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Surgical Salvage in Cancer of the Larynx

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Summary :

The results of management of carcinoma of the larynx in 34 patients are reported. All these patients were initally treated by radiotherapy. Radiation failure and recurrences have been managed by salvage surgery i,e. total laryngectomy with or without radical neck dissection. Recorded 5 year survival after salvage surgery in this series is 26.47%.

(J. Bangladesh coll Phys Surgh 1992; 10: 69-73)

Introdection :

Laryngeal carcinomas like all other head and neck cancers are best treated by multidisciplinary approach. Irradiation and surgery are the two main modalities of treatment for carcinoma of larynx. Choice between these two are not yet well established. For early lesions, results after these treatment methods are almost the same. Most laryngeal carcinomas may be controlled by radical radiotherapy and surgery is reserved for recurrence or radiation failures (Lederman M and Dalley VM, 1965). This is particularly applicable in glottic tumours, because vocal cords are known to have poor or no lymphatic drainage (Stell PM et al. 1982). For patients with advanced growth causing stridor, clinically involved lymph node and cartilaginous breakdown, surgery should be the treatment of choice.

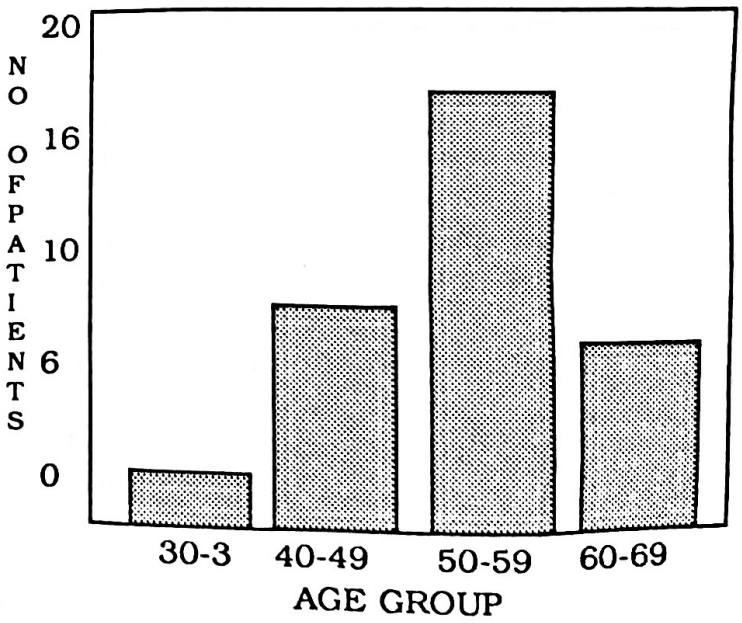
The object of this study is to present the result of 34 patients of laryngeal carcinoma treated by salvage surgery following recurrence or radiation failure after radiotherapy.

Patients and Methods :

In the period between August 1979 and July 1988, thirty four patients with carcinoma of larynx were treated by total laryngectomy with or without radical neck dissection by the author. All these patients were previously treated with radiotherapy at Dhaka Medical College Hospital. The doses received by these patients range from 4500-6500 rads. Out of 34 patients, five received radiation twice. The intention of irradiation in the majority of these patients were curative in nature. The period between radiotherapy and salvage surgery varied between 3 months to 2 years.

The age range of the patients was from 30 to 65 with largest group in between 50 and 59 years.

Age Group of 34 Patients :



Out of all the thirty four patients 30 were male and 4 female.

Male : Female = 7.5: 1

There were 23 patients with supraglottic tumour and 11 with glottic tumour and none with subglottic tumour (Table 1).

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Table -I

Region	No of patients	Percentage
Supraglottic	23	67.65
Glottic	11	32.35
Subglottic	0	0

Histologically all were squamous cell carcinoma :

As most tumours in this group of patients were extensive it was difficult to determine the site of origin accurately even on operative specimen.

Direct laryngoscopy was done in every case to determine the extent of tumour and to take a biopsy. In 8 patients biopsy specimen failed to reveal malignancy. In these patients larynx was found either oedematous or containing necrotic tissue; in the resected specimen all were reported to contain tumour.

Operative Treatment :

As the tumours in this series were extensive, partial laryngectomy was not considered suitable. The patients who had tumour confined in the larynx, total laryngectomy was performed (23 patients). When the tumour has extended to the pyriform sinus or cervical lymph node, total laryngectomy with partial pharyngectomy and radical neck dissection was the choice (11 patients). Unilateral radical neck dissection was done in ten (10) patients and bilateral radical neck dissection was required in one patient.

Result :

The hospital mortality in this series was 17.65% (6 patients). One died of cardiac arrest during recovery from anaesthesia, 2 from carotid blow out, 2 from wound infection and flap necrosis with speticaemia and the remaining one died of cerebro-vascular accident. The mortality was probably influenced by the extension of the surgery. Two patients with total laryngectomy died in the post operative period. On the other hand four patients died in this period who under went total laryngectomy with partial pharyngectomy plus radical neck dissection.

Table -II *Hospital mortality*

Operation	No.of patient	Postop erative death	Percen tage
Total Laryngectomy	23	2	8.61%
Total Laryngectomy with partial phary-ngectomy plus radical neck dissection	11	4	36.30%

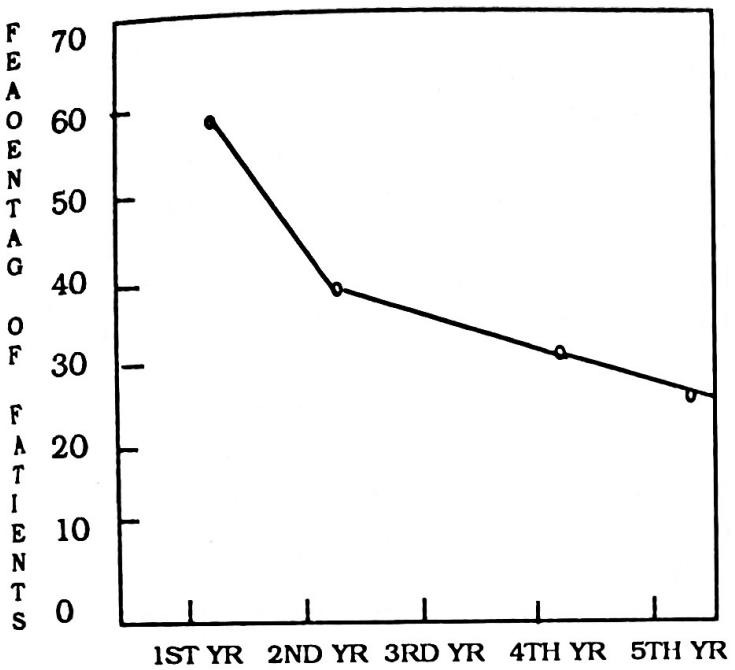
The most common postoperative complication was pharyngocutaneous fistula (23 patients). All patients with salivary leakage had their fistula healed within 12 weeks with conservative approach. None required surgical intervention.

Table-III *Postoperative complications*

Operation	No. of patients	Percentage
Pharyngocu-taneous fistula	23	67.65
Wound infection	14	41.18
Sloughing of neck skin	3	8.82
Carotid blow out	2	5.88
Chest infection	2	5.88
Stomal recurrence	8	23.53

Out of 34 patients 5 were lost from the follow-up and were informed to be dead by their relatives. In long term follow up 20 patients found alive at the end of the first year and only 9 at the end of the fifth year.

Survival Curve 6 Years follow up



The five year survival rate was 26.47% Eight patients developed stomal recurrence, 3 recurrence in the lymph node and 3 developed distant metastasis. Majority of these died within 2 years of salvage surgery.

Discussion :

Most of the patients in this series had advanced tumour in the larynx. This is mainly due to delay in presentation and diagnosis. In our country, poverty , illiteracy of the general population as well as very few number of centres which can deal with the throat cancer are responsible for usual delay in presentation. And these advanced cases are not suitable for successful radiotherapy or surgery.

Total laryngectomy renders the patient voiceless. In addition,. there is a general tendency to avoid operations because of fear among the patients. In the absence of any organized activity for rehabilitating such handicapped patient, it is very difficult to make the total laryngectomy acceptable to the suffering people as a treatment of primary choice. Moreover, once benefited from radiation he or she will not be interested to undergo planned total laryngectomy until and unless there is residual or recurrent disease causing symptom. Because of these facts almost all patients who under went total laryngectomy were actually being subjected to salvage surgery.

In this series, all the patients had received full dose of radiation preoperatively. With recurrent or residual disease finding no other alternative they were subjected to salvage surgery.

The so called salvage surgery of the primary lesion is a legitimate approach and must be considered in the treatment planning (Robin PE and Olofsson J, 1987). All the patients received radiation as a definitive treatment for laryngeal cancer and not as planned preoperative radiation. The result of planned preoperative radiotherapy plus surgery is better to primary definitive radiotherapy followed by salvage surgery for recurrent diseases. Advocates of primary irradiation for the management of advanced supraglottic carcinoma with surgery reserved for treatment failure, may be saving the larynx for some of their patients at the risk of losing lives of others (Kazem I, Brock PVD, 1984).

Out of 34 patients 30 were male, 29 were from the lower socioeconomic strata. Twenty three had supraglottic and 11 had glottic growth.

As there is no qualified speech therapist in this country the attending doctors themselves motivated and trained all the patients preoperatively regarding the mechanism of developing oesophageal voice after the larynx is removed.

Pharyngocutaneous fistula formation was the most dreadful complication which increased the postoperative morbidity significantly. Twenty three patients (67.65%) developed fistula. The rate is higher than that quoted by Thawley SE and St Louis (1981) i.e. 3.9% to 21%, but is consistent with the work of.

Bresson et al. (1974) in a large series of 148 patients of laryngectomy reported 66% incidence of fistula. Complications differ widely in different reported series. Salvage surgery following curative radiation therapy usually is associated with higher complications rate (Thawley SE and St. Louis, 1981.) The higher rate in this series is probably attributed to poor nutritional status in general of our population and low haemoglobin level as well. Most of the patient had haemoglobin ranging from 9-10 gm per dl. In addition to that poor radiation dose control has a significant role in increasing the rate of fistula formation., Traumatic handling of the left over pharyngeal tissue during suturing is also liable to cause fistula formation. T-repair or vertical repair of the pharynx has got no influence in fistula formation.The suture material is also of no significance in our series.

Wound infection occurred in 14 patients (41.18%). This rate is inconsistent with the quoted figure of 10-14% by Thawley SE and St. Louis, 1981. But almost approximating the figure of Weingrad and Spiro, 1983 i.e. 31%. The factors probably responsible are absence of well trained and well oriented nursing staff, inability to maintain absolute sterilization in the peroperative and postoperative period specially during repeated suction and also because of the contamination from visitors.

Two patients were the unfortunate victim of carotid blow out in this series. In these cases neck wound infection predisposes the sloughing of the carotid arterial wall to cause fatal exsanguination. Faulty radiation in the neck has been also responsible for weakening of the arterial wall. Chest infection in two patient were well controlled by antibiotics.

The most frightening complication in the follow up period was the stomal recurrence. Eight cases (23.53%) developed this. In our series, the initial tracheostomy done by junior surgeons causing spilling of growth might be a causative factor. None of our patient undergone emergency laryngectomy after tracheostomy. Failure to close the tracheostomy after radiotherapy due to residual disease or postradiation oedema is also probably responsible for stomal recurrence. Stomal disease presents serious therapeutic problem because of its ominous prognosis despite aggressive treatment methos (Mantravadi et al. 1979). This usually claims the patient. None of the patient in this series developed oesophageal voice to a significant degree despite both preoperative and postoperative motivation by the doctor themselves., The upsetting result is probably due to lack of motivation in proper way by a speech therapist, who is qualified and well versed with the laryngectomies. Of course universally agreed failure rate in developing oesophageal voice after laryngectomy is about 40%.

Inspite of all these, it may be concluded that radiation failure in laryngeal carcinoma can be treated with salvage surgery and some patients can get relief from agonizing symptoms and lead a useful life. Although 5 year survival rate in this series is poor, improvement may be but made with more experience and improved facilities.

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The Consequences of Drugs Abuse Behavior in Addict, Family and Community

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Summary :

93 admitted drug addicts were interviewed by using semi-structured questionnaire at the Central Treatment Centre for Drug Addicts Tejgaon, Dhaka. It was assumed that drug abuse could be the cause of many ill effects in individual, family and community. Cause and effect relationship was looked into subject, individual health, occupational, economic, social and legal functioing. Certain scores were rated high. Family's perception about individual overdose of abusive drugs were rated high. Family constraint, Parental emotional overindulgence towards their offspring were also rated high. Abject poverty and loss of property were assessed. Criminal activity and drug related offence were also looked into. Patients behavior and its effect on community were observed.

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Introduction :

Drug abuse is a recent problem in Bangladesh which invaded every fabrics of society both urban and rural areas. Magnitude of heroin addiction increased to an epidemic proportion and it is reflected in nation wide seizures of heroin by the Department of Narcotics control, Customs and police and data obtained from identified heroin cases in various hospitals and clinics.

Untill now very few hospital and clinic based study have been done. The aim of these present studies were to find out sociodermographic data. WHO sponsored youth study among college and university students to see their life style, type of addiction, social characteristics of addicts and assessment of road traffic accidents among professional vehicle drivers and non professional drivers and general addicts.

Deterrent effects of drug abuse in abusers individual health, family and Community are not studied in our country.

If causal effects of drug abuse could be assessed in subjects personal, family and community level, it could be valuable in patients treatment, prevention and rehabilitation. The aim of this study was to see the relative effect of drug abuse in individual, family and community.

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Materials and Methods:

This study was conducted among 93 male addicts admitted in the Central Treatment Centre for Drug Addicts, Tejgaon, Dhaka. The period was from November, 1990 to April, 1991. The patient and his key informant were interviewed by using a semi-structured interview schedule. The interview schedule consists of sociodemographic data, intensity of drug abuse, experience of withdrawal effect, self trail to reduce the abusive drugs, history of exposure, previous history of treatment of drug addiction, occupation and occupational role functioning, liver function and viral hepatitis B infection, offence under influence of drugs, type and size of the family. Family's financial condition, family perception of drug abuse intensity by the index patients, family's feeling of being neglected, marital discord, over indulgence by the parents, family's abject poverty and loss of property community perception about subject's criminal offence related to drug addiction and involvement with law enforcing agency, were also included in the schedule.

The cases were collected randomly over six months period from among those who were admitted in the inpatient department for drug detoxification and after care. No control was was taken.

Results :

Twenty variables of the semi- structured questionnaire were analyzed and computed.

Descriptive statistics were used.

Variables:

1. Age : Mean Age: 26.59 years,
2. Sex : 93 male patients.
3. Marital status
4. Education:
   Illiterate: 24 persons i.e. 25.80%
   Literate : 69 persons i.e. 74.20%
5. Occupation:
6. Income :

Out of this 62.37% of drug addicts 23.66% were the only earning members of the family.

Table-I : *Patients variables.*

Sl. No.	No of case	Percentage
1. Single :	36	38.71%
2. Married :	49	52.69%
3. Divorced :	7	7.52%
4. Separation :	1	1.08%

Table-II : *Patients Occupation*

Sl. No.	Name of occupation	No. of cases	Percentage
1.	Petty business	26	27.96%
2.	Unemployment	19	20.43%
3.	Service	17	18.28%
4.	Student (drop out)	9	9.68%
5.	Vehichle driver	7	7.52%
6.	Labour	10	10.76%
7.	Rickshaw puller	3	3.22%
8.	Other (Mastans)	2	2.15%

Table-III : *Income of the patient and contributing to family*

Sl. No.	No. of Cases	Percentage
1.	No personal income and depends on family's income 35.	37.63%
2.	Contributing to family's income 58	62,37%

7. Type of drug addiction:

Table, IV : *Type of drug addiction.*

Sl. No.	Name of drugs	No. of cases	Percentage
1.	Heroin	89	95.70
2.	Pethidine	1	1.07
3.	Phensidyl	2	2.15
4.	Polydrug	1	1.07

8. Intensity of abuse:

49.46% addicts could perceive that they used to abuse too much of the abusive drugs. Out of 93 subjects 90.32% cases have experienced withdrawal effect when they tried to reduce the dose. 81.72% addicts have tried to give up the habit but failed due to withdrawal effect.

9. Visiting prostitutions:

Patients were inquired about their visit to prostitutes. It was found thadt 47.31% had history of exposure.

10. Recidivism:

In this sample series it was shown that 25.80% patient has past history of treatment for drug addiction either in this hospital or in a private clinic.

11. Automobile drivers and road traffic accident :

About 61.29% of cases could drive vehicle of some nature and among this 9.68% were driver by occupation. From history it was known that 22.58% met road traffic accident under the influence of drug abuse.

12. Drug addiction and viral Hepatitis:

It was revealed from history that 32.20% of addicts in this sample have suffered from viral hepatitis during the period of drug addiction.

13. Offence under influence of drugs:

Drug related offenses i.e. extortion collection, purse snatching from passerby, selling house hold goods from parents house, selling illicit drugs, fighting among groups, stealing, pick pocketing could be elicited in 31.18% cases.

14. Occupational role functioning:

64.51% could find difficulties in the occupational role functioning i.e. absenteeism, loosing occupational skill or efficiency and most of them failed to carry on their duties.

15. Social isolation :

78.50% lost their old friendship due to drug abuse.

16. Family's suffering from and due to having a drug addict family member :

83.87% of the patient's family have the perception that index patient abuses too much of drugs. 78.49% family members felt that the patient neglected family members i.e. not sharing house hold responsibilities and role as a father, husband and brother diminished.

17. Marriage and Drug addiction :

In this series only 7 addicts out of 93 were divorced and only one case of separation was found.

18. Drug addiction and perceived expressed emotion :

It was observed that 35.48% of drug addicts were over protected by parents. Critical behavior was shown in 68.81% cases and over indulgence in the form of affection in 74.19% cases.

19. Abjective poverty and loss of property :

Family met abject poverty in 41.93% cases. 41.93% cases used to purchase drugs by taking money from parents income. 37.63% cases lost property for spending money to buy drugs.

20. Drug abusers involvement with law enforcing agency :

11.82% cases have a history of being taken under police custody. From history it was found that 20.48% cases were actively involved in criminal activity including drug dealing.

Discussion :

Drug dependence is thought to occur in vulnerable persons. Effects of drug abuse in individual, family and society were studied by many research workers both home and abroad. Punahitanant 1974 in a survey of 2000 households selected by stratified sampling from total population of Bangkok Metropolis[1], found that 24% were 21 to 25 years of age. Anowara Begum[2] in Bangladesh found drug abuse in age range 21 to 25 years (34.17%) whereas in this series mean age was 25.59 years i.e. age range 20 to 29 years (55.91%). Shahida Akhter[3] in her study found that maximum number of drug abuse were in age range 21 to 30 years (71,84%).

In this study the type of drug abuse found in 93 cases was heroin (95.70%). Anowara Begum[4] found 79.38% in another study. In a survey at the Thanyarak Hospital and Rangiest correctional Institute in Thailand heroin addiction was 86.50% of their cases[1].

Patients self assessment of intensity of taking drugs were 49.46%, whereas patients family members perceived that patient abouse too much of drugs (heroin) in 83.87% .90.32% cases suffered from withdrawal effects when heroin supply was scanty or not available. 81.72% patients tried to stop taking drugs, but failed due to withdrawal effect.

In this series 47.30% cases have history of visiting prostitutes, and most of them suffered from purulent discharge per urethra or chancre in the glans penis. But no serological test for STD was performed. Among the 93 cases 32.26% cases suffered from viral hepatitis. Poshyachinda and Artkampee found 12 cases (32%) suffering from liver disease in 25 drug addicts at Thanyarak Hospital, Thailand[1].

Past history of treatment for drug abuse was enquired in all cases and it was found that 25.40% patients have history of previous treatment in Govt. Hospital or private clinic. Rezaul Islam[5] in his 6 months follow up study at Psychiatry Deptt. of IPGM&R found 86% relapse in his one, three and 6 months follow up study after discharge from hospital.

Out of 93 subjects 57 cases i.e. 61.29% drive various automobiles and 9.68% were shown to be professional drivers. 22.58% of the automobile drivers met road traffic accident during the period of drug abuse. 31.18% drug addicts in this series showed involvement with criminal activities under the influence of drugs. This criminal offences were committed in group or alone for collecting money to procure drugs.

64.51% cases have history of poor performance in occupational role functioning and most of them were unable to attend working place due to awakening late from sleep.

78.45% of the addicts lost their old friends after they became drug dependent.

Drug addicts neglect family responsibility (78.49% cases) and along with that family's perception about index patient's intensity of drug addiction behavior was high 83.87%.

Marital discord was looked into and it was found that 7.52% were divorced in this series.

Drug addiction and emotional factors were assessed in the family. It was shown that parents have over involvement (74.19%) and they were very much critical towards their children (68.81%).

Family suffered from abject poverty (41.93%) due to index patients drug abuse and there was history of loss of property (37,65%). Shahida Akhter[1] found 50% criminal activity in her study in hospitalized patients. The nature of the crimes were pick pocketing, purse snatching, vandalism, drug peddling. In this series 11.82% were involoved with criminal activities and the nature of crimes were similar in nature.

Acknowledgement :

I would like to express my gratitude to the doctors and members of staff at the Central Treatment Centre for Drug Addicts, Tejgaon, Dhaka for helping me carrying out the work.

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Extended Pyelolithotomy of Gil-Vernet -Experience of 61 Cases

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Summary :

Sixty one extended pyelolithotomy of Gil-Vernet were performed for staghorn and/or multiple renal calculi. The pelvis was totally intrarenal in 15(24.6%) and partially intrarenal in 38(62.3%) cases. Mobilisation of the kidney (either complete or lower pole) was done in 15(24.6%) cases. Operative difficulties due to peripyelitis were faced in 8 cases. Significant peroperative haemorrhage was noted in 5 cases. We missed a small stone in each of 2 cases.

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Introduction :

During the past decade, the management of urinary stone disease has advanced enormously over other urological disorders. The most recognisable developments are percuteneous nephrolithotripsy (PCNL), ureterorenoscopy (URS) and extra-corporeal shock wave lithotripsy (ESWL). These advances have certainly improved the quality of patient care. However, in developing countries like ours, due to lack of these modern facilities, open surgery will still be playing an important role in the treatment of stone disease.

Among the various open surgical procedures for renal stone disease, the extended pyelolithotomy of Gil-Vernet is unique due to the fact that, utilizing the bloodless anatomical plane (Fig.I) between the muscle of the pelvis and its adventitia in dissection, one can reach the distal end of calyces. Resulting wide exposure from proximal ureter upto the calyces, and a clear operative field allow a more direct approach to the stones.

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This operation had not been commonly practiced before and there is no published report in our country. A plea is made to practice such a useful procedure until the time when sophisticated equipments for the management of renal stone disease will be available.

Materials and Methods :

During the period 1989 to Dec. 1991, sixty one patients underwent extended pyelolithotomy for staghorn and / or multiple renal calculi in the department of Urology. IPGMR, Dhaka.

Fifty one were male and 10 were female. All the patients were evaluated preoperatively by CBC, urinarlysis, urine culture, blood urea, creatinine, electrolytes, fasting sugar, X-ray chest, ECG, IVU, ultrasonography and renogram. Serum calcium, phosphate and uric acid level and 24 hours urinary calcium were estimated in selected cases.

Size, shape, location, number of stones, preoperative urinary infection, anatomical location of the pelvis and the kidney, and degree of peri pyelitis or adhesions were noted.

These were correlated with difficulties during operative procedure, peroperative bleeding and with the nature of convalescence.

Surgical approach was lateral lumbotomy though a subcostal, intercostal space (11th or 10th) or rib-bed (12th or 11th). Kidney was mobilised only in difficult cases.

The key to this procedure is to get the correct plane. It is the bloodless plane of Gil-Vernet that lies between the muscles of the pelvis and adventitia (with overlying peripelvic fat) (Fig.I). We found it convenient to begin dissection at the posterior aspect of the proximal ureter. Having reached the desired plane. it was extended up on to the posterior surface of the pelvis. The fibrofatty shell over the cleavage plane is divided to expose the pelvis and the plane is further extended out towards the neck of the calyces by blunt dissection (Fig-2). It is at this stage, that special sinus retractors (Gil-Vernet retractor) are applied and renal lips are elevated to reveal pelvis and calyces (Fig-3).

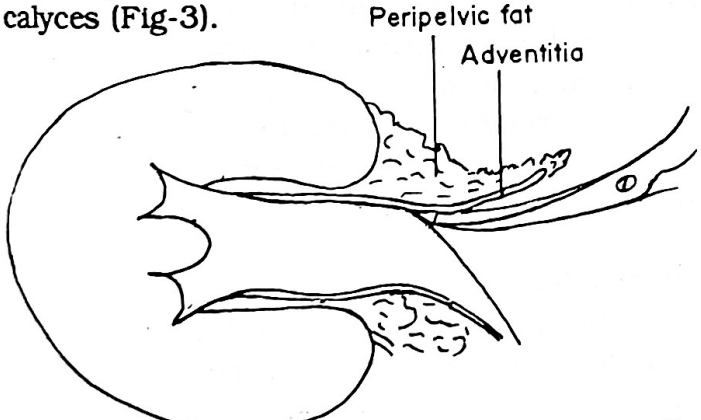

Fig.-1: *The Gil-Vernet's plane lies between the muscle of the pelvis and the adventitia*

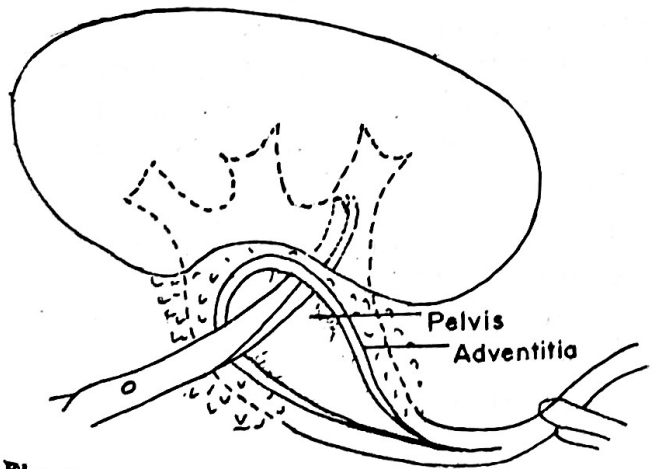

Fig.-2 : *The plane is further extended out towards the neck of the calyces.*

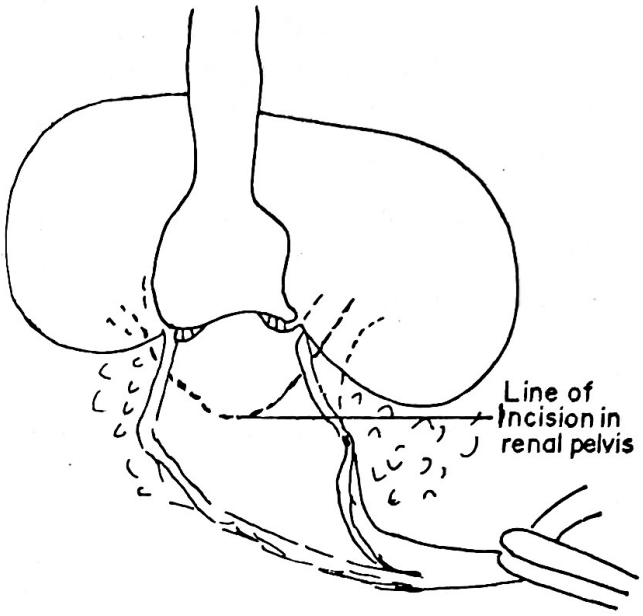

Fig.-3 : *Renal lip is elevated by Gil-Vernet ratractor.*

Once adequate exposure is achieved transverse or curvilinear pyelotomy and longitudinal calicotomy is made. This creates a flap of renal pelvis and thus exposes the interior of the collecting system (Fig.4).

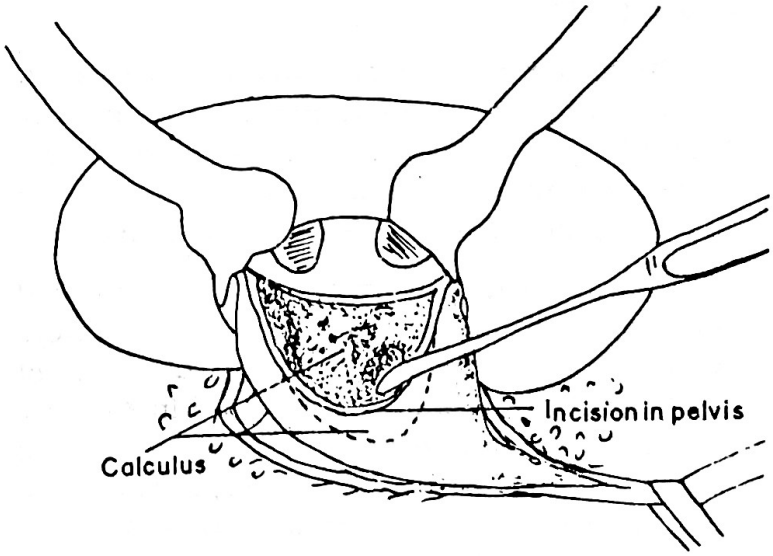

Fig.-4 : *The stone is freed from the adherent pelvis*

Calculi confined to the pelvis are delivered quite easily by stone retrieving forceps. Delivery of most staghorn calculi do not present any

special problem. However, in calculi with branches entering into multiple calyces, retrieval is facilitated by delivering the shorter branch first. Subsequent axial and rotational movement with gentle traction usually delivers the long branches from the calyces and pelvis.

Special problems : Calculi with dumbell shaped extensions into the calyces with narrow caliceal infundibulum can present special problems. In such instances, delivery is facilitated by extension of the longitudinal calicotomy beyond the infundibulum. However in 5 instances extension of the calicotomy necessiated incision on the overlying renal lips. Small calculi in the calyces were easily deliverable by flushing the calyces with normal saline. Sometimes caliceal stones required dilatation of the caliceal infundibulum by the judicious use of olive-tipped urethral dilators to facilitate delivery.

Results :

Urinarlysis revealed varying degrees of pyuria in 58 cases (95%) among which positive culture (E. coli 12, Kleb 3) was present in 15 cases (24.6%).

There were staghorn calculi in 40 cases, most of which had additional smaller stones. Multiple pelvic and caliceal (non-staghorn) were present in remaing 21 cases. Size of staghorn stones varied from 2.5 to 5 cm.

IVU showed poor excretion of the affected kidney only in 5 cases, and in the rest, kidneys were well excerting. Varying degrees of pyelocaliceal dilatation were found in 41(69%) cases. Urography revealed a totally intrarenal pelvis in 15(24.6%) cases, partially intrarenal in 38(62.3%) and extrarenal in 8(13.1%). Complete mobilization of the kidney was done in 7 cases, mobilization of the lower pole only was done in 8 more cases. We did not clamp renal artery in any case.

Although the majority of the patients showed peripyelitis, a marked peripyelitis leading to operative difficulties were seen in 8 cases (13%).

No significant peroperative hemorrhage was noted except in 5 cases. Bleeding in 2 cases was during incision made in the renal lip overlying the calyces to remove the stones and was controlled by suture. Bleeding in 2 cases in the form of prolonged oozing was due to gross peripyelitis where it was very difficult to dissect the correct plane in the cake like peripelvic and periureteral tissue. This bleeding stopped spontaneously without any suture. In one case, bleeding was due to faulty technique which tore a small vein in an incorrect plane. None of them required blood transfusion.

In 2 cases of multiple caliceal calculi, we missed a small stone, detected only postoperatively due to lack of intraoperative X-ray facilities. Radial nephrotomy incision was required for mushroom extensions of staghorn calculi in 3 cases and caliceal calculi in 2 cases. Renal parenchyma was markedly atrophied and thin in these cases and the nephrotomy resulted in minimal hammorrhage.

Discussion :

True E and Grasset D[1] in 1960, emphasised on an operative procedure which is conservative, complete but atraumatic to renal tissue. In our experience, among the open procedures, Gil-Vernet's extended pyelolithotomy maximally fulfil the criteria. This procedure made it possible to remove large staghorn and multiple caliceal calculi without much difficulty with minimum trauma to renal tissues.

Gil-Vernet in his discussion, regarded his procedure as a bloodless operation[2,3]. But there are reports of considerable hemorrhage controllable by sutures[4]. In our experience we have found it as a minimum blood losing operation.

It is the dissection in the proper plane that makes it a bloodless operation and any

haemorrhage is due to faulty technique and dissection in a wrong plane. Some authors have emphasised on complete mobilisation of the kidney[5]. In our experience, complete mobilization of the kidney is not needed in all cases. In cases of staghorn calculi with multiple extension into the calyces, especially in intrarenal pelvis, complete mobilization offers good control over the renal pedicle and good exposure as well. However a mobilization of the lower pole only is adequate for staghorns with predominant lower caliceal extension.

The cry of ESWL for all[4] was heard in the 48th annual meeting of the American Urological Association in 1989. In an era of ESWL monotherapy, it might appear outdated to discuss about open surgery, but it is a reality in context of our country.

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Non-Acute Upper Abdominal Pain : A Study of 110 Cases

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Summary :

One hundred and ten patients with chronic or recurrent upper abdominal pain were carefully interrogated, thoroughly examined and routinely subjected to following investigations : complete blood counts, stool and urine examination, glucose tolerance test, plain radiography of chest and abdomen, upper gastrointestinal endoscopy and abdominal ultrasonography. Electrocardiography, proctosigmoidoscopy, barium enema, barium follow-through and ERCP were done in selected cases. Therapeutic trials were undertaken with anthelmintics and laxation. Irritable bowel syndrome appeared to be the commonest cause (45.45%) of upper abdominal pain followed by peptic ulcer (32.7%), non ulcer dyspepsia (18.2%), helminthiasis (12.7%), cholelithiasis (5.5%) and other rarer conditions. Combinations of diseases were not uncommon. Epigastric tenderness and pointing sign were present in good proportion of cases with irritable bowel syndrome and peptic ulcer. Need for an inquisitive approach to patterns with upper abdominal pain was felt.

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Introduction :

Chronic or recurrent upper abdominal pain or nausea is frequently referred to as dyspepsia[1,2]. It has been estimated that the point prevalence of dyspepsia is around 30% in the general population[3]. Prescription of antacids or H_2 blockers without an inquisitive search for the cause is a common practice. Although the most common organic cause of dyspepsia is peptic ulcer, between 50% to 90% of patients do not have this disease when investigated[3,4]. In this study an attempt has been made to determine causes of chronic or recurrent upper abdominal (UA) pain in a series of outpatients and inpatients of Narayanganj General Hospital, Narayanganj.

Materials and Methods :

Patients presenting with chronic or upper abdominal pain in the medical outpatients of Narayanganj General Hospital, Narayanganj between May and December 1990 were considered for the study. History was taken carefully with particular emphasis on different characteristics of the UA pain. They were thoroughly examined. Subjects residing outside the town were admitted into the medical ward. Following investigations were performed routinely:

a. Complete blood counts.
b. Physical and microscopic examination of stools. It included concentration technics for ova of helminths. Three consecutive samples were examined.
c. Routine urinalysis
d. Modified oral glucose tolerance test
e. serum amylase.
f. Scout film of abdomen.
g. Chest roentgenograph.
h. Upper gastrointestinal endoscopy.
i. Ultrasonography of hepatobiliary system, Pancreas and kidneys.

Following investigations were done selectively :

a. ECG. In subjects having exercise-related pain and in those above 40 years of age.

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b. Proctosigmoidoscopy and barium imaging of large gut in patients with altered bowel habit.

c. Barium follow-through X-ray of small bowel in subjects with episodic pain suggestive of sub-acute obstruction.

d. Endoscopic biopsy. In subjects with gastric ulcer having some features of malignancy.

e. Endoscopic retrograde cholangio-pancreatography (done in BIRDEM, Dhaka). In subjects with severe post-prandial pain radiating to back or with history of pain relief on sitting up and bending forwards, with diabetes, steatorrhea or weight loss[5].

Following therapeutic trials were undertaken :

1. Deworming : Therapy with Mebendazole 100 mg b.d. for consecutive three days in subjects with ova or larvae of helminths in the stools. Thiabendazole was used in case of strongyloidiasis.

2. Laxation : Ispaghula husk 4 to 10 t.s.f daily was used in subjects with constipation. In obstinate cases simple enema was given.

Follow up : The subjects were advised to report one month after their discharge. At follow up they were interviewed regarding the degree of relief obtained by the treatement prescribed. Relevant data were entered into a preformed proforma.

Definition of terms : A patient was included in particular disease category during the followup visit.

Irritable bowel syndrome (IBS) Was defined by the presence of abdominal distension, pain relief with bowel action, more frequent and looser stools with the onset of pain, mucorrhea and sensation of incomplete evacuation following defecation[6]. A subject with UA pain was put in this category only if the pain was at least partly but consistently relieved by clear bowel movement Sponlaneous or induced in patients with constipation by ispaghula husk or enema simplex.

Subjects were put into the category *Helminthiasis* when ova or larvae of helminths were found in stools or at endoscopy and the upper abdominal pain was abolished or substantially reduced by anthelmintic therapy.

Subjects without peptic ulcer or any recognized anatomicopathologic entity were categorized as having *non-ulcer dyspepsia* (NUD)[7,8,9]. In the present series, subjects with UA pain due to IBS were excluded from this category. Subjects with NUD were subclassified into following categories : (a) Moynihan's type characterised by periodic, post-prandial epigastric pain that is typically relieved by food or antacid[10,11]. (b) Dysmotility like dyspepsia characterised by abdominal distension, fullness, early satiety and or nausea after meals[12, 13] and (c) Unclassified.

Statistical analysis : Odd's ratio was calculated to estimate the likelihood of a subset of the population of having a disorder in comparison with the other subset. For determination of the significance of differences between two proportions, Fisher's exact test was used when $n<20$ or $20<n<40$ with less than five subjects in a cell. Chi square test with Yates' correction was used when $n>40$ or $20<n<40$ with each cell having at least five subjects.

Following parameters were estimated for determination of values of individual clinical features in a disease category :

Sensitivity : Percentage of subjects without the feature among those without the disease (true negative)

Positive predictive value (PPV): Chance that the person positive on the test does actually have the disease. It is estimated as follows :

$$\frac{\text{True positive}}{\text{True positive + False positive}} \times 100$$

Negative predictive value (NPV): Chance that the person negative on the test really does not have the disease. It is estimated as follows.

$$\frac{\text{True negative}}{\text{True negative + False negative}} \times 100$$

Results :

One hundred and ten subjects (M/F = 70/40) participated in the study. Their age ranged between 15 and 65 years with a mean of 40.14+13.96 yrs. Fifty were smokers.

Several quite different diseases could be distinguished in subjects presenting with UA pain (Table-I). Fifty (45.45%) subjects had no organic disease.

IBS topped the list. Constipating type was more common among the females, although the difference was not significant. None of the patients had predominantly diarrheal form of IBS.

Thirty six subjects had peptic ulcer (PU). It was more prevalent in males (Odd's ratio 4.49). The difference in statistically significant (X^2 = 8.45) ($P<0.05$). All of six female subjects with PU had IBS with predominant constipation and the UA pain was partly but definitely relieved by clear bowel action. Out of 30 male subjects with PU eight had symptomatically significant IBS. The difference between the proportions of IBS in male and female PU subjects was significant by fisher's exact test (P= 0.00154).

Non-ulcer dyspepsia ranked third in order of frequency. Fourteen subjects had ulcer like

Table-I

Causes of non-acute upper abdominal pain (n=110)

Disease Categories	Subcategories	No. of patients	Male(n=69)	Femlae(n=41)
IBS		50(45.45%)	31(44.9%)	19(46.3%)
	IBS (C)*	39	23	16
	IBS (A) *	11	8	3
Peptic ulcer		36(32.7%)	30(43.5%)	6(14.6%)
	DU	30	26	4
	GU	5	4	1
	Channel ulcer	1	-	1
NUD		20(18.2%)	12(17.4%)	8(19.5%)
	Moynihan's	14	8	-
	Unclassified	6	4	2
Helminthiasis		14(12.7%)	6(8.7%)	8(19.5%)
Chollithiasis		6(5.5%)	-	6(14.6%)
Pancreatitis		2(1.8%)	1(1.5%)	1(2.4%)
IDH		2(1.8%)	2(2.9%)	
Abdominal tuberculosis	1(0.9%)	1(1.5%)	-	
Unexplained		2(1.8%)	-	2(4.9%)

* IBS (C) - Predominantly constipating.
IBS(A) - Diarrhea alternating with constipation.

(Moynihan's) and six unclassified dyspepsia (Table-I). None had dysmotility-like dyspepsia. Fourteen subjects (70%) had gastroduodenal erosions. Erosions were more common in unclassified dyspepsia than in ulcer-like (Odd's ratio 4.5), though the difference was not significant by Fisher's exact test (P=0.07748). Four (20%) subjects had concomitant IBS, but UA pain was not relieved by clear bowel motion.

In fourteen subjects with proved helminthiasis UA pain was relieved by administration of anthelmintic. Ova of Ascaris lumbricoides were recovered from the stools of 12 subjects. Roundworms were found in the upper G.I. tract at endoscopy in two subjects. Six subjects with helminthiasis concomitantly had symptomatically significant IBS. In remaining eight pain was completely relieved by anthelmintic treatment. Six female subjects had cholelithiasis. None of the male patients had gallstones. Odd's ratio for the sex differnece in the incidence of cholelithiasis was 11.83. The difference was significant by chi-square test with Yates' correction (chi-square = 8.03, $P < 0.05$).

Pancreatitis, ischemic heart disease (IHD) and abdominal tuberculosis were among rare causes of UA pain. In two subjects, the cause of upper abdominal pain could not be established.

Table II shows values of different symptoms and signs in patients with PU and IBS. In six out of 20 subjects with pure PU (30%), pain was actually aggravated by food intake, three of them had antral ulcer, two had gross bulbar deformity including stenosis in one, and the other had DU with moderate deformity of the bulb.

Table-II

Value of Some clinical features in PU and IBS.

Disease Category	Symptom/Sign	Sensitivity %	Specificity %	PPV %	NPV %
Peptic ulcer					
	Periodicity	66.67	67.47	36.36	93.55
	Relief by food	58.33	58.14	50.00	83.33
	Relief by antacid	58.33	81.25	53.85	83.87
	Pointing sign	71.43	61.90	38.46	86.67
	Epigastric tenderness	81.82	44.44	37.50	85.71
	Aggravation by food	30.00			
	Heartburn	40.00			
IBS					
	Aggravation by food	50.00	62.96	47.37	65.38
	Epigastric tenderness	80.00	31.03	35.48	75.00
	Relief by food	33.33			
	Pointing sign	66.67.			

Discussion :

In the present series, 45.45% of subjects had no organic disease. IBS was the commonest cause of UA pain. Peptic ulcer was the commonest organic cause. Because of concomitant presence of IBS, 14(38.89%) required ispaghula husk in addition to H_2 blockers and antacids for optimum relief of UA pain. These findings are consistent those of other workers. In Western societies IBS is the commonest gastrointestinal syndrome[14,15,16]. In an analysis of 200 unselected Gastroenterology outpatients in Frenchey Hospital, Bristol[14] 47.5% had no organic disease. PU disease topped the list of organic disorders and repesented 9.9% of all patients. Next in order were gastroesophageal reflux disorder (GERD), inflammatory bowel disease, cholelithiasis and others. IBS topped the list of functional disorders representing 27.8% of all patients followed by NUD (3.05%). In several reports dyspepsia was found to be common in patients with IBS and more than one third of patients with NUD have symptoms thought to be colonic in origin[1,16,17]. In a study[1] of 248 patients with upper abdominal dyspeptic symptoms but without peptic ulcer 75(30%) had IBS, 71(29%) GERD, 63(25%) had IBS alongwith GERD, 14(6%) had gallstones and 25(10%) had aerophagy. Balloons inflated in the colon were reported to reproduce symptoms in the upper abdomen [18,19, 20]. Upper abdominal pain has been reported in substantial proportions of IBS patients by several workers[21, 22,23]. Thus IBS seems to be a common cause of upper abdominal symptoms.

It should be noted that the incidence of IBS was equal in both sexes[8]. In this series, NUD and helminthiasis were common causes after IBS and PU. In females PU was less common than NUD and helminthiasis and incidence of cholelithiasis was equal to that of PU. Helminthiasis was found to be a common cause of upper abdominal pain in Africa [24].

It should be noted that 23 subjects had combinations (usually combination of an organic disorder with a functional one) of diseases. The discovery of a structural abnormality did not imply that the finding was the sole cause of the UA pain.

It appeared that the diagnosis of PU may be reasonably excluded when periodicity, relief of pain by food or antacids, pointing sign or epigastric tenderness were absent (high NPV). However, they may occur in patients without PU (low specificity); pain was relieved by food in 36.36%, and pointing sign was present in 66.67% of patients with IBS. Aggravation of pain by food intake was more common, as reported by other workers[21,22,23].

However, relief of pain by food[21, 22, 23] and even by antacids[21,22] has been reported. IBS patients complained even of nocturnal pain [21,23], data regarding which were not properly recorded in the present study. It appears that positive diagnosis of PU cannot be made by the presence (low PPV) of individual symptoms. Sensitivity of pointing sign and epigastric tenderness equal in PU and IBS, a fact indicating that they are of little value in distinguishing between these two diseases. In conclusion, it may be asserted that majority of patients with chronic upper abdominal pain do not have peptic ulcer. Peptic ulcer is not common in females. Functional gut disorders are common causes of upper abdominal pain. A hurried history-taking and overemphasis upon physical signs will lead to erroneous inclusion of such cases in the category of peptic ulcer. A carefully taken history and its rational interpretation may help in diagnosis. Thus simple means like explanation, reassurance and dietary advises may save the cost of antacids and H_2 blockers, in many cases.

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Diabetes Mellitus and Surgery

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Summary :

With the advancement of the management of all types of diabetes mellitus, the life expectancy of diabetics has increased very significantly. Patients with noninsulin dependent diabetes mellitus (NIDDM) are now a days expected to have near normal longevity. This increased life expectancy together with modern advances in medical and surgical therapies mean that a diabetic individual has an even greater chance of requiring surgery during his life time.Thus the health care team needs to be aware of the metabolic problems that may arise during surgery. The elevation of counteregulatory hormones, the associated suppression of insulin secretion, the excessive lipolysis and ketogenesis that can all occur during surgery can have particularly deleterious effects on the patient with diabetes. In addition, the complications of diabetes such as micro and macroanglopathy, nephropathy, neuropathy, etc. may enhance the morbidity and mortality of anaesthesia and surgery. Though there is controversy regarding the route of administration of insulin during surgery, there is no difference of opinion regarding the need of sufficient insulin during this period. This article reviews various treatment options for patients with insulin dependent (IDDM) and non-insulin dependent diabetes mellitus in the perioperative period, the role of insulin during surgery and the metabolic impact of surgery in diabetic patients.

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Introduction :

In the 1960s, an often quoted reference reported that diabetic patients had a 50% chance of undergoing surgery at some point during their life time[1]. At the beginning of the 90s, it can be reasonably expected that diabetics have an even greater chance of requiring surgery due to advances made in medical and surgical technology and the increase in the life expectancy of diabetic patients. These patients may not only require the same operations as non diabetics, they also often need surgery secondary to complications related to diabetes, for example: kidney transplantation, ulcer debridement and penile prosthesis implantation. In a study in the USA in 1980, it was shown that 11.3% of operations performed on diabetic patients were on the cardiovascular system compared to 4.3% in the non diabetic population. Ophthalmology procedures comprised 5.5% compared to 3.3%[2] in diabetic and nondiabetic patients respectively. It is thus obvious that surgery is common in diabetic patients for diabetes related and diabetes unrelated conditions and must be a major cause of morbidity and indeed mortality, though there is scant data on the outcome of diabetic patients undergoing surgery compared with matched non-diabetic subjects.

If proper attention is not paid to keep the plasma glucose level within an acceptable range in the perioperative period then (a) the patient, especially with IDDM, may go into ketosis and acidemia and/or (b) may be susceptible to electrolyte abnormalities and volume depletion from osmotic diuresis. There is also data indicating impaired wound strength and wound healing with a plasma glucose level of >11.1 mmol[3,4,5,6]. The leucocyte functions of chemotaxis, opsonisation and phagocytosis are also affected by hyperglycaemia[7]. As yet no technical data is available comparing surgical outcomes after "loose" and "tight" blood glucose control during the perioperative period.

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Metabolic effects of surgery :

A diabetogenic response is produced during surgery especially in the presence of general anaesthesia. Many authors have reported hyperglycaemia even in non-diabetic subjects during surgery or in the post operative period[8-16]. The glucose infusion rate also contributes to the level of plasma glucose[15]. The sequence of events that occur during surgery leading to hyperglycaemia may be listed as follows (a) Deficient insulin secretion during a period of stress, non-diabetic humans increase basal insulin secretion to counteract insulin resistance produced by the effect of increased stress hormones secretion. However, this effect of counter balance by increasing the insulin secretion is either completely or partially lacking in diabetic patients. (b) Increased insulin resistance: though the precise cause of insulin resistance is not clear, elevated counterregulatory or stress hormones (glucagon, adrenaline, noradrenaline, cortisol, growth hormone) play a vital role in causing hyperglycaemia. The mechanism(s) whereby the secretion of these hormones increases is undoubtedly complex, involving not only changes in circulating substrate but also central nervous system mediation. Different hormones in various ways cause excessive glycogenolysis, gluconeogensis, lipolysis and proteolysis during the perioperative period[13-23]. (c) To prevent aspiration under anaesthesia patients are usually fasted for at least 8 hours prior to elective surgery. Because tissues such as the CNS, RBC, adrenal medulla etc. cannot utilize fatty acid for energy, a decrease in blood glucose level during fasting stimulates endogenous production of glucose by glucogenolysis and or gluconeogensis and mobilization of fatty acids from adipose tissue to enhance hepatic ketone body secretion and provide tissue with an alternative energy source. A relative or absolute deficiency of insulin decreases the peripheral utilization of ketone bodies, further increasing their plasma concentration. Overall, the net result is one of intense catabolism with all the catabolic hormones being present in increased concentrations. Frayn[24] has also suggested that there is a local hormonal response derived from macrophages with interleukin-1 (IL-1) as chief mediator.

The effects of high levels of counterregulatory hormones in a non-diabetic is unremarkable. In a patient with IDDM, however, this can contribute to major metabolic derangement. A different effect is encountered in the patient with NIDDM, who may be prone to excessive hyperglycaemia dehydration and hyperosmolarity secondary to decreased insulin sensitivity. It should be appreciated that massive plasma glucose levels are not necessary for metabolic decompensation. It is possible for a patient with IDDM to develop ketoacidosis with a plasma glucose only moderately elevated or even with a normal level, a phenomenon known as euglycaemic DKA[25,26]. In both groups of patients careful management coupled with frequent monitoring of plasma glucose, electrolytes and urinary ketones can prevent serious consequences.

Aims of therapy :

The question of how meticulously blood glucose should be controlled during surgery is highly controversial[27]. However, it is agreed that excess mortality and morbidity over and above that found in the non-diabetic should be avoided. As unrecognised hypoglycaemia in anaesthetized patients may have serious consequences, a very "tight" intraoperative control of glucose levels is unwise. During the perioperative period not only should the chances of developing hypoglycaemia be reduced, but also a simultaneous effort should be made to avoid hyperglycaemia, undue protein catabolism and electrolyte disturbances. At the same time, attention must be paid to optimise the cardiovascular status, reducing the risk of infection, improving the chances of wound healing and circumventing problems due to long term complications of

diabetes[28]. Alberti et al suggested that in the face of an absence of controlled studies it is wise to keep blood glucose >10 mmol/L.[8]. The widespread availability, during recent years, of capillary blood glucose monitoring using glucose oxidase strips has greatly simplified the perioperative management of diabetic patients and has reduced the cost of blood glucose control quite considerably.

Anaesthesia and Diabetes :

Modern inhalation anaesthetics have relatively little effect on metabolism compared to the stress of surgery. No special care therefore is needed for their use in the diabetic. The older anaesthetic agents such as ether and chloroform can cause hyperglycaemia, fatty acid mobilization and inhibition of endogenous insulin secretion. There are arguments both in favour and against the use of regional anaesthesia. Some recommend limited use of this technique for the elderly[29] since it has only a small effect on metabolic function. No significant changes have been noted in blood glucose, lactate, FFA, glycerol and ketone bodies during 20-30 min of epidural anaesthesia[30]. The insulin response to hyperglycaemia appears to be inhibited by a high thoracic blockage (T2-T6 dermatome), whereas a low thoracic blockage has no effect on insulin secretion[31]. It has been suggested by others that spinal and epidural anaesthesia should not be used because of the widespread occurrence of autonomic neuropathy in diabetics, where hypotension may be a problem. Autonomic neuropathy may also cause cardiorespiratory arrest with general anaesthesia.

There appear to be no documented controlled studies looking at the different methods of pre-operative management in surgery for diabetics. Most of the published recommendations rely on common sense. Neverthelesss, stabilised glycaemic state; full cardiovascular assement including ECG; serum creatinine and electrolytes measurement; urine culture; the elimination of other sources of infection i.e skin, dental etc. and careful examination for neuropathy are prerequisites for all elective surgery in diabetics.

In elective surgical diabetic patients, satisfactory preoperative glycaemic control (two hours after breakfast blood glucose level (ABF) ≤ 11 mmol/l) should be achieved either using short acting sulphonylureas or soluble insulin depending on the type of patient and the type of surgery to be done. The use of biguanides or long acting sulphonylureas is not recommended since the first can induce lactic acidosis and the second can cause delayed hypoglycaemia.

Preoperative Management
IDDM :

It is agreed that all IDDM patients need insulin during the pre, per and post operative periods but there is no consensus of opinion regarding the route or rate of insulin administration. "The primary reason for this is the lack of controlled investigative studies involving sufficiently large numbers of patients to demonstrate an improved outcome. Furthermore, it is not even clear what endpoints for improvement should be measured, for example: length of hospital stay, cost of hospitalization, surgical complication rate, duration of intensive care to cite just a few possibilities"[32]. The Joslin clinic still recommend a regime involving use of S/C insulin. In the morning pre-operatively one half to two thirds of the usual dose of insulin is given subcutaneously and an infusion of 5% dextrose is commenced[33]. Postoperatively the rest of the daily dose of insulin is given and further injections prescribed according to the blood glucose level. Unfortunately this recommendation is supported by little data and glycaemic control was imperfect in all series. The blood glucose ranged from 9.3 mmol/l to as high as 23.6 mmol/l pre-operatively and 11.3 ±1.6 to 21.7 ±4.4 mmol in the immediate postoperative period [34-37].

Since the introduction of low-dose continuous insulin infusion for the treatment of DKA, a similar approach for perioperative management of diabetes has been adopted by many groups. Alberti et al, recommended a combined glucose/insulin/potassium infusion (GIK)[34] and there are many variations on this theme[28,38,39,40,41,42].

Net et al gave 0-3 unit/hr by separate infusion (using a pump) against a background infusion of 8-10 gm glucose/hr. Goldberg et al[37] gave a fixed dose of 1 unit/hr until the end of the operation and 0.5 unit/hr there after, allowing the anaesthetist a free reign with fluid. The so-called, 2 step protocol proposed by Meyers et al[43] is complex one. Initial adjustments were made according to the pre-operative blood glucose(BG) using the formula BG-150/10= unit of insulin. Thereafter I.V boluses were given hourly according to the blood glucose, 2 units if BG=150-250 mg/dl or 4 units if BG >250 mg/dl.

Alberti-et al[34] used 20 units insulin in 1 litre of 10% dextrose plus 20 mmol/L KCI (GIK) given at rate of 100 ml/hr. By measuring two hourly blood glucose, if required, they increased the insulin upto 32 units per litre of 10% dextrose. Many authors prefer to give insulin separately by infusion pump, claiming greater flexibility. With the use of a pump, glycaemic control was also better than in those treated conventionally.

Whatever the method, the glucose values achieved will depend to some extent on the targets set. Among various reommended goals from 4.4 -10 mmol/L to 10-14mmol/L Alberti et al recommend somewhere between 6 and 10 mmol/L which seems safe and appropriate. Most authors use 2-4 hourly blood glucose monitoring and then increase or decrese the glucose insulin ratio and the rate of infusion as required. Summarising all the available data it is clearly shown that better glycaemic control can be obtained using I.V infusion of insulin compared to S.C. insulin. There is less data available regarding the electrolyte requirements of the IDDM subject. The addition of potassium to the insulin infusion has been reported to prevent major excorsions in the plasma potassium level[44]. Most recommend 0.9-7.0 mmol KCI/unit insulin infusion. Thus it can be concluded that for the IDDM patient undergoing major surgery the GIK (glucose / insulin/ potassium) regimen or a simple variant thereof is the treatment of choice to obtain safe and reasonable glycaemic control during surgery.

Niddm :

Although the majority of operations in diabetic patients are on non insulin dependant diabetics , less attention has been paid to the management of diabetes during surgery in these patients . Considering all available data it is agreed that patients requiring minor surgery with reasonable glycaemic control do not require insulin .For major surgery the same line as in case of IDDM should be followed. It should be emphasised however, that nearly all protocols depend on rapid blood glucose estimation. Most centres now use glucose oxidase dry test strip technology for this purpose.

Emergency Surgery :

In the case of emergency surgery, the metabolic status should be rapidly assessed as ketoacidosis may co-exist and glycaemic control is likely to be poor. Standard therapy for DKA should be started and surgery should be delayed fro 2-3 hours until there is a metabolic improvement. GIK should be used per-operatively in all cases, taking into account the increased insulin requirement in sepsis.

Postoperative Management :

Opinions differ as to the best management regime in the postoperative period. Sliding scales should be avoided as they represent post hoc therapy and usually induce glycaemic instability. Probably the simplest system is to

continue GIK or something similar. In the case of non insulin dependant diabetes GIK is continued until first food is eaten, at which time their usual therapy can be reinstituted, keeping in mind that patient might need increased doses to counter act the catabolic effect of surgery. Moreover, if the post operative period becomes complicated by infection or any other problem there will certainly be an extra demand for insulin.

A Suggested Protocol :

At the Ibrahim Memorial Diabetic Centre (BIRDEM) surgery has been carried out regularly for at least 5 years. Most of the surgical patients are diabetic, Over the years through "trial and error", the management of diabetes in patients requiring surgery has been standardized. This management regime with minor variations is used by almost all the surgeons, anaesthetists and diabetologists. Keeping in mind that facilities of checking electrolytes are not widely available in Bangladesh, a variation of the standard regime is described here. We do not believe that this is the only method of treating diabetics requiring surgery but we have found it to be safe and satisfactory. Certain principles guide this regime. They are:-

a. Unrecognized hypoglycaemia in an anaesthetized patient may have serious consequences and very "tight" intraoperative control of glucose level is unwise.

b. The only satisfactory way of keeping an eye on the blood glucose level is by repeated estimation. This can be done cheaply by using glucose oxidase dry strips. Perioperative management of diabetes by the estimation of urine sugar is obsolete.

c. In all patients requiring elective surgery the preoperative glycaemic control should be reasonable i.e 2 hours after breakfast the blood glucose level should not be >11mmol/l.

d. A thorough preoperative check is essential to exclude cardiovascular, renal and neural problems.

e. Because of the risk of inducing lactic acidosis biguanides are not used preoperatively. Similarly the use of long acting sulphonylureas such as chlorpropamide, glibenclamide preoperatively is also not recommended for fear of inducing hypoglycaemia. Gliclazide or glipizide are the preferred oral hypoglycaemic agent for preoperative blood glucose control.

f. If preoperative blood glucose is not controlled with the maximum recommended dose of oral hypoglycaemic agent (such as 12.5mg of glibenclamide per day) then blood glucose should be stabilized preoperatively using a short acting insulin.

g. Diabetic patients, unless there is a pressing reason, should be put first on the theatre list to minimise the effect of prolonged fasting and dehydration.

h. If possible our choice of anaesthesia is either local or regional (such as spinal). This is not because we believe that general anaesthesia is more stressful but because with local and regional anaesthesia it is possible to resume oral feeding quickly and also allows one to resume the usual antidiabetic therapy as quickly as possible.

i. If insulin is required, it is mainly given as a glucose/insulin/potassium (GIK) infusion. This regime is some what inflexible i.e. it is not possible to quickly alter the insulin dosage without also altering the rate of glucose infusion. However, it is safe and does not put the patient at risk of developing hypoglycaemia.

Management of IDDM AND IRDM(Insulin Requiring) During Elective Surgery :

These patients are usually admitted 48-72 hours preoperatively to make sure that they have satisfactory glycaemic control and to carry out preoperative investigations. If control is not satisfactory, the operation is delayed until satisfactory control has been achieved. The use of long acting insulin is not encouraged

preoperatively and all patients are converted to either intermediate acting or short acting insulin. Subsequent management on the day of the operation is as follows:-

1. The patient fasts for about eight hours preoperatively and does not receive his morning dose of insulin.

2. Dry strip glucose estimation is carried out and if it is >13 mmol/1 then the operation is postponed.

3. It is advisable to also estimate the serum potassium level.

4. A GIK infusion is started at least one hour prior to the operation. If the K^+ is known to be above 5 mmol/1 then K+ is omitted from the infusion regime.

The initial set up of the GIK regime is as follows:

To a bag of 500cc of 5% dextrose solution 1gm of KCI solution is added. Short acting insulin is then added to this bag according to patients blood glucose level using the following rough guide.

Blood glucose	Insulin
<6 mmol/L	No insulin
6-9 mmol/L	6 unit
9-11 mmol/L	8 unit
11-13 mmol/L	10 unit
13-17 mmol/L	12 unit

This mixture is then given intravenously at a rate of 100 ml/hr. The volume infused is taken into account with the total volume of fluid infused and extra fluid is given as per requirment of the situation.

The blood glucose is checked 2 hours later and the dose of insulin is adjusted accordingly using the above guide. If at any point the blood glucose goes above 17 mmol/L then subcutaneous soluble insulin is added on top of the IV insulin. Four units of soluble insulin is given subcutaneously if the blood glucose level is between 17 and 21 mmol/L and 8units subcutaneously if the blood glucose is between 21 and 25 mmol/L.

The level of potassium is checked, if possible, every 6-8 hours and if it goes above 5 mmol/ KCI is omitted from the next bag. If on the other hand it falls below 3 mmol/1 an extra 1gm of KCI is added to the next bag. If there are no facilities for checking serum potassium level, 1gm (31 mmol) of KCI is added to alternate bag of 500ml of 5% dextrose solution.

The infusion regime outlined above is recommended in well controlled, uncomplicated diabetic patients. For insulin resistant cases the dose of insulin needs to be increased. The insulin dose is calculated following the rule of thumb mentioned below.

Obesity 0.3-0.4 units per 1 gm of glucose infusion

Liver disease: 0.5-0.6 units per 1 gm of glucose infusion

Severe infection : 0.5-0.8 units per 1 gm of glucose infusion

Steroid therapy : 0.5-0.8 units per 1 gm of glucose infusion

6. Postoperatively the blood glucose estimation is carried out 2-6 hourly depending on the stability of the blood glucose level and the insulin dose is adjusted accordingly. K+ estimation, if possible, should be carried out 6 hourly and the infusion rate adjusted accordingly.

The GIK regimen is continued until the consumption of the first meal after which subcutaneous insulin could be re-started, keeping in mind that the stress effect of surgery might continue into the post operative period which may increase the insulin requirement.

7. For minor operations this protocol is modified. The morning dose of insulin omitted. The immediate preoperative blood glucose is checked and if it is below 11 mmol/l, the operation is carried out without any insulin

cover. As soon as possible after the operation breakfast along with the patients usual dose insulin is given. If the blood glucose is found to be above 11 mmol/l or if the operation takes an unexpectedly long time the patient is give GIK regime and normal diet and insulin is started as soon as possible after the operation is over.

Management of NIDDM during elective surgery

On Diet Control Only :

Provided that their glycemic control is satisfactory, these patients are treated almost as though they are nondiabetic for the purpose of perioperative management. The only difference is that repeated blood glucose estimation should be carried out. If, however, during the perioperative period the glycaemic control gets out of hand GIK regime should be instituted promptly to gain satisfactory control.

On Oral Hypoglycaemic Agent:

Minor operations : On the morning of the operation oral hypoglycaemic agent is omitted and the blood glucose is estimated. If the blood glucose is satisfactory the operation is carried out and as soon as possible after the operation the patient is given food and the first dose of the oral hypoglycaemic agent.

Major operations: In the morning of the operation the oral hypoglycaemic agent is omitted and the blood glucose level is estimated. If the blood glucose level is satisfactory GIK regime is started and the operation is carried out under cover of the GIK regime which is continued in the immediate post operative period. When the patient is well enough to take oral feeding he is given s.c. insulin twice or three times daily, usually for a few days. Once the insulin requirement of the patient has come down to a reasonable level he is switched to oral hypoglycaemic agent using the rule of thumb that 20 units of insulin is equivalent to 5 mg of glibenclamide.

Emergency Surgery :

If surgery is required as an emergency, the first question that should be answered is how long can one safely wait prior to surgery. If the situation permits, and except for extreme cases it usually does, the operation is postponed until the patient has been assessed inclusive of blood biochemistry, ketone bodies and glucose level. If there is derangement of any of these parameters appropriate corrections are made by using GIK regime supplemented by other steps. Most of the time it is difficult to achieve a satisfactory blood glucose level but once the treatment has been instituted, control over the blood glucose level can be regained in the postoperative period. Correction of ketoacidosis, dehydration, hyperkalemia etc. is more important than the actual blood glucose level prior to surgery. Once these have been corrected the patient can be safely subjected to surgery under the cover of the GIK regime which is of course continued in the post operative period.

One note of caution about the trap of DKA presenting as abdominal pain. One should be aware of this in the emergency situation.

Conclusion :

A rationalised approach towards the management of diabetes during the perioperative period with repeated blood glucose estimation using glucose oxidase dry strip has largely removed the guess work and put it on a firm scientific footing. The route of choice for the delivery of insulin during the perioperative period is intravenous as there is no uncertainty about the absorption and the onset of action is immediate. The use of a syringe pump is superior since it gives much more flexibility and allows far "tighter" control but the safety of the method is dependant on the availability of skilled personnel and also obviously on the accuracy and avilability of this expensive piece of equipment. In a developing

country such as ours, in a hospital lacking skilled staff and sophisticated instruments the GIK infusion is preferable to syringe pump due to the fact that safety is built into the regime.

Thorough assessment in the preoperative period is as important as per and post operative management of a diabetic patient. There is no justification in carrying out an elective operation on a patient with poor glycaemic control. A few days of patience to achieve satisfactory control will be richly rewarded by a smooth post operative period.

We suggest that in each hospital or institution a team should be designated to manage any diabetic patients requiring surgery. Over a period of time, we believe, their cumulative experience will enormously improve the care of this vulnerable group of patients.

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Multiple Basal Cell Carcinoma of Different Histopathological Types on Covered Sites of the Body–A Case Report

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Summary :

An albino male aged 42 presented with two skin tumours. The larger one was on the upper part of the back, an exophytic lesion with ulceration and sloughing. The smaller one on the left supraclavicular region was a noduloulcerative type of growth. Both the tumours were excised completely. Histopathological examination revealed basal cell carcinoma, adenoid type in the larger one and solid type in the smaller one. Multiple basal cell carcinoma on the covered sites, and of different histopathological types are very rare. No predisposing factors could be detected except albinism.

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Introduction :

Basal cell carcinoma is a malignant tumour of the skin arising from the cells of the basal layer of the epidermis. It occurs almost exclusively on the hair bearing skin specially on the face[1]. Multiple basal cell carcinoma is associated with a rare syndrome called multiple nevoid basal cell carcinoma syndrome, first described in 1894[2]. The recognition of this syndrome was only made in 1960[3]. Basal cell carcinoma arises in the skin damaged by solar, electromagnetic and ionizing radiation or by other factors such as vaccination, burns, chronic leg ulcers or sebaceous naevi[4].

Clinical types of basal cell carcinoma are (a) noduloulcerative, (b) pigmented, (c) fibrosing, (d) superficial basal cell car-cinoma and (e) fibroepithelioma[1]. Histopath-ogical types are (a) undifferentiated or solid type and (b) well-differentiated types. The well-differentiated types again are subdivided into keratotic, cystic, and adenoid types[1].

Case report:

An albino male of 42 attended the surgical outpatient department of 200-Bed Hospital of Narayanganj in November, 1990 with the complaints of two slowly growing tumours of the skin. The larger one detected about 4 years age was on the upper part of the back below the prominence of the cervical spine. About two years back he noticed the smaller one located on the left supraclavicular region. The patient was a sedentary worker possesing good health. His family history was non-contributory. On examination the larger tumour on the upper part of the back, was an exophytic lesion measuring about 5x4x4 cm with a broad base. It moved freely on the underlying structures. The smaller one on the left supraclavicular region, was a pearly white nodule with smooth surface. It measured about 4x2x2 cm. Abnormal blood vessels were present on the surface with small punched out ulcer on the centre. It also moved freely over the underlying structures. The regional lymph nodes were not palpable. No abnormality was detected in the chest and abdomen. Haematological report was within normal range and the chest radiograph was also normal. The tumours were excised under local anaesthesia including 5mm normal skin beyond the tumour margin. Histopathological report revealed basal cell carcinoma, adenoid type in the larger one and solid type in the smaller tumour.

Follow-up examination is going on for about 2 years and the patient is doing well.

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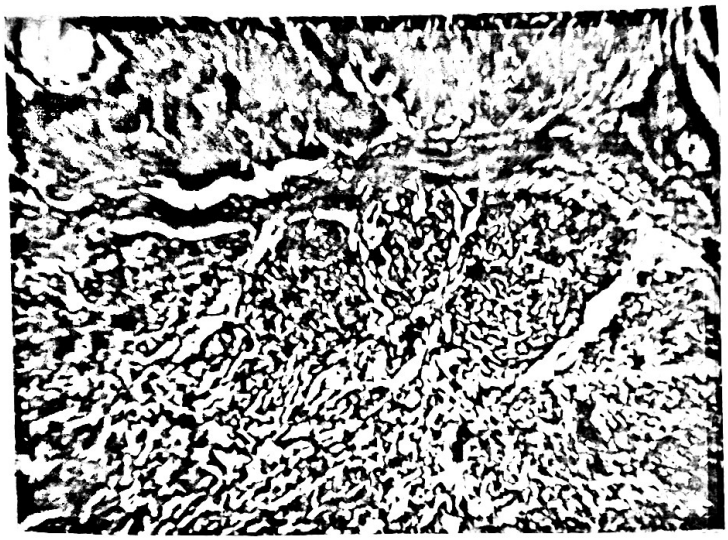

Fig.-1 : *Microscopic view of Basal Cell Carcinoma, solid type (H&Ex38)*

Histopathological findings :

Gross appearence of the larger tumour : Specimen consists of a tumour measuring about 5x4x4 cm including circumferential normal skin. It shows an exophytic ulcerated growth with irregular everted margin. The cut surface appears fleshy and homogeneous and the growth does not appear to extend upto the resected margin.

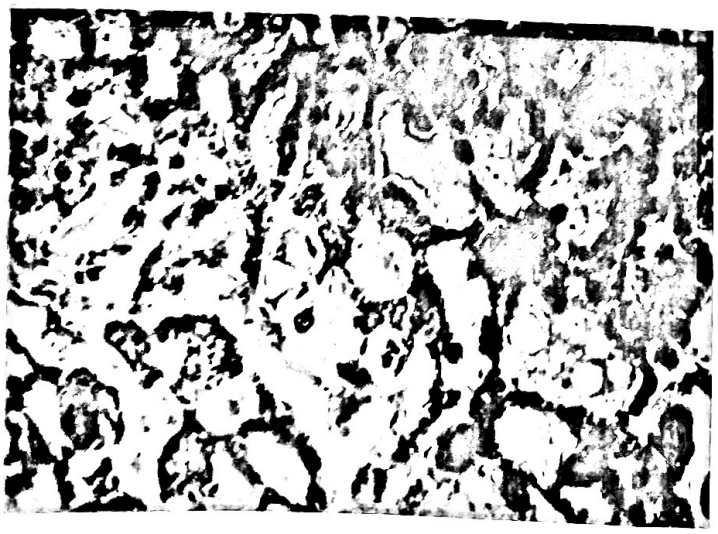

Fig.-2 : Microscopic appearence of Basal Cell Carcinoma, adenoid type (H&E x 320)

Microscopic appearence: Section reveals skin showing a malignant tumour. It is composed of basaloid cells having large hyperchromic nuclei and disposed mostly in tubular, glandlike structurs. The cells are also arranged in lacelike pattern. The stroma is loose and fibroblastic. The tumour cells have little pleomorphism with infrequent mitosis. Resected margin was free of tumour extension. The tumour is a basal cell carcinoma, adenoid type.

Gross appearence off the smaller tumour: The specimen consists of a grayish-white nodular piece of tissue partly covered by skin. The centre presents a raw ulcer. The tumour measures about 4x2x2 cm with homogeneous fleshy cut surface. Two representative blocks were taken including resected margin.

Microscopic appearence; Sections reveal ulcerated skin showing a malignant tumour. The tumour cells are arranged in solid sheets and cords with club shaped downward extensions in the reticular dermis. The peripheral cell layer has palisade arrangement but the nuclei of the cells inside lie in a haphazard fashion. The diagnosis is basal cell carcinoma, solid type.

Discussion :

The commonest predisposing factor of basal cell carinoma is light skin colour in association with prolonged exposure to sunlight[1]. In the present case the patient is an albino sedentary worker with no history of prolonged exposure to sunlight or large dose of roentgen rays.

Computer analysis of 3,531 cases of basal cell carcinomas of the skin revealed that about 85% of basal cell carcinomas developed on the face[5]. Basal cell carcinoma was also reported in the inguinal region of a 63 years old man, on the right breast of a 49 years old man, on the palm of the hand of a 55 years old woman, in the right axilla of an 83 years old woman, and in the periungual tissue of a 66 years old man[6]. In the series of 2,126 cases of basal cell carcinomas

reported by Rahbari and Mehregan[7] only two were unusual in site (one in the axilla, the other in a groin). At the New York University, a computerized file of 3,531 cases of basal cell carcinomas contains occurence in 12 unusual sites (seven on breasts, four in axillae and one in a groin)[5]. In addition to these large series, there are eight reports of basal cell carcinomas on the breasts[8,9] and two in the ungual-periungual regions[10,11]. In the present case one basal cell carcinoma appeared in the upper part of the back on the midline and was exophytic in nature and another on the left supraclavicular region which was a noduloulcerative type of growth.

A case was reported, who had two port-wine stains from birth, in which many basal cell carcinomas developed[12]. Multicentric basal cell carcinoma of penile skin has also been reported[13]. In the present case the tumours were multicentric, had two different histomorphological types.

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Secondary Melanoma In Gall-Bladder –A Case Report

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Summary :

Isolated secondary melanotic deposit in the gall-bladder is a rare occurence. We present here a case of melanoma with metastasis in gall-bladder. A brief review of the literature is done.

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Introduction :

Secondary deposits from cutaneous melanoma have been reported to involve almost every organ system of the body. Its biologic behaviour is very variable and unpredictable[1]. At the advanced stage of the disease involvement of multiple organs is rather common. In spite of widespread involvement, reports of metastatic deposits to biliary tree is remarkably uncommon[2]. Earlier reports of secondary deposits in gall-bladder were made by Dasgupta and Brasfield [3] and Willis [4].

In this connection we report a case of secondary melanotic deposit in gall-bladder.

Case report :

Mr. SM, 50, was hospitalized in the Institute of Post-Graduate Medicine and Research with complaints of vague abdominal discomfort, dyspepsia and general weakness for about a month, There was no history of jaundice or fever.

Previously in June 1990, this patient had excission of a primary cutaneous melanoma in right popliteal fossa along with removal of inguinal lymph nodes, This was followed by a course of radiotherapy for three weeks. He was reasonably well after that and free from any obvious secondaries.

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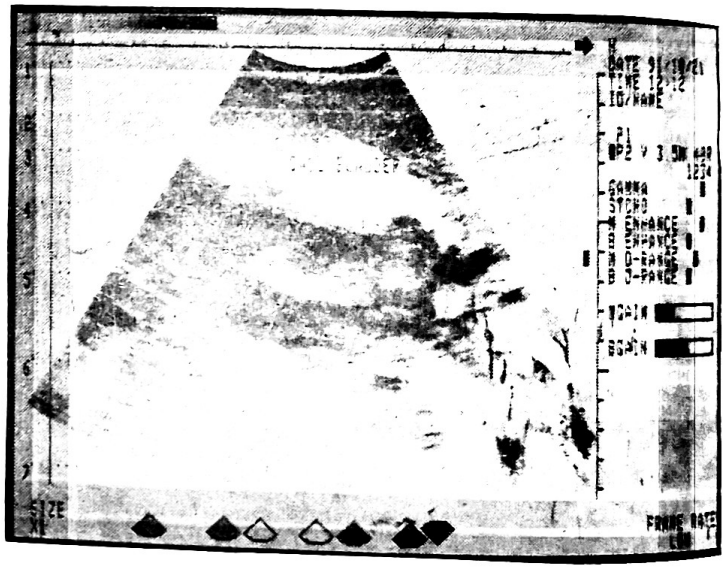

Fig I : *Ultrasonographic appearence of Gall-Bladder.*

Physical findings were unremarkable. Ultrasongraphy of Hepatobiliary system revealed a hyperechoic soft tissue mass in the region of neck of gall-bladder. It was smooth in outline and did not produce any acoustic shadow, There was no evidence of gall stone. Gall-bladder could not be visualized on oral chloecystogram.

Diagnosis could not be confirmed pre-operatively. Exploration was done through a right upper paramedian incision. Gall-bladder was moderately distended. There was a solid, soft, rounded mass in the region of neck attached to the posterior aspect. No evidence of any secondary deposit in the abdomen or other part of the body could be detected . CBD was normal and the lymph nodes in the region were not enlarged.

Cholecystectomy was done. CBD was not explored as there was no history of jaundice and the duct was not dilated. After removal, gall-bladder was splitted open. There was a rounded submucosal swelling, black in colour in the neck of the gall-bladder. It was soft and friable. Specimen was sent for histopathological examination.

Microscopic examination revealed, "Intracelluler melanin pigment deposited in sub-mucosa. On staining for Iron with Pearl's stain, there was no stainable iron."

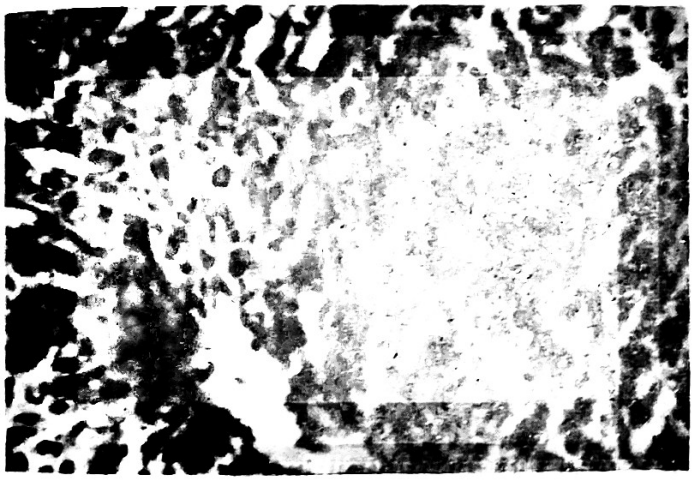

Fig-II : *Photmicrograph Showing Intracellular Melanin deposit*

Discussion :

Secondary deposits in gall-bladder and biliary tree is rare. 50%-60% of all metastasis in gall-bladder have been found to be due to malignant melanoma in post-mortem studies[5].

In a series of autopsy study by Dasgupta and Brasfield[3] of 125 patients who died of recurrent and advanced melanoma, there were 19 (14%) instances of secondary deposits in gall-bladder. In additional 8 (eight) cases extrahepatic biliary tree was involved. Willis[4] in a review found gall-bladder to be involved in 21 patients of melanoma. Frequencies ranging from 4-20% for gall-bladder involvement in cases of cutaneous melanoma have been reported[6].

Obstructive jaundice caused by melanotic deposits of extrahepatic biliary tree have been reported by England and Sarr[2], Bowdler and Leach[7], McArthur and Teergarden[8]. In majority cases metastatic lesions were found as serosal deposits[3]. In about a third cases deposits were mucosal or submucosal, diffuse or polypoid lesions. Dasgupta and Brasfield[3] reported two cases of polypoid lesions in the fundus. In our patient, the lesion was also polypoid situated at the neck of the gall-bladder.

Most cases remain asymptomatic and is diagnosed at post-mortem room. Henriques[9] reported a case of secondary melanoma presenting as acute cholecystitis. Pre-operative diagnosis before appearence of a lump is difficult, Recent reports based on retrospective studies of patients with secondary deposits in gall-bladder, described characteristic ultrasonographic findings[6]. The lesion appears as hyperechoeic area without producing acoustic shadow. In contrast to primary carcinoma stones are not commonly present in association with soft tissue lesions within the gall-bladder. Daunt and king[5] and Phillips[10] reported similar observations. In this case also there was a soft tissue mass without producing acoustic shadow. Though it was suspected to be a secondary deposit a firm diagnosis could not be reached due to lack of experience.

Surgical excission could be benificial in selected group of patients with isolated metastasis in gall-bladder or gut[3]. A meticulous search should be made to exclude secondaries in other systems before proceeding for a surgical procedure. Otherwise palliative procedures like by-pass is recommended. In our patient, there was no intra-abdominal deposits in lymph nodes or gastrointestinal tract. Liver and spleen also seemed to be free of any metastatic deposits. Cholecystectomy was done with the hope of a potential cure.

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