stridor, Size of neck due to goiter >40cm, Retrosternal extension, Tracheal-deviation/narrowing, Malignancy, Preoperative RLN palsy, Difficult intubation, Postoperative RLN injury and Tracheomalacia.

Analysis of the predictive factors recorded in patients as above showed that 13 of 19 patients had 4 or more risk factors present as shown in Table-VI.



## DISCUSSION

Respiratory obstruction is a principal danger in thyroid surgery. The incidence of respiratory complications is greater in large goiter than in small sized and uncomplicated goiter. The reported incidence of respiratory obstruction is about 25-32% in large goiter, which usually needs tracheostomy.<sup>14</sup> In the present study postoperative obstructive respiratory complications occurred in 19 patients. This high rate of complications is due to long standing large size goiters.

'Large goiter' is a vague term; it has been defined as a protrusion beyond chin or jaw, as a goiter seen from a distance i.e., stage III of the World Health Organization, Perez classification,<sup>13</sup> as a goiter which weighs 80 gram or more after excision<sup>7</sup> or as the largest neck circumference crossing the goiter being 40 cm or more as in this study. In our study the size of the neck due to goiter was 40 cm or more than 40cm in 91 (91%) of patients. This was mostly due to our selection criteria, uneducation, poverty (50% of the patients having monthly income less than Rs: 4000/-) and delayed presentation (mean duration of goiter was 6.5 years).

Wound hemorrhage is a problem in the early postoperative period usually within the first 12 hours. It has been reported in 6.7 percent of consecutive thyroidectomies.<sup>8</sup> Obstructive haematoma is a serious postoperative complication of surgery in the floor of the mouth or the anterior region of the neck and throat. The insidious development of symptoms, including agitation, which may be attributed to other causes, or their late appearance in hospital wards staffed by personnel unaccustomed to treating airway complications, means that the risk of hypoxia or respiratory failure is high<sup>15</sup> has reported 4 cases of postoperative airway obstruction with two deaths due to tension haematoma. In our study there were 8 cases of airway obstruction due to haematoma. All underwent removal of stitches on the bedside and exploration in emergency theater. Tracheostomy was necessary in one patient our review of the literature and experience have led to the following recommendations that may prevent avoidable deaths

- a) the house surgeons and registrar directly responsible for these patients should receive specific training;
- b) long-term monitoring and observation should take place in recovery units where early signs and symptoms can be detected and treated immediately;
- c) tracheostomy or 24-hour intubation should be considered when surgery in this anatomic region is highly invasive;
- d) consider that postoperative agitation in these patients is a symptom of hypoxia unless another cause is demonstrated; and
- e) the zone must be decompressed rapidly by opening

the surgical wound and safeguarding the airway whenever obstructive haematomas present.

In tension haematoma usually drains offer no protection.<sup>16,17</sup> Drains were present in all the 8 patients who developed tension haematoma. In the present climate of managed care, there is pressure to send the thyroidectomy patients home early even on the day of operation. This should not be done since bleeding has occurred as late as the next day after operation. Deaths have occurred and are more likely if the patient is at home.<sup>18</sup> Our normal routine is to discharge the patient on 5<sup>th</sup> to 6<sup>th</sup> postoperative day.

Laryngeal edema is usually insidious. It may occur secondary to wound haematoma, traumatic, endotracheal intubation<sup>19</sup> or over treatment with anti thyroid drugs leading to hypothyroidism in patients with toxic goiter. In the present study 4 patients had laryngeal edema; three responded to steroid therapy and one needed a tracheostomy.

Tracheomalacia or tracheal flaps is considered a rare complication in the western literature.<sup>11</sup> which is mainly seen with recurrent goiter. If it is present, dangerous consequences can result after removal of the thyroid, for collapse or narrowing of the trachea would occur with inspiration resulting in respiratory embarrassment. Although tracheal resection may be performed in some cases the treatment of choice for this complication is endotracheal intubation. Usually this procedure leads to fixation of the trachea and with time the endotracheal tube can be removed. In severe cases a tracheostomy is necessary. In the present study four patients had this complication three-needed tracheostomy.

Indirect laryngoscopy to assess the larynx and vocal cords before and after operation is important to identify patients at risk of postoperative respiratory problems and to detect laryngeal injuries caused by prolonged and difficult intubation. The multivariate analyses clearly confirmed the pivotal role of routine in RLN identification.<sup>9</sup> Routine identification of RLN in surgery reduces incidence of its injury from 10% to 4%<sup>12</sup> RLN was identified in 86% of the cases in our study.

Recent reported incidence of RLN palsy is 7.74% [Wedrychowicz B et al Otolaryngology Pol 2000]. Which is consistent with our study (7% RLN palsy postoperatively)? The frequency of permanent unilateral RLN palsy in benign disease in this study was 2%. No bilateral RLN paralysis was observed.

The need for postoperative tracheostomy is debatable. Gyoh and Emery from Nigeria advice against the use of tracheostomy in dust-laden season while others have recommended it.<sup>6</sup> In some series prophylactic tracheal



splinting by retaining the endotracheal tube in situ for 24 hour postoperatively has been advised. [Obepka PO et al. 1999] Tracheostomy was performed in 7 patients three of whom had marked tracheo-malacia. Analysis of the predictive factors recorded in patients who developed obstructive respiratory complication showed that 13 of 19 patients had four or more factors present. These factors were progressive stridor in long standing goiters of more than 5 years, retrosternal extension, difficult endotracheal intubation and radiological evidence of tracheal deviation or narrowing. The presence of tracheomalacia at operation is also a strong indication for tracheostomy; all patients with tracheomalacia had these four factors present. Thyroid cancer adherent to or invading the trachea is usually a strong indication for tracheostomy and is always associated with other predicting factors.

A planned procedure at the end of the thyroidectomy is safe and may save an unplanned emergency procedure. If four or more of the predictive factors for postoperative respiratory embarrassment are present, a planned procedure at the completion of thyroidectomy should be considered.

Identification of risk factors for respiratory complications in a patient under going thyroid surgery is important. If the four or more risk factors in a patient of goiter are present, the ensuing respiratory obstruction can be anticipated. This is useful in predicting the need for any planned procedure without an emergency.

The problem can be tabled by educating the public and general practitioners regarding early referral to specialized surgical units.

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# SINGLE KIDNEY AND ITS MANAGEMENT

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## ABSTRACT:

*A descriptive study of 33 cases of single kidney was carried out in the Department of urology; P.O.F Hospital Wah Cantt over a period of 4.5 years(JAN1997-JULY2002) .The objectives of study were to find out the causes of single kidney and the role of invasive and non invasive treatment modalities in the management of its diseases. The diagnosis was established on the basis of history, and uro-radiological investigations. Renal Calculi were found to be the commonest cause in 63.63% of patients.12 patients who presented with renal failure were first stabilized by Percutaneous Nephrotomy (PCN). Invasive procedures included, 6 pyelolithotomies, 4 Percutaneous Nephro-Lithotomy (PCNL), 3 ureterolithotomy, 3 URS, 1 endopyelotomy+URS and 3 renal transplants. While 11 patients were sent for ESWL, only 1 patients died due to viral chest infection (post renal transplantation). Rest of the patients are well on strict follow - Minimal invasive techniques are found to be effective with high success rate.*

**KEY WORDS:** *Single kidney, Renal calculi, ESWL, Ureteroscopy, PCNL*

## INTRODUCTION

The kidneys are "paired", reddish brown, solid organs that lie well protected deep within the retroperitoneum on either side of the spine. As the organs of urinary excretion, the kidneys play a central role in fluid, electrolyte and acid base balance, but they also have important endocrine functions.

The term "single kidney" means that one kidney is already knocked out (non functioning) and person is having problem in the functioning solitary kidney. Urinary tract stone is the commonest cause of single kidney. In the past 5 years there had been a major revolution in the surgical management of stone disease, equal to or greater than any change in surgical practice that has occurred at any time in the history. PCNL the first planned extraction of a renal stone percutaneously was described by Fernstrom and Johansson (1976) but it was not until 1981 that Alken and his colleagues from Western Germany reported their early experience.<sup>1</sup> Since that time the popularity of the technique has risen at an enormous rate in many countries and numerous reports vouch for the safety and effectiveness of the procedure.

(ESWL) for the destruction of urinary calculi was first introduced by Chaussy and associates<sup>2</sup> in 1980 since then lithotriptors have been installed around the world and hundreds of thousands patients have had ESWL for treatment of urinary calculi. The purpose of this study is to describe our experience of management of "single kidney" diseases.

## PATIENTS AND METHODS

A descriptive study of 33 patients with "single kidney" was carried out in P.O.F Hospital Wah Cantt from Jan 1997-July 2002. Cases with congenital single kidney were excluded from this study. Inclusion criteria were patients with a solitary functioning kidney. The patients were evaluated on their histories, clinical examinations, renal function tests and uro-radiological investigations. Records of carried out procedures and their post procedural complications were kept. Patients who improved on anti tuberculous therapy were also included. All the patients are on strict follow up basis at 3 month intervals. Chi square test was done to prove that PCNL is better than open surgery in single kidney and ESWL is recommended with J. Stenting.

## RESULTS

There were 25 males (75.75%) and 8 females (24.24%) with male to female ratio of 3.1:1. Mean age of presentation was 52 years. The minimum age was 5 years; a boy who presented with bilateral Pelvi-ureteral junction (P.U.J) obstruction.

The clinical use of Extra-Corporeal Shortwave Lithotripsy

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**TABLE I**

S. No.	Presentation	No.	Percentage
1	Renal Colic	18	54.54%
2	Ch. Renal Failure	6	18.18%
3	Acute Renal Failure (ARF) with Oliguria	6	18.18%
4	Persistent Dysuria due to Genito-urinary Tuberculosis (G.U.T.B.)	2	6.06%
5	Haematuria	1	3.03%

Table I shows the mode of presentation

Besides routine laboratory investigations Renal function tests were done in all patients. 15 patients (45.45%) had abnormal renal functions tests.

**Uroradiological investigations included Plain X Ray KUB, IVU, ULTRASOUND (KUB) (KUB+Prostate) and DTPA Renal scan.**

Plain X Ray KUB was carried out in all the patients while IVU in 48.48%, USG in 63.63% and DTPA renal scan in 21.21% of cases.

Urinary tract calculi were found to be the commonest cause of non functioning kidney and were also the problem for single functioning kidney.

Table II shows the aetiology of non functioning kidney and pathology of single functioning kidney.

**TABLE II**

S. No.	Cause	Non Functioning Kidney (Aetiology)	Non Functioning Kidney (Existing Pathology)
1	Stones	21	29
2	T.B.	2	2
3	PUJ Obs.	2	2
4	Ch. Parenchymal Disease	7	---
5	Renal CA	1	---

Pelvic stones were the most common 3 cases of pelvic stones were associated with P.U.J. narrowing. All the pelvic stone sizes were <25 mm. Stag horn stone were present in 4 cases.

After assessing the status of the functioning kidney necessary surgical procedures were planned. The cases who presented with renal failure with raised urea and creatinin PCN (per cutaneous nephrostomy) was done and once the renal functions became stabilized then further management was under taken.

Table III shows the various treatment modalities for single kidney.

**TABLE III**

S. No.	Treatment	No.	Percentage
1	ESWL	11	33.33%
2	Pyelolithotomy	6	18.18%
3	PCNL	4	12.12%
4	Ureterolithotomy	2	6.06%
5	URS	4	12.12%
6	Renal Transplant	3	9.09%
7	Pyeloplasty	1	3.03%
8	ATT	2	6.06%

Complications occur in 2 patients after ESWL who had presented with anuria. On X Ray KUB stone fragments were found to be impacted at the ureterovesical junction for which ureteroscopy was done and stones extracted. Only 1 patient died post renal transplantation due to viral chest infection and 1 patient was lost in the follow up. The remaining patients are on strict follow up basis at 3 months interval and are well.

## DISCUSSION

Management of patients with only one kidney is a challenging job and it varies widely. Most of the cases presented to with colics and renal failure.

Our study of 33 patients reveals that stones not only cause one kidney non functional but also at the same time effects the other functioning kidney. All the patients who were in renal failure were first stabilized by per cutaneous nephrostomy (PCN) then necessary treatments options were decided on the basis of the cause, size and site of the stones; and the status of the only functioning kidney.

ESWL was done in 11 patients. The stones were in ureter, calyx, pelvis, PUJ. 7 without stenting and 4 with ureteral stents. All these 4 patients had caliceal stones with hydronephrosis. The use of internal ureteral stents during ESWL is controversial. Stent might reduce complications after ESWL and aid in the successful passage of stone fragments out of 7 patients without stenting we received 2 patients post ESWL with anuria due to impacted stone in U.V junction both had renal calculi of 3 cm sizes. It is mentioned in a study that patients whose stones are less than 3 cm, better results were obtained when stents not placed, in patient with large stones, stents can be helpful.<sup>3</sup> Retreatment was required in only 3 patients (9.09%) after ESWL.<sup>4</sup>

Regarding the role of ureteroscopy we find it the most successful technique for the treatment of ureteral and PUJ stones because:

1:it can be used as a single procedure in (12.12%) with 100% success rate

2:can be used in combination with ESWL either prior to(in one case completely obstructing stone from upper ureter was pushed in to the lower calyx and then referred for ESWL)or after lithotripsy.

3:can perform endopyelotomy as well (in 2 cases) with again 100% success rate and we strongly recommend that URSL is the best choice for ureteral, PUJ stones.<sup>5,6,7</sup> PCNL is a recent introduction<3 years in our hospital. Till now 12. 12% of paientts with single kidney underwent PCNL and no furthur treatment was required. Its now replacing open procedures (pyelolithotomy). As outcome of open surgery in many cases is related to exacerbation of renal failure, acute calculus pyelonephritis.<sup>8</sup>

Rather 2 of our patients who required renal transplantation in a period<1 yr was because pyelolithotomy was performed on their single kidney. Specific treatment like pyeloplasty done in 2 cases for P.U.J obstruction. One patient 20 years old, DTPA SCAN and IVU showed left non functioning kidney and right poor functioning with obstruction underwent Right Anderson Hynes pyeloplasty but eventually needed renal transplant. Kauster performed the first successful pyeloplasty (a dismembered)in 1891 on the solitary kidney of a 13 year old boy.<sup>9</sup>

Clinically the identification of patients with single functioning kidney who can expect to receive the best results in the fewer number of treatment is an important goal. Future clinical research can also serve to make the use of ESWL more efficient and cost effective .In addition continued effort to understand better the effects of

minimally invasive techniques (URS, PCNL) remain important to contribute to develop optimal parameters for safe treatment.

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# SQUAMOUS CELL CARCINOMA IN ORAL SUBMUCOUS FIBROSIS.

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## ABSTRACT:

*A study of 30 biopsies of suspicious carcinomas in cases of oral submucous fibrosis (OSF) was conducted at the ENT department of Jinnah Postgraduate Medical Centre, Karachi, to compare the grading of OSF with other squamous cell carcinomas (SCC). Keratinisation was slightly more in Non cases grading of malignancy was slightly higher in SCC cases.*

## INTRODUCTION

A high incidence of oral carcinoma in Oral Submucous Fibrosis (OSF) was reported thirty years ago (Paymaster 1965).<sup>1</sup> In a longitudinal study in India for over a 15 year period (mean eight years) 7.6% of OSF patients were reported to have developed oral carcinoma (Murti et al. 1985).<sup>2</sup> The biological activity of oral squamous cell carcinoma (SCC) in OSF subjects, however, has not been studied. This is usually classified based on the degree of differentiation (Broders 1941)<sup>3</sup> and the neoplasms are graded as highly, moderately or poorly differentiated. Anneroth (1987)<sup>4</sup> and Bryne (1989)<sup>5</sup> developed grading systems for oral SCC based on morphological features observed at the tumour front. Bryne et al. (1991)<sup>6</sup> reported their system to be reproducible and of prognostic value. The biological activity of oral SCC arising from OSF epithelium is compared with SCC arising in other premalignancy, e.g. oral leukoplakia, using Bryne et al. (1991)<sup>6</sup> criteria.

Purpose of the study was to compare the grading of OSF with other squamous cell carcinoma

## PATIENTS AND METHODS

Thirty biopsies taken from a representative area of clinically suspicious carcinomas in OSF patients were available for this study (Group 1) (Fig. 1). The same number of biopsies (n=30) were obtained during the same period from patients reporting to the same unit with squamous cell carcinoma of the oral cavity without any evidence of OSF (Group 2). After routine embedding 6  $\mu$ m sections were mounted on glass slides and stained with haematoxylin and eosin stain and examined under the light microscopy.

The Bryne et al. (1991)<sup>6</sup> malignancy grading criteria, which are a modification of the Anneroth et al. (1987)<sup>4</sup> grading, were used.

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Degree of keratinisation  
(per x 25 objective field):

1 = highly keratinized  
(>50% of the cells)

2 = moderately keratinized  
(20 – 50% of the cells)

3 = minimal keratinisation  
(5 – 20% of the cells)

4 = no keratinisation (0 –  
5% of the cells)

Number of mitoses (per x  
40 objective field):

1 = 0 – 1

2 = 2 – 3

3 = 4 – 5

4 = > 5

Lymphoplasmacytic infiltration:

1 = marked  
2 = moderate  
3 = slight  
4 = none

Nuclear polymorphism  
(per x 40  
objective field)

1= little nuclear  
polymorphism  
(>75% mature cells)

2= moderately abundant  
nuclear  
polymorphism(50-75%  
mature cells)

3= abundant nuclear  
polymorphism  
(25-50% mature cells)

4= extra nuclear  
polymorphism (0-  
25% mature cells)

Pattern of invasions:

1= pushing, well  
delineated  
infiltrating borders

2= infiltrating, solid cords,  
bands  
and/or strands

3= small groups or cords  
of  
infiltrating cells (n>15)

4= marked and  
widespread cellular  
dissociation in small  
groups if cells

All the 60 cases in the study were graded using the above criteria. Photographic standards were consulted during scoring (Bryne et al. 1991).<sup>6</sup> Total malignancy score was recorded for each case by adding the scores for the five morphologic features.

Demographic details, chewing and smoking habits, along with clinical information and TNM staging were transcribed from records. Data were analyzed using SPSS PC programme. Statistical methods used were Chi square and Student's T test to compare the differences between grading of individual features and overall malignancy derived for the two groups.

## RESULTS

The age range of SCC cases with OSF (Group 1) was lower than SCC cases without OSF (Group 2) (Table 1). Total consultation (frequency per day x duration of use in years) of tobacco products was also lower in the SCC/OSF group: mean was 683.1 as compared to 1031.7 in group 2. There were almost an equal number of pan with tobacco chewers in the two groups but chewers areca nut alone were predominant in group 1 (Table 2). By TNM staging there was a high percentage of T1 cancers in group 1 (16/30) compared to group 2 (4/30) and more advanced cases (T4) were seen in group 2 (20/30) (Table 1).

**TABLE 1 CLINICAL AND DEMOGRAPHIC FEATURES OF PATIENTS WITH CANCERS ARISING IN OSF (GROUP 1) COMPARED WITH NO OSF (GROUP 2)**

VARIABLE	GRP 1 OSF/SCC n = 30	GROUP 2 SCC n = 30	PVALUE
Age (yr)			
Range	20 - 75	35 - 75	
Mean	51.2	56.8	P<0.01
SD	17.2	10.3	
Total consumption of tobacco			
Range	6 - 1420	8 - 9000	
Mean	683.1	1031.7	
SD	420.2	2069.1	
T1	16	4	
T2	5	5	
T3	2	1	P<0.001
T4	7	20	

Of the five morphologic features examined degree of keratinisation was somewhat higher in group 2 (Table 3) figuring an overall higher mean score for this feature for group 1 compared to group 2 cases (Table 4). For the other four features malignancy grading was slightly higher (for each of the four features) among the SCC cases compared to SCC/OSF cases but none of these differences were significant.

## DISCUSSION AND CONCLUSION

The behaviour of SCC in OSF has not been investigated. This would be linked to the biological activity of the neoplasm. Various methods have been evaluated for assessment of prognosis in oral cancer (Johnson et al. 1993, 1996).<sup>7,8</sup> In reviews of the prognostic markers in cancer of the head and neck limitations of TNM classification are emphasized (MacDonald 1991).<sup>9</sup> A considerable improvement in prognostic differentiation has been described by Evans et al. (1982)<sup>10</sup> by adding the tumour site and pathological grade to the TNM staging which they called STNMP classification. Broders initiated quantitative grading of cancer based on the proportion of the neoplasm resembling normal squamous epithelium (Broders 1941, 1926).<sup>3,11</sup> Jacobson et al. (1973)<sup>12</sup> developed a more precise morphologic evaluation of the growth potential of squamous cell carcinoma in the head and neck region based on tumour cell population and tumour host relationship. The work of Johnson (1976)<sup>13</sup> showed the importance of including connective tissue features, especially the nature and intensity of the host immune/inflammatory response in the histological assessment of prognosis. Variations in subjective evaluation of histological material has been pointed out by Pindborg et al. (1985).<sup>14</sup>

Variability between studies to follow these classifications led to modifications to the grading systems by introduction of quasiquantitative measures (Jacobson et al. 1973, Lund 1975, Willen et al. 1975, Holm et al. 1982, Anneroth et al. 1984).<sup>12, 15, 16, 17, 18</sup>

Furthermore, grading was found to vary between the incisional biopsy and surgical specimens, where in depth growth can be assessed. Jacobson et al. (1973)<sup>12</sup> advocated a different system of grading for surgical specimens. He found that the malignancy grade of biopsy tissue tended to be lower than the grade of the definitive surgical specimen. Anneroth (1986)<sup>4</sup> modified Jacobson et al. (1973)<sup>12</sup> to make it more semiquantitative by introducing percentages giving equal weightage to the parameters.

Bryne et al. (1991)<sup>6</sup> modified Anneroth's staging system and omitted the stage of invasion and vascular invasion component. Bryne et al. (1991)<sup>6</sup> showed a better reproducibility for grading of deep invasive margin of SCC as compared to superficial parts. Cellular differentiation of the whole biopsy was of no prognostic value compared to the characteristics of the invasive cells of the same biopsies (Bryne 1991 and Bryne 1989)<sup>6,5</sup> and grading of superficial parts may not be an indicator for the clinical behaviour of the tumour. Substantial data support this hypothesis (Kearsley 1990).<sup>19</sup>

Interobserver variability or agreement can be reported by

Kappa value and it is reported to be better with the Bryne et al. (1991)<sup>6</sup>; Bryne et al. (1989)<sup>5</sup> and Anneroth (1984)<sup>19</sup> systems. The well documented prognostic value of various malignancy gradings found in many different works suggest that histological grading can be a valuable supplement to clinical staging despite problems in obtaining maximum agreement and stricter definitions of criteria. Calibration can improve reproducibility (Svansholm 1989 and Bryne et al. 1991)<sup>20,6</sup>.

In a recent study from our department, oral carcinomas from India graded by the Bryne et al. (1991)<sup>6</sup>, method were shown to be of comparatively low histological grade compared to carcinomas from the West (Hazarey et al. 1994).<sup>21</sup>

In OSF there is alteration of submucosal tissue along with avascularity and fibrosis: this might be argued to resist progression of invasive cancer. Epithelial atrophy on the other hand should lead to easier access of carcinogens. The behaviour of SCC arising in OSF has not been previously investigated. The aim of the present study is to compare the histological and clinical behaviour (TNM) and malignancy score between SCC in OSF and SCC arising from other precancers.

When the malignancy score for each morphological feature was analyzed for the OSF/SCC and SCC group no significant differences in the pattern of keratinisation, nuclear polarity, mitosis count, invasion pattern and inflammation were observed. The cumulative malignancy score was slightly lower for the OSF group (Table 4).

This finding is consistent with the previously reported work by Hazarey et al. (1994),<sup>21</sup> who compared oral carcinoma reports from India and found them of comparatively low histological grade as compared to the Bryne et al. (1991)<sup>6</sup> studies on Norwegian population. The consistent finding in this Pakistani study is that SCC reported here is histologically better differentiated than that reported among Europeans. According to a previous report by Balaram et al. (1987)<sup>22</sup> a better lymphocytic response was expressed in OSF/SCC. Results from the present study, however, show that this feature is similar in both the groups.

**TABLE II CHEWING/SMOKING HABITS OF BOTH GROUPS**

HABITS	GROUP 1	GROUP 2	P VALUE
Areca nut	9 (mean 0.32, SD± 0.47)	1 (mean 0.04, SD± 0.20)	= 0.01
Pan with tobacco	20 (mean 0.71, SD± 0.46)	18 (mean 0.75, SD± 0.44)	= 0.77
Pan without tobacco	0	0	
Niswar	1 (mean 0.03, SD± 0.18)	4 (mean 0.16, SD± 0.38)	= 0.11
Cigarettes	4 (mean 0.14, SD± 0.35)	2 (mean 0.08, SD± 0.28)	= 0.50
Hooka	2 (mean 0.07, SD± 0.26)	1 (mean 0.04, SD± 0.20)	= 0.64

In conclusion OSF/SCC appears to have a better prognosis by virtue of lower clinical TNM staging. The histological grade, however, is similar for both the group in spite of the TNM stage. The biological activity of the SCC arising out of OSF epithelium does not appear different on histological features from SCC arising from other premalignant conditions.

**TABLE III COMPARISON OF MICROSCOPIC GRADING OF SCORES FOR THE TWO GROUPS**

Morphologic feature	Score	Group 1	%	Group 2	%
Degree of keratinisation	1	11	(36.7)	13	(43.3)
	2	8	(26.7)	9	(30.0)
	3	7	(23.3)	5	(16.7)
	4	4	(13.3)	3	(10.0)
Nuclear polymorphism	1	15	(50.0)	8	(26.7)
	2	6	(20.0)	13	(43.3)
	3	8	(26.7)	8	(26.7)
	4	1	(3.3)	1	(3.3)
Mitosis	1	13	(43.3)	13	(43.3)
	2	10	(33.3)	9	(30.0)
	3	7	(23.3)	8	(26.7)
	4	0	(0.0)	0	(0.0)
Pattern of invasion	1	12	(40.0)	8	(26.7)
	2	5	(16.7)	5	(16.7)
	3	10	(33.3)	12	(40.0)
	4	3	(10.0)	5	(16.7)
Lymphoplasmacytic infiltrate	1	6	(20.0)	3	(10.0)
	2	12	(40.0)	14	(46.7)
	3	11	(36.7)	11	(36.7)
	4	1	(3.3)	2	(6.7)

**TABLE IV COMPARISON OF MEAN SCORE**

	Group 1		Group 2		T test
	Mean	SD	Mean	SD	
Pattern of keratinisation	2.18	± 1.07	1.93	± 1.01	0.93
Nuclear polymorphism	1.83	± 0.95	2.06	± 0.828	1
Mitosis	1.8	± 0.805	1.83	± 0.834	0.14
Pattern of invasion	2.13	± 1.074	2.46	± 1.074	1.19
Lymphoplasmocytic infiltrate	2.23	± 0.817	2.40	± 0.770	0.83
<b>TOTAL SCORE</b>	<b>10.03</b>	<b>± 3.49</b>	<b>10.70</b>	<b>± 3.31</b>	

**TABLE V THE DISTRIBUTION OF TOTAL MALIGNANCY SCORE FOR THE TWO GROUPS**

TOTAL MALIGNANCY SCORE	GROUP 1	GROUP 2
5 – 8	17	14
9 – 12	10	13
13 – 20	3	3

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# CAN WE CALL IT A 'DIABETIC HAND'?

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## ABSTRACT:

To know the frequency and to evolve the grading system of diabetic hand a prospective study was designed and carried out at the Medical and Surgical Departments of Bahawal Victoria Hospital, Bahawalpur, from 01-02-2000 to 31-12-2001.

Adult patients who had a random plasma glucose level of  $>11.1$  mmole/L or a fasting serum glucose level of  $>7.0$  mmole/L, with a hand lesion (cellulitis, abscess or gangrene etc) were included in the study. All the patients with carpal tunnel syndrome, Dupuytren's contracture, arthritis, trigger finger/thumb etc were excluded from the study. Detailed history and examination were carried out noting especially the mode of presentation, numbness/altered sensations, history of trauma and nature of the job.

A total of 56 patients with diabetic hand fulfilled the inclusion criteria. Most of them were middle-aged males. Right hand was the predominant one to be involved in 73.7% and right thumb was involved in 19 cases. Almost all the affectees were manual workers. More than half of the patients presented with deep-seated infections of the hand. 38% of the patients developed spontaneous bacterial infection. History of trauma was present in 29%. One third of the patients did not know the cause of diabetic hand. Streptococci were the most frequent microorganisms (23%) isolated followed by Staphylococci (16%). Operative treatment included various modalities. All the diabetics with hand infection should be graded and early interventions should be undertaken to halt the disease process. Every effort should be directed to 'save the hand' while performing any intervention.

**KEY WORDS:** Diabetes Hand Infection, Gangrene, Diabetic hand

## INTRODUCTION

Diabetes mellitus is one of the most common non-communicable disease worldwide.<sup>1</sup> It affects about 1% of the population in the west. Although the prevalence of undiagnosed diabetes is high and many patients have the evidence of complications at the time of diagnosis.<sup>2</sup> Diabetes is of interest to surgeons largely because of its complications.<sup>2</sup> The carriage of microorganisms on skin and mucosal surfaces is commoner in diabetes than in the general population.<sup>3</sup> Infections are common in diabetic patients especially in those with poor glycaemic control.<sup>4,5</sup> Peripheral neuropathy is the principle underlying factor in the pathogenesis of ulcers in diabetes<sup>6</sup> which can progress to infection, necrosis, gangrene, loss of limb or even death.<sup>7</sup> Advanced

neuropathy results in insensitivity that permits unperceived trauma to occur.<sup>4</sup> Although literature does mention various conditions associated with diabetic patients with hand infection<sup>8-13</sup>, but the 'diabetic hand' is yet to be established as a new entity like the diabetic foot. The incidence of diabetic hand may be lower than the diabetic foot, it presents a rather more serious condition because one can live without a foot but one is more handicapped without a hand.

In order to know the prevalence of diabetic hand and to devise a grading system, this prospective study was carried out.

## MATERIALS AND METHODS

During this prospective study carried out from 01-01-2000 to 31-12-2001 at Bahawal Victoria Hospital, Bahawalpur, Only adult patients who fulfilled the inclusion criteria were included in the study, which were:

- ♦ A random plasma glucose level of  $>11.1$  mmole/L or a

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fasting serum glucose level of  $>7.0$  mmole/L, and

- ♦ A hand lesion (cellulitis, abscess or gangrene etc).

All the patients with carpal tunnel syndrome, Dupuytren's contracture, arthritis and trigger finger/thumb etc were excluded from the study. Detailed history and examination were carried out noting especially the mode of presentation, numbness/altered sensations, any history of trauma and nature of job. Each patient was treated aggressively which included good glycaemic control, intravenous antibiotics and operation.

## RESULTS

In total, 61 patients with diabetic hand fulfilled the inclusion criteria. Most of them were middle - aged males. Baseline characteristics were recorded (Table I). Right hand was predominantly involved in 67% and right thumb was involved in 19 cases. Almost all the affectees were manual workers. The most affected were labourers (30%). Surprisingly 18% of the patients were housewives. More than half (64%) of the patients presented with deep-seated infections of hand; Table 2 and Fig. 1. 38% of the patients developed spontaneous bacterial infection. History of trauma was present in 29%. And one third of the patients did not know the cause of diabetic hand. Streptococci were the most frequent microorganism (23%) isolated followed by Staphylococci (16%). Less than one fourth of the patients had the evidence of bony involvement on x-rays. Majority of the patients (80%) had 1-2 weeks of hospital stay (mean duration 12.6 days). Conservative treatment was carried out in only 10% of the cases. Operative treatment included various modalities (Table II).

## DISCUSSION

Hand is dextrous, manipulative and explorative, and is an adjunct to social skills and speech. These functions depend on soft, supple skin coupled with free movements at all the joints distal to elbow.<sup>14</sup> There is an evident contrast between palmar and dorsal skin. Relationship between glycaemic control and diabetic complications remains unclear. High incidence of infections occur in



**TABLE I** BASELINE CHARACTERISTICS

Features	Findings	
Mean Age	Males	43.2 Years
	Females	35.6 Years
Known Diabetics	Males	28
	Females	13
Anti-Diabetics	Oral	17
	Irregular Insulin	6
	Regular Insulin	5
	NO Treatment	13
Previous history of Diabetic Hand	Males	9
	Females	3
Side	Right	40
	Left	21
Thumb Involvement	Right	18
	Left	7

**TABLE II** CLINICAL PRESENTATIONS

Presentation	Patients	%
Gangrene of thumb/finger	22	36
Palmer Space Abscess	13	21
Associated Tenosynovitis	7	11
Web space Abscess	8	13
Pulp space Abscess	6	10
Thenar Space Abscess	5	8
Cellulitis of Hand	6	10
Paronychia	4	7
Furuncle/Carbuncle	3	5

**TABLE III** TREATMENT

Treatment	Patients	%
Simple Dressings	6	10
Incision and Drainage	33	54
Amputation of finger	14	23
Amputation of thumb	6	10
Amputation of Hand	2	3

diabetics with poor glycaemic control reasons being decreased local and systemic host resistance.<sup>3</sup>

In the present study more than 86% were found to be less than 50 years of age. Similar age group was involved in studies by Kour et al<sup>15</sup>, and Abbas G et al.<sup>16</sup> In our male dominant society, the males work outdoors and are relatively more susceptible to trauma. The same observation was noted in the present study (male to female ratio 1.7:1.0). Similar sex predominance was

**TABLE IV** **GRADING SYSTEM**

Grade	Feature
Grade 0	Hand at risk*, No ulcer
Grade 1	Hand Swelling (cellulitis) / Superficial infection
Grade 2	Deep infection/ulcer but NO bony involvement
Grade 3	Osteomyelitis*
Grade 4	Localised gangrene (thumb/finger)
Grade 5	Gangrene of entire hand

\*Patients having numbness/anaesthesia/altered sensation, Dupuytren's contracture, Trigger finger/thumb, Arthritis etc.

the females affected were younger than the males (mean age was 34.86 years in females vs 39.94 years in males) which may probably be due to earlier presentation of female patients. More importantly, 67% of the patients were known diabetics and 12 patients already had a previous history of hand infection.

Numbness/anaesthesia of digits/hands was present in 25% of the individuals which signifies that trivial trauma may go unnoticed by the patients; also noted by Abbas G et al<sup>18</sup> to be significant (p-value <0.001). The commonest presentation was palmar space abscesses in the present study. This is in contrast to a study by Ezeldeen et al<sup>17</sup> in Khartoum carried out in 150 patients in which paronychia (41%) was the commonest followed by volar infection (30.6%). Whereas in the present study, paronychia was only 7%. The reason for this gross contrast is that many of the patients in our setup were treated on out-door basis and hence missed out the inclusion.

Every effort was made to preserve the thumb to retain the functional use of hand, as it accounts for about 40% of hand function. The thumb had to be sacrificed in 23% of the cases. And amputation of hand at wrist was undertaken in only two cases. This is in contrast to the observation of 35% amputations in the study by Mann RJ et al.<sup>18</sup> The obvious reasons could be small sample size (only 20 patients included), widespread infection, decreased host resistance and late presentation; all the factors played a key role in the outcome of diabetic hand. Notably no patient died in our study as compared to 100% mortality in Gill GV et al<sup>18</sup> study.

As there is no system for grading diabetic hand like Meggitt-Wagner classification of diabetic foot<sup>20</sup>, there remains a need to recognize it as a separate entity as 'diabetic hand' because without a hand, one is handicapped. As almost all the affectees were manual workers, it also emphasizes the need of early recognition and treatment of the condition. Depending on our observations, we have evolved a grading system for Diabetic Hand (Table IV).

Diabetic Hand, although not as common, yet constitutes a serious complication of diabetes mellitus. Patients should be educated about hand problems and management because early interventions can halt the disease process and minimize the threatening disability. While performing any intervention, every effort should be directed to 'save the hand'. Moreover, good glycaemic control remains the mainstay of treatment and preventing the 'diabetic hand'.

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# AETIOLOGY OF SOLITARY THYROID NODULE

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## ABSTRACT:

*A Study was conducted in Ward-3 Jinnah postgraduate Medical centre, Karachi from January 1997 to December 2001 (5 years) to find the aetiology of solitary thyroid nodule in our setup.*

*One hundred and one patients with Solitary Thyroid Nodules both males and females above 12 years of age admitted in ward 3 after carrying out all the necessary investigations for Solitary Thyroid nodules in the surgical outpatients were included in study. Hemi-thyroidectomies were performed and histopathological examinations were done at the Basic Medical Sciences Institute of the Jinnah Postgraduate medical Centre. The final diagnosis was made on histopathology.*

*Relative incidence of Carcinoma Thyroid was very high (36.63%). Other causes of Solitary Thyroid Nodules were Nodular goiter (25.74%), Follicular adenoma (19.92%), Thyroiditis (10.89%), Cyst (3.96%) Colloid Goiter (1.98%) and Hyperplasia (0.99%).*

*Incidence of Carcinoma Thyroid especially follicular is very high (36.63%) in our set up, as compared to other studies.*

*In our study, leading cause was Carcinoma Thyroid so surgery should be the treatment of choice for Solitary Thyroid nodules.*

**KEY WORDS:** Solitary Thyroid Nodules, Carcinoma Thyroid.

## INTRODUCTION

The importance of Solitary Thyroid nodules is due to high risk of malignancy. 15%, Solitary Thyroid Nodules are malignant.<sup>1</sup> Most series report a 10 to 30% incidence of malignancy in excised nodules.<sup>3</sup> Frequency of cancer is significantly lower in female patients with cold nodules (4.2%) than in male patients (8.2%). Cold nodules are more common below 30 years of age and above 50 years of age.<sup>3</sup>

Other Benign causes of cold thyroid nodules are adenoma, thyroiditis, nodular Goiter and Colloid degenerative nodules.<sup>4</sup> 30% Solitary thyroid nodules are cysts and 10-15% cystic follicular swellings are histologically malignant.<sup>1</sup> Fine needle aspiration biopsy should be the first line test to assess thyroid nodule.<sup>5</sup> Its accuracy is 86% and specificity 94%.<sup>5</sup> In the initial evaluation ultrasonography of thyroid is recommended.<sup>6</sup> Thyroid radio nucleotide scans are less frequently used in

the initial evaluation of nodular goiter.<sup>6</sup> Tc99 MIBI scintigraphy is a useful method in the differential diagnosis of cold thyroid nodules. High MIBI uptake increase probability of differentiated thyroid cancer while decreased uptake actually excludes it.<sup>4</sup>

It is suggested that combination of fine needle aspiration biopsy and MIBI scan should be a routine diagnostic approach to cold thyroid nodules.

Measurement of serum thyroid autoantibodies and thyroglobulin in patients who has pain in thyroid nodules confirm the thyroiditis.<sup>7</sup>

Fine needle aspiration is simple, effective and cost saving method for elimination of thyroid cysts.<sup>8</sup> Ultrasound guided percutaneous ethanol injection of cystic thyroid nodules is a safe and effective therapeutic procedure. Results of this procedure are good.<sup>9</sup>

Benign colloid nodules are treated with suppressive doses of levo-thyroxin in few selected patients.<sup>10</sup>

Hot nodules can be treated with radioiodine or ethanol

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injection because hot nodules are often associated with subclinical hyperthyroidism.<sup>10</sup>

In another study, thyroid hormone therapy for one year resulted in 18% reduction in the size of benign thyroid nodules.<sup>11</sup>

Despite all, surgery is still considered as the primary therapy for patients with nodular goiter.<sup>6</sup>

After removal of thyroid nodules follow-up with screening thyroglobulin levels brings about the early diagnosis of thyroid tissues hypertrophy, before the appearance of thyroid nodules clinically.<sup>12</sup>

## SUBJECTS AND METHODS

A total of 101 patients were included in the study, conducted between January 1997 to December 2001. All the patients above 12 years of age, both males and females were included in the study. All the necessary investigations for solitary thyroid nodules were done in the surgical outpatient. All the patients had various indications for surgery like suspected malignancy, compression of trachea and oesophagus, neck discomfort, significant growth of nodules, recurrence of cyst after aspiration and cosmetic concern.

All the patients were admitted in ward 3 Jinnah Postgraduate Medical centre Karachi. Hemithyroidectomies were performed. Histopathological examination of the specimens of the thyroids were carried out at the Basic Medical Sciences Institute. The final diagnosis was made on the histopathological report. Causes of solitary thyroid nodules were narrated.

## RESULTS

Table No.1

(Aetiology of solitary thyroid nodule)

Total no. of patients = 101

**TABLE I (AETIOLOGY OF SOLITARY THYROID NODULE) TOTAL NO. OF PATIENTS = 101**

No.	Causes of Solitary Thyroid Nodules	No. of Patients	Percentage	95% C.I.
1.	Carcinoma of Thyroid	37	36.63	19.90 – 56.00
2.	Nodular Goiter	26	25.74	11.66 – 44.59
3.	Follicular adenoma	20	19.80	7.67 – 37.87
4.	Thyroiditis	11	10.89	2.66 – 26.80
5.	Cyst	4	3.96	0.23 – 16.63
6.	Colloid Goiter	2	1.98	---
7.	Hyperplasia	1	0.99	---

Table-I shows etiology of solitary thyroid nodules. Carcinoma thyroid was found to be the most common cause (36.63%) and nodular goites were present in

25.74% (26) patients. This was the second most common cause of solitary thyroid nodules. 19.80% (20) patients had Follicular adenoma. 56.47% (57) patients had tumors (adenoma and carcinoma) of thyroid. 11 patients (10.98%) were found to have Hashimoto's disease.

4 (3.96) patients had Haemorrhagic cystic lesion. 1.98% patients had colloid goiter and one (0.99%) had hyperplasia of the thyroid.

Table II

Relative Incidence of Primary Malignant Tumors of Thyroid

**TABLE II RELATIVE INCIDENCE OF PRIMARY MALIGNANT TUMORS OF THYROID TOTAL NO. OF PATIENTS = 37**

Relative incidence	No. of patients	Percentage	95% C.I.
Follicular carcinoma	17	45.95%	17.91 – 75.99
Papillary carcinoma	11	29.73%	7.82 – 61.72
Medullary carcinoma	6	16.22%	2.01 – 47.14
Anaplastic carcinoma	2	5.40%	0.03 – 32.34
Lymphoma	1	2.70%	---

Table 2 shows that among the 37 patients who had carcinoma of thyroid, 17 (45.95%) had follicular carcinoma and 11 (29.73%) and papillary carcinoma. A total of 28 (75.68%) patients had differentiated thyroid carcinoma. 6 (16.22%) patients out of these 37 patients had medullary carcinoma. 2 (5.4%) patients had anaplastic carcinoma and one (2.70%) had lymphoma on histopathological examination.

## DISCUSSION

Management of thyroid nodule is still controversial due to high incidence of carcinoma thyroid. In review of literature 15 to 20% cold nodules are malignant.<sup>8</sup> In most of the series the incidence of carcinoma thyroid is 10 to 30%.<sup>2</sup> As compared to these studies, in our study the incidence was 36.63% which is very high. This may be due to familial, environmental or dietary factors on literature reviews, relative incidence of papillary carcinoma is 60% and follicular carcinoma 17%, but in our study, follicular carcinoma (45.95%) was more common than papillary carcinoma (29.73%). This may be due to the reason that we had excluded children below 12 years of age from our study in which papillary carcinoma is more common. Medullary carcinoma, anaplastic carcinoma and lymphoma were slightly less common in our study as compared to other studies.<sup>1</sup>

In other series 30 to 40% patients with solitary thyroid nodules had follicular adenoma<sup>1</sup> but in our study it was

19.80%. The second most common cause in our study was nodular goiter (25.74%) which is also contrary to the other studies. Hashimoto's thyroiditis was found to be 10.89%, this is a higher incidence of Hashimoto's thyroiditis in our study as compared to other studies in a solitary thyroid nodule. It necessitates us to do the thyroid antibodies as a routine investigation. On literature reviews, solitary thyroid nodules are cystic in 30% of cases<sup>1</sup>. But in our study only 3.96% solitary thyroid nodules proved to be cystic.

In different studies<sup>12, 13, 14</sup> the treatment of benign thyroid nodule is aspiration of cysts, percutaneous ethanol injection and thyroid suppression therapy with thyroxine. But in our view surgery is still the primary treatment because patient follow up in our setup is poor, result of the fine needle aspiration biopsy especially in cystic swelling are controversial. Ultrasonography and Technetium-99 Methoxy isobutyl isonitryl scintigraphy combination with fine needle aspiration cytology will be able to exclude malignancy in solitary thyroid nodule and the above mentioned non operative methods may become more popular in the treatment of benign thyroid nodule.

Aetiology of solitary thyroid nodule in our setup is carcinoma thyroid, nodular goiter, follicular adenoma, Hashimoto's disease, cyst, colloid goiter and hyperplasia in this chronological order. Incidence of carcinoma thyroid is very high in our study as compared to other studies. Due to this high incidence, surgery still has a primary role in the management solitary thyroid nodule.

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# COMPARISON OF BUTORPHANOL AND PETHIDINE AN OPERATIVE ANALGESIA

AFTAB IMTIAZ

## ABSTRACT:

*This double blind randomized study was conducted in forty ASA I and ASA II patients age 20 to 60 years, scheduled for total abdominal hysterectomy. Butorphanol 20 micrograms/Kilogram proved to be an adequate analgesic supplement to nitrous, oxygen and relaxant anaesthesia with 0.5% halothane, for total abdominal hysterectomy surgery in majority of the patients. The patients remained stable intraoperatively; excessive cardiovascular responses to surgical stimuli were sufficiently suppressed and the technique provided satisfactory analgesia in the postoperative period. Recovery of consciousness and spontaneous ventilation presented no problems and the incidence of side effects was no different from pethidine.*

**KEY WORDS:** *Pethidine, operative analgesia, Butorphanol*

## INTRODUCTION

The international Association for the study of pain defined, "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage".

Pain and its management should be the top priority for any doctor because not only is it humanitarian to provide comfort to the patient but it also decreases the morbidity and mortality associated with surgery.

## MATERIAL AND METHODS

Diazepam 0.15 mg/kg was given orally two hours prior to surgery to all the patients.

Immediately prior to induction, pethidine was given to group A patients in a dose of 0.8 mg/kg intravenous injection and butorphanol in group B patients in a dose of 20 micrograms/kg intravenous injection in a blind manner. Anaesthesia was induced with thiopentone 4 mg/kg intravenously given over 20 seconds. Muscle relaxation was achieved by pancuronium 0.1 mg/kg. Three minutes were allowed before intubation. During this period the patient was ventilated by the Magill's circuit with 33 % oxygen and 66% nitrous oxide. Intubation was with a size 8.0 mm cuffed magills endotracheal tube. At least 10 minutes were allowed between injection of butorphanol or pethidine and skin incision.

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Patients were maintained with nitrous oxide and oxygen 66%. 33% Nitrous oxide was turned on immediately after induction and turned off at the time of reversal. Tidal volume was initially set at 10 ml/kg body weight. Respiratory rate was adjusted to maintain the end tidal Carbon dioxide between 35 and 45 mm Hg. Halothane 0.5% was started 5 minutes after intubation and stopped approximately 10 minutes before reversal. If two out of four signs of insufficient analgesia were present, i.e. Blood pressure more than 15% above baseline, Heart rate more than 15% above baseline, Sweating or Lacrimation. A supplemental dose of pethidine was given in Group A – 0.4 mg/kg intravenously, or butorphanol 10 micrograms/kg intravenously in Group B again in a blind manner. Muscle relaxant, 25% of the original dose supplements were given as required.

When further analgesia was required during the post operative period, it was given intramuscularly by the nursing staff, on demand by the patient. Post-operative dose of both the drugs was calculated in the following manner. Group A: Pethidine 0.8 mg/kg – 4 hourly PRN. Group B: Butorphanol 20 micrograms/kg – 4 hourly PRN. Full details of the time of administration, dose and route of administration of all doses of analgesics were recorded.

## RESULTS

The results in our study indicated that butorphanol was inferior to pethidine for attenuating the haemodynamic response to intubation. Butorphanol turned out to be a better choice in maintaining haemodynamic stability in the unstimulated.



The requirements of intraoperative top up analgesic supplementation were similar in both the groups. The only unwanted side effect observed was bradycardia in 25% of patients in the pethidine group. The heart rate did not drop to less than 60 per minute intraoperatively in any patient in the butorphanol group.

Recovery from anaesthesia in both groups was similar and none of the patients showed any significant depression of ventilation. In the recovery room one patient in pethidine group and two patients in butorphanol group were drowsy for half an hour.

The incidence of nausea was significantly high in the pethidine group, compared to the butorphanol group, but the incidence of vomiting was significantly higher in the butorphanol group.

The number of doses required in the postoperative period in the pethidine group were higher, compared to the butorphanol group withing 24 hours. The patient's impression of postoperative analgesia were similar in both groups.

## DISCUSSION

One of the major problems in the developing countries in the specialty of anaesthesia is the availability of drugs. Fentanyl is not yet freely available in Pakistan, and the only other pure narcotic analgesics available for intra operative use are pethidine and morphine. The availability of pethidine and morphine can be a problem as both these drugs are subjected to the Controlled Drugs Act with only a certain quota released to the hospitals at variable intervals. The potency of the locally manufactured drugs has also been questioned at times due to lack of good quality control.

Butorphanol, being an uncontrolled drug in Pakistan, is easily available. Butorphanol's low abuse potential, cardiovascular stability and potential safety in overdosage are advantages of this drug over others.

Butorphanol has been compared to fentanyl for intraoperative use in ambulatory gynaecological surgery. It has also been compared to pethidine for postoperative analgesia.

Different authors have recommended different doses of butorphanol. In a study by Carl he stated that drowsiness may indicate a state of relaxation in the presence of good post operative pain suppression. Many anaesthetists feel this is frequently an advantage in hospitalized patients, both before the operation when drowsiness is desirable and following the operation, when sleep and rest are essential for recovery. We also did not consider it a disadvantage, as all our patients were easily rousable.

The commonest side effects in the delayed recovery period were nausea and vomiting. The incidence of above complaints can probably be reduced by giving

prophylactic antiemetic along with the analgesic injection. A significant advantage with both drugs was that they carry over effect of analgesia into the post operative period.

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# PATTERN AND CHARACTERISTICS OF INJURIES IN ASSAULT PATIENTS

TAHIR ALI

## INTRODUCTION

According to the results of British Crime Surveys in 1985 and 1989 and Police Crime Statistics there has been a dramatic increase in the incidence of violence in Britain; over the recent years. Inter-personal violence now is the most common cause of fractures of the facial skeleton in Britain and many other developed countries.<sup>1,2,3,4,5,6,7,8,9</sup> From 1974 to 1984 numbers of assault and wounding doubled (from 62,000 to 112,000).

There are many etiological factors which contribute in assault and to the increase in number of cases. For example, employment status,<sup>10,11</sup> alcohol,<sup>12,13,14</sup> urbanization<sup>10</sup> family background,<sup>15</sup> and psychological factors.<sup>16,17</sup> Victims may be of any age group and of either sex. Children are not of course free from the effects of socio-economic deprivation, which may contribute to child abuse.<sup>18</sup> Women are also vulnerable in many circumstances.<sup>19,20</sup> Nevertheless, some sections of the society are particularly prone to involvement and injury in violent incidents.

Men aged 17-25 are by far the most important group numerically in nearly all the societies. In Britain, the elderly are at very low risk of assault, even when activity rates are taken into account.

## TYPES OF VIOLENCE AND ASSAULT

Terminology in relation to violence has been developed to describe criminological, public health and military approaches. Thus, criminologists refer to violent crimes of greater or lesser gravity whereas, in medicine, terms such as assault, intentional injury or inter-personal violence are favoured. In warfare, "casualties" and "Injury production" are well-established terms. Interestingly, road traffic accidents are not counted as assaults, though many may be partly intentional and drivers often treat vehicles as extensions of themselves.

Inter-personal violence includes family violence of different

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types, riots, drug related incidents, rape, robbery, marital, pre-marital, cohabitant violence.

Family violence<sup>21,22</sup> includes any violence in a family context. It may be marital when partners attack each other. Violence directed against the elderly and child abuse are also included. Pre-marital violence is not uncommon and it often involves cohabitants or engaged persons. Riots may involve sport followers (such as football hooliganism)<sup>23</sup> or different racial,<sup>24,25</sup> religious or political groups. Alcohol is the major cause of drug-related violence. War is also a category of assault

"The essence of war is violence"

(Macaulay, Thomas Babington – The English historian and statesman 1800 – 1859).<sup>26</sup>

## PATTERN OF INJURIES IN ASSAULT

Injuries may be characterised in terms of soft tissue and bony. Bruise, Contusion, ecchymosis, haematoma and laceration can occur anywhere; but commonly involve the face, as do fractures in the UK.<sup>1,2,3,4,5,6,7,8,9</sup>

Studies carried out in Britain have shown that approximately two-thirds of all the lacerations and slightly less than two thirds of all the haematomas after assaults affect the face. The second most common site of injury in assault in Britain appears to be the upper limb, probably because many "victims" strike their assailant and injured their hands in doing so. Less frequent are chest, head and neck injuries. This may be due to the tendency of male assailants to avoid striking the female face so that the injuries will not be apparent to onlookers later, or there may be some as yet undefined psychological reason for this.<sup>27</sup>

The left side of the face is the commonest area to be injured in assault patients in the UK, then the nose followed by the right side of the face. The middle third of the face is more commonly targeted than the upper or lower thirds.<sup>28</sup>

Inter-personal violence is perhaps the most common cause of fractures of facial skeleton in Western Europe.<sup>29</sup> The most common fractures are nasal, followed by mandibular and zygomatic. Le Fort pattern of fractures are rarely seen.<sup>27</sup>

## CHARACTERISTICS OF WOUNDS IN ASSAULTS

There are many factors which determine the nature and extent of wounds (30):

1. The nature of the weapon (e.g. sharp or blunt).
2. The total amount of energy expended during impact, (e.g. body weight, velocity of projectiles).
3. The conditions under which the energy is expended (e.g. body movement on impact).
4. The nature of the affected tissue (e.g. skin, muscle or bone).

Thus, a broken glass causes a different injury compared to the fist. A direct impact will cause more injury than a glancing blow. The head will remain relatively stationary if lying on a pavement but it can 'recoil' if the victim is standing. In an abdominal impact of a fist, the overlying skin will resist the traction forces but provide limited protection to the internal structures, but when skin covers bone (e.g. scalp or tibia) it is liable to crush which affect sub-cutaneous tissues and cause disruption of the dermis and bleeding. Muscles behave similarly, but they provide some protection. They will be injured when the skeleton to which they are attached is fractured. Bones, particularly in children are less prone to fracture due to their elasticity; and elderly, they are more vulnerable. In relation to joints forces of impact may be transmitted to distant sites (e.g. Clavicular fractures in case of falls where the upper limb is rigid.<sup>31,32</sup>

## BRUISES AND HAEMATOMAS

Ecchymosis are localised effusion of blood into the tissues which then become clotted and discoloured. They are usually caused by blunt trauma and may be associated with abrasions (i.e. frictional wounds affecting the dermis and epidermis). These can be extensive after relatively minor trauma, as in the eyelids and neck or in the obese and in those with systemic bleeding disorders.<sup>30</sup>

## LACERATIONS

A laceration is a wound produced by tearing. It may be incised, lacerated or punctured. It can be caused by sharp, blunt or pointed weapons. Sharp weapons produce linear clean cut or everted wounds while blunt weapons usually produce irregular, ragged or undermined wounds. Pointed weapons produce wounds with depth greater than length or width.<sup>30</sup>

## FRACTURES

Fractures represent breaks, ruptures or cracks in bones or cartilages. Fractures may be simple (two fragments) or comminuted (more than two fragments). They may be open or compound, when there is a communication with skin or mucous membrane, or closed when there is no open

wound in the overlying skin or mucosa. In terms of planes, fractures may be spiral, oblique, or transverse. In long bones they may be epiphyseal, metaphyseal or diaphyseal. These injuries are usually characterised by pain, swelling, deformity, ecchymosis, instability and crepitus.<sup>33</sup>

## CHILDREN AND ASSAULT

Characteristically, the most common injury is bruising.<sup>34</sup> Surprisingly, haematomas were present in the region of the labial frenulum in 50% of victims in one series,<sup>35</sup> and subgaleal haematomas were also common. Multiple haematomas have been found affecting the trunk and buttocks and to a lesser extent, the head and proximal segments of the extremities.<sup>36</sup> Because trauma is often directed at the trunk, it causes visceral injuries<sup>37</sup> affecting liver, spleen, kidney and small bowel.<sup>38</sup> Eye injuries have also been described, which include eyelid wounds,<sup>39</sup> retinal haemorrhages<sup>40</sup> or peripheral chorioretinal atrophy.<sup>41</sup> Infrequently, burns have also been described.<sup>42</sup>

Epiphyseal fractures, exaggerated periosteal reactions and multiplicity of lesions suggest repeated pulling and twisting of long bones in infants.<sup>43</sup>

## INJURIES SUSTAINED IN WARFARE

As injuries reflect the type of weapon used in the battlefield, war-injuries are much more complex than in those sustained in civilian assault.

Penetrating, perforating, or avulsive wounds are usually caused by low (below 1000 feet/s), medium (between 1000 and 2000 feet/s), or high (3000 feet/s) bullets. It is however, impact velocity which is the most important determinant of wound type and severity.

Lower velocity bullets produce wounds with relatively little damage (usually lacerations and crushing effects and with bone fragments spread at right angles along the wound track). In general, a high velocity bullet will produce a small entrance and a large exit wound (44). A high velocity missile wound will be relatively large, contaminated and devitalised tissue around the missile track is a frequent feature (45).

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# CONCOMITANT INGUINAL AND INTRAPERITONEAL HERNIAS IN AN INFANT

## CASE REPORT

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### ABSTRACT:

*A rare case of concomitant inguinal and intraperitoneal hernia in a three months old child is presented. The child presented with intestinal obstruction. It is important to be extra vigilant while operating on a case of hernia especially in an infant because there may be other associated pathology.*

**Key words:-** Inguinal, Hernia. Intraperitoneal. Volvulus.

### CASE REPORT

A three months old child presented with one-day history of abdominal distention, vomiting and swelling in the left groin. The groin swelling was present since birth and used to disappear spontaneously while asleep. But for the last one day it was not only persistent but also increased in size and had become painful. There was no history of premature birth.

Examination revealed a dehydrated, irritable child with distended and tender abdomen. There was 3x4cm tense and tender inguino-scrotal swelling. Bowel sounds were exaggerated and rectum was empty. Examination of chest didn't reveal any abnormality. His haemoglobin was 15gm/dl, TLC was 16,000/mm<sup>3</sup>, serum urea and electrolytes were within normal limits. Diagnosing the condition as a strangulated inguinal hernia the patient was explored through an inguinoscrotal incision. The sac contained viable small bowel and surprisingly there was no constricting ring. Both afferent and efferent loops of the gut were dilated. Therefore the peritoneal cavity was explored by extending the same incision to look for any other abnormality. It was found that the small gut had herniated through a defect in the sigmoid mesocolon, forming a volvulus and causing intestinal obstruction. The twisted

loops were viable. In addition to this the caecum was mobile and had a long mesentery. No hernia was seen on the contralateral side. The volvulus was corrected, intestine passing through the sigmoid mesocolon was reduced and the defect in the mesentery was closed. Caecum was brought to the right iliac fossa and caecopexy was performed. Inguinal herniotomy was done and wound closed. Post-operative recovery was smooth.

### DISCUSSION:

Inguinal hernia is a common problem of infants and children. Incidence of inguinal hernia varies with gestational age of the patients ranging from 9-11% in full term infants to 30 to 35% in premature babies<sup>1</sup>. It is more common on right side because delayed descent of the right testis may lead to patency of processus vaginalis. In 7-8% cases it is bilateral<sup>2</sup> and premature infants are more likely to have bilateral hernias. Up to 15% of infants with congenital hernias are likely to develop bowel incarcerations in the first year of life<sup>3</sup>. This can lead to strangulation of gut and perforation<sup>4</sup>. Because of the high incidence of these complications it is recommended that these cases should be operated soon after diagnosis<sup>5</sup>.

Repair of inguinal hernia in infants require only ligation of the hernial sac or the peritoneo-vaginal tract at its most proximal point<sup>6</sup>. Contralateral exploration was routinely recommended in children on the basis of high incidence of patency of the processus vaginalis, but this is no longer

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essential<sup>2</sup>. Exploration in a case of obstructed/incarcerated hernia is not different from adults. Usual peroperative findings are that the afferent loop is dilated and efferent loop is collapsed. In this child the efferent loop was distended, which was very unusual. This was an indication for examination of the peritoneal cavity to find out some other pathology. Two other concomitant abnormalities were found—internal herniation of gut through a congenital defect and a mobile caecum.

Congenital intraperitoneal hernias can be divided into two types according to the presence or absence of a hernial sac. Hernias that occur through defects in the mesenteries or peritoneal folds do not have a hernial sac<sup>7</sup>. Others are due to abnormalities of gut rotation.

The first type is caused by herniation of gut or omentum through defects in a mesentery or broad ligament of uterus. While acute presentation is usual in such cases, some of them may present with history of chronic intestinal obstruction<sup>8</sup>. The constricting ring usually contains major vessels, which must be kept in mind while releasing these rings<sup>9</sup>. The distended loops of intestine are decompressed before reduction<sup>10</sup>.

The second type includes paraduodenal or mesocolic hernias that are secondary to intestinal malrotations. This type contains a sac, which may be composed of the mesentery of colon (mesocolic hernia). Both types of intraperitoneal hernias can lead to volvulus and intestinal obstruction<sup>11</sup>.

Anatomically mobile caecum is found in 11% of populations<sup>12</sup>. The unusual mobility of the caecum predisposes it to a volvulus but this is surprisingly uncommon. The volvulus can occur axially, turning the ileocaecal junction to the right, or the caecum can become folded on itself without twisting so that the appendix points towards the diaphragm<sup>13</sup>. In any case this can lead to mechanical intestinal obstruction and gangrene of caecum. Treatment includes urgent surgical intervention. Various surgical options include detorsion alone, caecopexy, caecostomy and right hemi-colectomy. Even in a common procedure like hernia repair, a high index of suspicion must be exercised if one does not want to miss a concomitant critical pathology.

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# PSEUDOMYXOMA PERITONEI SYNDROME

## A DIAGNOSTIC DILEMMA

### CASE REPORT

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#### ABSTRACT:

*Pseudomyxoma Peritonei Syndrome is a rare condition. Preoperative clinical diagnosis and to sort out the primary pathology is still a diagnostic dilemma. Although C.T scan, TAG-72 antigen and analysis of CK-7, 18,CEA and HAM56 are used but there accuracy in determining Pseudomyxoma Peritonei Syndrome is still debatable. A patient presented to us in which diagnosis of Pseudomyxoma Peritonei Syndrome was made preoperatively but we were unaware of the primary pathology despite thorough investigations.*

**Key words:-** Pseudomyxoma Peritonei, Mucinous adenocarcinoma, Appendix

#### INTRODUCTION

The term "Pseudomyxoma Peritonei" was first used by Werth in 1884 to describe a specific pathological entity that followed rupture of a pseudomucinous cyst of the ovary. Later in 1901, Frankel reported Pseudomyxoma Peritonei due to rupture of mucocoele of the appendix.<sup>1</sup> The term "Pseudomyxoma Peritonei" has been used in reference to any condition, benign or malignant in which the peritoneal cavity is filled with a gelatinous substance.<sup>2</sup> The condition is more frequent in female.<sup>3</sup> Women make up 80% of the total patients. The average age at diagnosis is 45 to 55 years.<sup>4</sup> It is often painless and there is usually no impairment of general health for a long time.<sup>3</sup> The initial presentation may be subtle, with pain in half of the patients. 80% have a palpable mass.<sup>4</sup> This tumor is only superficially invasive and does not metastasize but it is a fatal disease. Extra abdominal spread of Pseudomyxoma Peritonei is a rare occurrence but in some patients dissecting mucinous tumor may infiltrate through the diaphragm and result in pleural extension.<sup>5</sup> Currently the histological aspect permits to separate the "diffuse peritoneal adenomucinosis" (DPAM) originating from adenoma have relatively benign course while that from "mucinous peritoneal carcinomatosis" (MPC) originating from adenocarcinoma have a poor prognosis.<sup>6</sup> The pathophysiology of mucin

deposition is defined by redistribution phenomenon. The adenomatous cells are distributed according to the fluid flow and gravitational forces within the peritoneal cavity. The small bowel is relatively spared late in the disease.<sup>2</sup> Pseudomyxoma Peritonei should be differentiated from peritoneal carcinomatosis of colon or gastric tumor, peritoneal sarcomatosis and peritoneal mesothelioma.<sup>7</sup> We report a case of Pseudomyxoma Peritonei in which despite through investigation primary site of lesion was obscured.

#### CASE REPORT

A 48 years old male presented in surgical unit 111 of Bolan Medical College Hospital (BMCH) Quetta, with a history of swelling in right inguinal region, umbilical area and upper part of the abdomen from last 18 months. Firstly inguinal swelling appeared, which was small in size and reducible. Gradually this swelling increased in size and became irreducible for the last 18 months. Then a swelling at the umbilical region appeared, which was also small in size and reducible. Gradually this swelling increased in size and became irreducible for the last 15 months. A swelling appeared in the upper half of the abdomen which gradually increased in size over one year. There was no associated history of fever, haematemesis, haemoptysis, melena, altered bowel habit, jaundice or cough. There was a significant history of weight loss of about 10 kg.

On examination he was well built, conscious and well oriented. His vitals were normal. Anemia, jaundice and cyanosis were absent. Lymph nodes were not palpable.

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Systemic examination of the abdomen revealed a large mass in the upper half of the abdomen involving epigastrium, both hypochondriums, umbilical and right lumbar region. It was 17x34 cm, irregular with well defined margins, firm and mobile. Palpating finger easily went under both costal margins. Liver, spleen and kidneys were not palpable. Umbilical swelling was 7x7 cm, irregular, well defined margins, hard in consistency and irreducible. On performing Carnet's test upper abdominal swelling became invisible while umbilical swelling became more prominent. Inguinoscrotal swelling was extending from the right inguinal region to the base of the scrotum. It was 21x10cm, oval, upper limit was not palpable. If was firm transillumination test was negative and it was irreducible. Both testes were normal in size and they were separately palpable. All the above three swellings were dull on percussion and no sound was audible. Digital rectal examination revealed Blummer shelves only. Examination of respiratory, cardiovascular and nervous system revealed no abnormality.

Hematological investigation showed that Hb% was 14.3gm/dl, TLC 5800/mm<sup>3</sup> (N 66%, L 28%, M4%, E 2%), blood sugar 3.9m.mol/l, blood urea 3.7m.mol/l, creatinine 66.5 mol/l, bilirubin 0.8mg/dl, alkaline phosphatase 264u/l, ALT 34u/l, amylase 101u/l, and HbsAG was -ve. Urinary analysis was normal. Radiological examination was also performed. Ultrasonography revealed that the mass in the epigastric region, umbilical area and Inguinoscrotal region was heterogeneous and there was omental kecking while rest of the viscera were normal. Computed tomography of abdomen performed with oral and I/V contrast revealed the appearance suggestive of pseudomyxoma peritonei while primary pathology was not detected. Upper G.I endoscopy revealed only candida infection of the esophagus while lower G.I endoscopy was normal. FNAC of umbilical mass and Inguinoscrotal swelling revealed that these were consistent with mucinous adenocarcinoma. Finally a diagnosis of pseudomyxoma peritonei was made. Initial plan of radical, debulking surgery was made. All the pros and cons were discussed with the patient and consent was taken.

Abdomen was opened via midline incision. It was observed that parietal peritoneum was heavily studded with thick nodules, some of them were full of jelly like material. Whole of the abdomen was 'jelly belly'. Greater omentum was thickened and presented as a huge mass in the upper abdomen with full of nodules and jelly like masses. Small intestine was studded with multiple nodules and adheres to each other. Colon and pelvic cavity were also involved. There was minimal amount of free jelly like fluid present in the peritoneal cavity, which was sucked out. Appendix was dissected out which was also studded with nodules. Appendectomy was performed considering as a primary

pathology. Extensive surgical debulking was performed, hemostasis was secured and wound closed. Postoperative recovery was uneventful. Patient was sent to the oncology department for further management.

## DISCUSSION

Pseudomyxoma peritonei syndrome is a rare disease arising from perforation of an adenoma or adenocarcinoma of the appendix.<sup>5</sup> The coincidence of appendiceal diverticulum and appendiceal low grade mucinous neoplasm is considered to be a possible pathogenesis of Pseudomyxoma peritonei. This could occur either by involvement of pre-existing diverticula by the neoplasm or by distension of the appendicular lumen by mucin leading to increased Intraluminal pressure and subsequent diverticular formation at a weak area in the wall.<sup>6</sup> Conventional radiology provides only a delineation of low density area, relating gelatinous masses accumulating in the peritoneal cavity.<sup>9</sup> The appearance of appendiceal mucocele is quite characteristic and can be diagnosed on C.T. Computed tomography can also depict additional finding suggestive of pseudomyxoma peritonei.<sup>10</sup> TAG-72 antigen on epithelial carcinoma was used for diagnosis of pseudomyxoma peritonei. Radiolabelled B72.3MoAb recognizing TAG-72 antigen is also present with in pseudomyxoma cells. It can be used for radioimmunohistochemistry of pseudomyxoma peritonei.<sup>9</sup> Recent studies, which have investigated the histological and immunohistochemical profile of these tumors, showed that ovarian tumor in most cases are secondary to the appendiceal tumor. Despite extensive immunohistochemical examination (analysis of CK7, 18,20, CEA, HAM56) it may be difficult to determine the histogenetic origin of pseudomyxoma peritonei.<sup>11</sup>

Aggressive surgical debulking should be attempted at the first laparotomy by an experienced surgeon.<sup>2</sup> Residual gelatinous tumor with varying degree of adherence always remains on the abdominal viscera after standard excisional therapy. Traditionally this has been removed by "electroevaporation" with ball tip diathermy, but this is associated with an extensive peritoneal burn and associated ileus. 'Ultrasonic surgical aspirator' used as a safe and efficient method of tumor removal in these cases.<sup>12</sup> Intraperitoneal chemotherapy with Mitomycin C and 5- Fluorouracil have very effective role.<sup>7</sup> Patient with complete cytoreduction after surgery (tumor nodule<2.5mm) the 5 year survival was of 86%. With hybrid pathology survival at 5 year was 50%. Incomplete cytoreduction had a 5-year survival of 20% and 0% at 10 years.<sup>7</sup>

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# RECURRENT PERIANAL SINUSES: AN UNUSUAL AETIOLOGY

## CASE REPORT

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### ABSTRACT:

*A seven years old boy presented with discharge from sinuses in perianal region. Previous attempts at surgery failed to give any relief. Exploration at third attempt revealed presence of nylon suture in the depth of the sinus tract that was applied in the past for recurrent rectal prolapse.*

**Key words:-** Perianal sinus, Etiology, Thiersch stitch

### INTRODUCTION

Fistula in ano and perianal abscesses occur infrequently in children. The aetiology of fistula in ano in infancy differs from that in adult.<sup>1</sup> Multiple fistulae in ano can be result of tuberculosis, Crohn's disease etc but again they are very rare in paediatric population. In this case report we describe a rare cause of perianal discharge which to our knowledge has not been reported previously.

### CASE REPORT

A seven year old male child presented with recurrent discharge from perianal region for the last 1½ years. It was associated with painful defaecation. On two previous occasions fistulotomy was attempted but discharge recurred. On clinical examination no abnormality found. Perineal examination revealed four fistulae at 4, 6, 9 and 11 O' clock position. No fissure or excoriation was present. On digital rectal examination no induration felt inside anal canal. Discharge was thin and non smelly. This time he was further evaluated for tuberculosis. ESR and Montoux test were within normal range. He was explored again. This time it was decided to go for fistulectomy. On attempted resection of one tract it was felt that pull on the tissue resulted in perianal skin wrinkling in a ring form. The tract

was further dissected and found to be going well into the depth of perianal region. At this point a foreign body was felt which on further dissection turned out to be a nylon suture going around the anal canal. Sinuses were communicating with the suture. All tracts were excised. There was no communication with the lumen of bowel. Post operative recovery was uneventful. The wound healed with in two weeks. On specific questioning mother told that some procedure was done under general anaesthesia three years back in another hospital in other town for recurrent rectal prolapse. She had no record of that. We assume that at previous surgery elsewhere Thiersch stitch was applied which parents never knew. This non absorbable suture resulted in recurrent perianal discharge.

### DISCUSSION

Rectal prolapse is a common condition in children the management of which is still controversial. It usually occurs in malnourished children with either loose motions or constipation.<sup>2</sup> Thiersch stitch and its modifications are used as an interim measure to tied acute emergency in patients too sick to recover early. It application helps in perianal tissue to regain tone and also helps in preventing prolapse by mechanical means.<sup>3</sup> The problem with Thiersch stitch is that it is a double edged weapon. Although it is helpful in overcoming acute emergency<sup>2</sup> but if left as such and not removed completely, results in chronic constipation and at times anal fissure. It is therefore recommended that Thiersch stitch should be placed only

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when follow up is ensured. The choice of suture should be a non-absorbable, non-irritant material. Catgut should be avoided as it causes severe inflammation. In this regard delayed absorbing suture like polyglycolic should also be avoided. Perianal sinuses secondary to forgotten non-absorbable perianal stitch is never reported before. Possibility of this rare aetiology should be kept in mind when one comes across unusual presentation.

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# HYDATID CYST IN A SUBMANDIBULAR GLAND

## CASE REPORT

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### ABSTRACT:

*A rare case of hydatid cyst (Echinococcus Granulosus) in the submandibular gland of a young man is reported. Clinically the history and examination did not raise any suspicion of this disease occurring at such a rare site. It was during the operative procedure that the hydatid cyst was found in the submandibular gland and this was confirmed on histology.*

**Key words:-** Hydatidosis, Echinococcus granulosus, Submandibular gland.

### INTRODUCTION

Hydatidosis is a zoonotic infection in which man is really the intermediate host of the etiological agent Echinococcus Granulosus, a species of tapeworm<sup>1</sup>. The other species of Echinococcus are E. Multilocularis E. Oligarthus and E. Vogleri. In humans, most common form of hydatidosis is caused by E. granulosus, which forms single fluid filled cyst producing discrete space occupying lesions.<sup>2</sup> E. Granulosus infects canines such as domestic dogs and wolves etc. Man becomes infected when he ingests ova. The ova hatch in the duodenum liberating the embryo, hexacanth that then invades the mucosa and bowel capillaries and gains entrance into the hepatic portal system. Once in circulation most embryos are filtered out of blood within the liver. The embryos pass through the liver; they may eventually infect the lungs, brain, spinal column, bones, other visceral organs or thyroid.<sup>1</sup> The incubation period is long extending from several months to years and infections are frequently asymptomatic and chronic. The disease is endemic in sheep raising areas like 'Mediterranean, Australia and South America.'<sup>1</sup> Other areas affected are parts of Africa, southern and eastern Europe and Asian landmass from Turkey to China.<sup>2</sup>

It is difficult to diagnose hydatid disease because of its rather non specific signs and symptoms; it may be asymptomatic, or may cause symptoms due to pressure effects or an abscess due to secondary infection or may cause symptoms due to complications like jaundice and

rupture into adjacent organ. The need for good history noting any association with dog is important, and the differential diagnosis should rule out malignancy, bacterial abscess and amoebic abscess.<sup>1</sup> The laboratory diagnosis of hydatidosis is based on serological tests. Most commonly used are the compliment fixation test, indirect fluorescent antibody test and enzyme linked immunosorbent assay (ELISA) test.<sup>2</sup> Radiological tests include x-rays, ultrasound and C.T scan.

Here we report a rare case of hydatidosis in submandibular gland, which was diagnosed during operation.

### CASE REPORT

A young man, 35 years old, clinic attendant presented with history of a lump in the left submandibular region for more than six months. The lump was initially small and gradually increased in size. It did not bother him but was becoming apparent and causing disfigurement to his facial appearance. There was nothing significant in his history except that he was addicted to eating 'pan' for five years. He used to eat more than 10 'pans' per day and the pans were 'Patti' (Tamak) wala (tobacco) pans.

On examination the patient was a young healthy looking man with obvious swelling of the left submandibular area. Local examination confirmed a small rounded swelling in left submandibular region. It was slightly mobile side to side, firm in consistency, and bimanually palpable. Examination of his ear, nose and throat excluded any other pathology.

An ultrasound examination of this swelling revealed a fluid filled cyst. About 5cc of clear fluid with few tiny whitish particles in it was aspirated with a 23-gauge needle

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attached to a syringe. This fluid was sent for cytological examination, and did not show any malignant cells. The swelling became inflammatory and painful after needle aspiration. The patient was prescribed analgesics and antibiotics. The inflammation subsided but the swelling persisted and was explored under general anaesthesia with the planning of excision of left submandibular gland. During dissection the cyst ruptured with leakage of clear fluid which was quickly aspirated and the white laminated membrane, the ectocyst became obvious and only then it was diagnosed as hydatid cyst (see photograph), further confirmed after complete dissection and histopathology.



**Figure 1:** Photograph showing laminated membrane; the ectocyst along with the excised submandibular gland.

## DISCUSSION

The hydatid cysts are reported in almost all body tissues, as well as in the neck<sup>3</sup> and in the tongue.<sup>4</sup> Only one case of *Echinococcus Oligarthus* in submandibular gland<sup>5</sup> is reported in the literature (Medline and Extramed) over last ten years. Thus making this case of *E. granulosus* in submandibular gland, a rare case. As *E. oligarthus* is found

only in South America<sup>2</sup> and probably this case of *E. granulosus* in submandibular gland may be considered as the first case reported in the literature, unless proved otherwise.

The treatment of hydatid cyst is mainly surgical. Standard procedure for treating most cysts in soft tissue of any organ is evacuation of the cyst and obliteration of the residual cavity.<sup>2</sup> Perioperative Albendazole and Praziquantel are also recommended.<sup>6</sup> Percutaneous aspiration of cyst as an alternative to surgery has shown encouraging results.<sup>7</sup> Drug treatment with albendazole may also be considered along with surgery or percutaneous aspiration. It is also recommended in situations where surgery cannot be performed or when there is recurrence.<sup>2</sup>

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# A RARE PRESENTATION OF SCHWANNOMA (NEURILEMOMA)

## CASE REPORT

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### ABSTRACT:

*Schwannoma (Neurilemoma) is one of the truly encapsulated neoplasms of the human body and is almost always solid and solitary. A cystic mass in the neck was evaluated, diagnosed and treated as solitary giant cystic lesion, which on histopathology proved to be a Schwannoma (cystic variety). The interesting case and current literature review is presented.*

**Key words:-** Cystic lesion, Schwannoma, Antony type A and B. Schwannoma.

### CASE PRESENTATION

A 68 years old pensioner Junior Commissioned Officer presented with a painless progressive swelling on the left lateral side of neck for the last twelve years. He was an old asthmatic, hypertensive for the last 20 years but otherwise in good health.

He noticed a pea sized swelling in the middle of the left lateral side of neck. It grew painlessly and insidiously to the size of 12 - 15cm. He had no symptoms, A feeling of a cumbersome mass were unpleasant. Earlier he had consulted a surgeon, but operation was not recommended due to hypertensive and asthmatic status.

Clinical examination revealed a well built, robust man. His vitals were within normal limits, except high blood pressure, 200 over 120 mmHg and a wheezy chest. Rest of the examination revealed no abnormality.

Local examination of the neck revealed a nontender, apparently cystic, subcutaneous mass of 12-15 cm. The skin temperature and colour were normal and there were no dilated veins.

The lesion was reasonably mobile, occupying both the triangles of neck. It was fluctuant and semitranslucent. There was no lymphadenopathy. Examination of the oropharynx and cervical spine revealed no abnormality.

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Ultrasonography of the swelling revealed a 12 x 12cm multiple cystic mass with internal echoes, displacing the vessels medially. Contours were well defined. X-Ray Chest and cervical spine showed a soft tissue mass in the left lateral side of neck, without any calcification or skeletal abnormality. CT scan of the neck demonstrated an essentially well outlined cystic mass size 12 x 10 cm.

A provisional diagnosis of hydatid cyst was considered. Under general anesthesia, the soft cystic mass was easily enucleated, which was found deep to trapezius and sternocleidomastoid muscles, partially pushing the carotid sheath medially. The wound was closed with redovac drain and the specimen sent for histopathology. Histopathology amazed us with the diagnosis of Schwannoma with cystic degeneration (Antony type B- a very rare variety. (Fig. I and II).



Figure I

## DISCUSSION

Schwannomas (Neurilemmomas) are essentially benign non neoplastic overgrowth of schwann cells. A very rare variety of malignant schwannoma also designated as malignant peripheral nerve sheath tumor (MPNST) or neurofibrosarcoma, has also been described. (1-9). The most common sites for schwannoma are the flexor surfaces of the extremities, neck, mediastinum, retroperitoneum, posterior spinal roots and cerebellopontine angle (2).

The nerve of origin can be demonstrated in the periphery flattened along the capsule, but not penetrating the substance of the tumor.



Figure II

Essentially these are well encapsulated, almost always solid lesions, except the rare variety of Giant tumor which may become cystic. (as demonstrated in the case presented).

Microscopic appearance is distinctive. Two different patterns are recognized, designated by Antony as A and B. The type A areas which in small tumors comprise almost their entirety are quite cellular, composed of spindle cells often arranged in a palisading fashion or in an organoid arrangement (Verocay bodies)(3). In type B areas the tumor cells are separated by abundant oedematous fluid, that forms cystic spaces (case illustrated) (4).

The malignant variety is very very rare, and on histology reveals presence of melanin pigments. It sometimes contains Psamoma bodies and are designated psammomatous melanotic schwannomas. It is generally agreed that this neoplasm originates from schwann cells, hence the current preference for the term schwannoma.

Under electron microscopy, the tumor cells have a continuous basal lamina, numerous extremely thin cytoplasmic processes, aggregates of intracytoplasmic microfibrils, peculiar intracytoplasmic lamellar bodies, and extracellular long spacing collagen (4-5).

Immunohistochemically, the tumor cells show immunoreactivity for S-100 protein, calcineurin, and basal lamina components (laminin, type IV collagen and merosin)(6, 10).

Malignant transformation of schwannoma is in contrast to neurofibroma - an exceptionally rare event. However several cases have been reported (7).

Cellular schwannomas are exclusively composed of Antony type A without organoid arrangements (Verocay bodies). These are found in retroperitoneum, pelvis and mediastinum. The differential diagnosis with low grade MPNST remains a difficult and controversial subject (8).

Psammomatous melanotic Schwannomas are a distinctive type which occurs as a component of the Carney's syndrome. Most arise from spinal nerve roots. It is characterized by the presence of melanin pigments and deposition of psammoma bodies. It is regarded as a low grade malignant neoplasm, with a tendency for local recurrence (5,7).

The essential treatment is complete excision with preservation of the nerve, which is almost always easily contemplated.

Schwannomas are essentially solid tumors. Cystic degeneration leading to a cystic mass in schwannoma is a rare change. Among the differential diagnoses of cystic lesions of the neck, this possibility should be borne in mind.

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# GIANT PLEOMORPHIC ADENOMA IN AN ADOLESCENCE

## CASE REPORT

GHULAM ASGHAR CHANNA, SHAMIM QURESHI, KAMRAN YOUSUF, KAMRAN MALIK

### ABSTRACT:

*A case of a 15 years old boy with Pleomorphic adenoma of the left parotid gland with suspicion of developing carcinoma ex-pleomorphic adenoma is presented. Medical literature was searched for relation between high proliferation index in the tumor and growth spurt in this age group patients.*

*It was a coincidental (Chance) finding. No such event in such tumors has been reported in the medical literature so far.*

**Key words:-** Pleomorphic adenoma, salivary gland tumor, rapid proliferation.

### INTRODUCTION

Pleomorphic adenoma is known to be the commonest benign tumor of parotid salivary gland, with predilection for the posterior inferior aspect of the superficial lobe. Women in forties are considered to be the common sufferers. Characteristically tumor adopts indolent course. Rapid increase in dimension, fixity, induration, ulceration, nerve involvement, nodal enlargement, excessive bosselation and infiltration of periphery are considered clinically suspicious features and drift to malignancy in an otherwise benign condition. 1% malignant mixed tumor arise ab initio the vast majority are from pre existing Pleomorphic adenoma, taking about 10 years to become carcinoma expleomorphic adenoma.<sup>1</sup>

Presence of pain does not confer higher risk of malignancy as pain may be caused by associated infection, hemorrhage or cystic enlargement of the gland itself.<sup>2</sup>

Pathologic factors of predictive value for carcinoma Ex-Pleomorphic adenoma are poorly defined. Two of the six pathological features significantly associated with the overall survival in salivary gland are tumor size ( $P = .012$ ) and proliferation index ( $P = .03$ ).<sup>3</sup>

We present a case of a 15 years old boy diagnosed as large Pleomorphic adenoma with clinical suspicion of

malignancy and radiological evidence of enlarged regional lymph node. Considering the large size of tumor we took modified approach than the recommended lazy incision.<sup>4</sup>

The objective of this case presentation is to Highlight the suspicious changes due to high proliferation taking place in the Pleomorphic adenoma at the time of puberty, otherwise remaining benign and adopting indolent course in childhood and to suggest a different approach to suit the size of tumor.

### CASE REPORT

A 15 years old boy presented with a large swelling in the left parotid region. This swelling was present since early childhood, but had shown recent rapid increase in size. Swelling was occupying whole of the parotid region extending Posteriorly to the occiput, anteriorly to the angle of the mouth inferiorly it was extending upto the clavical (Figure - 1).



Figure 1: Neck tumor

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The surface was irregular by marked by ulceration, pigmentation and scar formation. The consistency of mass was firm, immobile on the under lying structures. Facial nerve was not involved.

Two Fine Needle Aspiration cytology attempts were inconclusive. C. T. scan revealed a mass of mixed attenuation, 12 cm Cranio caudially, 11 cm A.P and 10 cm in transverse section. It showed necrosis, the remaining tissue enhancing after contrast injection. It was abutting on submandibular gland, shifting midline structures, and obliterating carotid artery, with multiple lymph nodes in the deep cervical region. Considering large size of tumor, possible involvement of carotid artery and clinical suspecion of malignancy we took a different approach. After obtaining control over the carotid artery, incision was modified to include the ulcerated area over the swelling extending obliquely down to the neck lateral to insertion of the sternocleido mastoid muscle. After mobilizing the mass near the posterior belly of digastric and tampano mastoid suture and mastoid, trunk of facial nerve were traced, the tumor was extensive displacing but was not seemingly infiltrating the perineural tissue of the facial nerve.

The mass weighing 800 gm with dimension delineated in C. T. scanning (14\*10\*10 cm) was removed (Figure 2).



Figure II: Neck tumor section

Postoperative there was small collection of serous fluid and haematoma formation. Patient got well and resumed schooling soon with no residual collection and facial palsy (Figure -3).



Figure III: 3rd P.o. day

Histopathology examination revealed benign tumor of epithelium and connective tissue with no malignant change-Pleomorphic adenoma.

## DISCUSSION

Pleomorphic adenoma, arising from intercalated duct cells and myoepithelium cells constitute 90% benign parotid tumors and 50% of all submandibular gland tumors. The large size of tumor is a rare clinical presentation. The task of total removal of the tumor with preservation of the facial nerve is challenging.<sup>5</sup> The relation ship in between growth spurt and cellular proliferation in the tumor leading to its large size has not been fully explained. However studies using fluorescent in situ hybridization (FISH) reveal different salivary tumor types. They have different gains or losses of chromosomes to be either diploid or near diploid.<sup>7</sup> Chromosome 17 monosomy or polysomy has been related to p-53 protein expression, deletion of P-53 may lead to tumerogenes under external influences and factors like growth hormones.<sup>8</sup> Over expression of Cerb B-2 has been associated with the high-grade neoplasia Ki 67nuclear antigen with high level of expression has been used as estimator of proliferation index and the prognostic factor in the salivary gland tumors.<sup>9</sup>

There is however some anecdotal evidence that salivary tumors may not only express sex hormone receptors but may show clinical response to hormonal manipulation by anti oestrogen agents like temoxifin.<sup>10</sup>

Role of Epstein-barr virus has been debated in the genesis and rapid growth in warthin tumors especially in Asians. The cells seemingly share the same receptor on the surface (C3d) through which virus get entry into the cells. The fact wether under the effect of growth hormone Pleomorphic adenoma remaining benign and changes its indolent course with high proliferation index remain to be proved.<sup>11</sup>

The large tumor size, with multiple cervical lymph nodes and abutment on carotid vessels we adapted incision over the tumor excising the skin ulceration and nodule with flaps rising Posteriorly and anteriorly. The procedure was adopted after control over the carotid artery. The approach was adequate and the mobilization of mass was achieved with oblique elliptical incision, extending in front of tragus and falling little higher to the sterno clavicular joint. Superficial parotidectomy was performed as the procedure less then this leads to high rate of recurrence; 20 to 30% after enucleation. Capsular thickness and cell morphology have little correlation with the recurrence of the tumor, however high index of proliferation with fast increasing size, capsule becomes thin and liable to rupture due to operative trauma resulting in high rate of recurrence.<sup>12</sup>

Pleomorphic adenoma while remaining benign may

acquire high proliferation with clinical suspicion of malignancy. The hormonal milieu especially growth hormone and other external tumor promoting factors play a role in this change remains to be proved.

The available experimental and observational data in this regard is not sufficient to prove any correlation between the above mentioned factors and this rapid change in tumor size.

Different surgical approach may be adopted to meet the requirements of surgical procedure like superficial parotidectomy with maintaining the capsular integrity to prevent the possible recurrence.

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