JOURNAL OF BANGLADESH COLLEGE OF PHYSICIANS AND SURGEONS

VOL. 8 : NO. 1
AUGUST, 1990

Published by :
Journal Committee
BANGLADESH COLLEGE OF
PHYSICIANS AND SURGEONS
Mohakhali, Dhaka-1212, Phone : 600454

Printed at :
ASIAN COLOUR PRINTING
130, D.I.T. Extension Road (Fakirerpool)
Dhaka-1000
Phone : 40 76 56

Price :
Taka 30.00 (Inland)
US $ 7 (Overseas)

CONTENTS

CLINICAL PROFILE OF SUBACUTE HEPATIC FAILURE IN BANGLADESH POPULATION

M Khan, P Purkayastha, S Hossain, M Hossain, S M Ali

Key words :

Subacute hepatic failure.

Summary :

Clinical profile of 30 patients with subacute hepatic failure (SHF) were studied. The mean duration of follow-up was 3±1.2 months. Jaundice was due to hepatitis B viral infection in 17(56.7%) patients. Progression or persistence of jaundice from 10 weeks to six months after an acute attack of viral hepatitis, unequivocal ascites or encephalopathy some times during illness, raised AST/ALT in absence of any feature suggestive of pre-existing liver disease were the key indicators for the diagnosis of SHF. All the patients had jaundice and loss of appetite, lethargy and progressive weakness were common accompaniment in 25 (83.3%) patients. Hepatic encephalopathy of grade II to grade III was present in 18(60%) cases. Raised prothrombin time from 18-30 seconds was found in 17(56.7%) patients and serum albumin was low (≺2 gm/dl) in 12 (40%) cases. Twelve patients died during the course of follow-up.

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Introduction :

Viral hepatitis is a common hepatobiliary disease in Bangladesh. It is endemic all over the country. In most of the occasions patients present with jaundice, loss of appetite, nausea and vomiting. In majority of the cases jaundice and the symptoms decline gradually within a span of three to four weeks. However, in a proportion of patients even after adequate measures the jaundice does not subside. This group of patients show progressive deterioration of clinical condition, like gradual increase of jaundice, appearance of ascites, features of hepatic encephalopathy and disturbances in coagulation mechanism. This happens usually after a period of eight weeks. Unlike developed countries this is most commonly prevalent in Indian subcontinent and are labelled as Subacute Hepatic Failure (SHF).

Materials and Methods :

This study includes 30 patients with jaundice initially presented as viral hepatitis. The cases were collected from Institute of Postgraduate Medicine and Research, Mymensingh Medical College Hospital and

private hospitals during the period from January 1987 to November 1989. The mean duration of follow up was 3±1.2 months.

Criteria for Diagnosis :

1. Progression or persistence of jaundice from 10 weeks to six months after the onset of acute hepatitis.
2. Unequivocal ascites and/or hepatic encephalopathy some times during the course of illness.
3. Biochemical parameters (AST, ALT) suggestive of hepatocellular necrosis.
4. Histological evidence of bridging necrosis with panlobular affection by needle biopsy whenever possible.
5. No features suggestive of pre-existing liver disease.

Results :

A total of 30 patients were collected on the basis of the criteria for diagnosis of Subacute Hepatic Failure. Their age and sex distribution is shown in the histogram. There were 22 males and eight females. The commonest age group was between 20 and 39 years. There were 21 (70%) patients in this age group. Second commonest age group was between 10 and 19 (23.3%) years which includes seven patients. The male female ratio was approximately 3 : 1.

In 21 patients jaundice was associated with hepatitis B virus infection. This was diagnosed by the presence of HBsAg in 15 patients and both HBsAg and HBeAg in six patients. However nine patients although presented like viral hepatitis no aetiological factor could be determined. It is worth to mention here that facilities are not readily available to look for markers of hepatitis A (HAV), hepatitis C (HCV) and enterically transmitted non-A, non-B (HEV) virus infection. Other tests such as HBcAg in hepatocytes and alpha fetoprotein were not done in our cases. Therefore, it would not be correct to say whether hepatitis was due to HAV, HCV or HEV in these nine patients.

Clinical Features :

Clinical features are described in table-I. All the patients had moderate to deep jaundice and all of them had ascites sometime

Table—I

Clinical features of 30 cases with SHF

Features	No. of patients	Percentage
Jaundice	30	100
Ascites	30	100
Oedema	22	73.3
Lethargy	25	83.3
Physical incapability	8	26.3
Loss of appetite	25	83.3
Gastrointestinal bleeding	4	13.3
Hepatic encephalopathy	18	60
Hepatomegaly	9	30
Splenomegaly	16	53.3
Vascular Spider	17	56.7
Gynaecomastia	12	40
Testicular atrophy	2	9
Palmar erythema	8	25.7

during the course of the disease. Loss of appetite was found in 25 (83.3%) patients and 22 (73.3%) had oedema of feet. Gradual weakness and lethargy was common accompaniment in 25 (83.3%) patients. Eight patients were physically incapable to manage themselves without support. Eighteen (60%) patients had hepatic Encephalopathy of grade II to grade III. Either they initially presented with hepatic encephalopathy or developed it during the course of follow up. Three patients had persistent encephalopathy and another two developed recurrent episodes of encephalopathy. Prothrombin time and albumin values are shown in table—II. Prothrombin time varied from 18 to 21 seconds in 12 (40%) patients and in five (16.7%) patients it ranged from 22 to 30 seconds, in another five severely ill patients prothrombin time was more than 30 seconds. Prothrombin time was measured after vitamin K therapy and the controlled value was considered to be 13 seconds. Twelve (40%) patients had serum albumin level less than 2 gm/dl whereas in 14 (46.7%) patients it varied from 2-3.5 gm/dl. Serum bilirubin and ALT range are shown in table—III. Serum bilirubin level ranged from five to 16 times of normal in 18 (60%) patients, whereas serum ALT level was five to 10 times normal in 11 (36.7%) patients and in another eight (26.7%) patients it was raised by 11 to 29 times. In only two patients ALT was more than 25 times of normal.

Table—II

Prothrombin time and serum albumin values in 30 cases of SHF

Prothrombin time in seconds	No. of cases (%)	S. Albumin gm/dl	No. of cases (%)
15-17	8(66)	<2	12(40)
18-21	12(40)	2-3.5	14(46.7)
22-30	5(16.7)	3.6-4	2(6.7)
>30	5(16.7)	>4	2(6.7)

Table—III

Serum bilirubin and ALT range in 30 cases of SHF

S. bilirubin Times above normal value	No. of cases (%)	ALT Times above normal value	No. of cases (%)
2-4	4(13.8)	2-4	6(20)
5-8	6(20)	5-10	11(36)
9-12	6(20)	11-15	4(13.8)
13-16	6(20)	16-20	4(13.8)
17-20	5(16.6)	21-25	3(10)
>20	3(10)	>25	2(6.9)

Morphological Fetures :

Needle biopsy of liver was performed in only 10 cases of this series. In many other cases there were contraindications

for any invasive procedure. In biopsy proven cases the histopathological features were diagnostic of subacute hepatic failure. Morphologically subacute hepatic failure may be defined as necrosis involving multiple hepatic plates with involvement of more than one hepatic radicals. It is associated with ballooning of the hepatocytes (Figure-2) with extensive bridging necrosis connecting portal tracts and central vein areas (Figure-3 and 4) The bridging necrosis is seen to separate irregular islands of viable parenchyma which can give a false impression of cirrhosis (Figure-5) unless careful evaluation of morphology is made.

Fig—2 *Ballooning degeneration of hepatocytes (400X).*

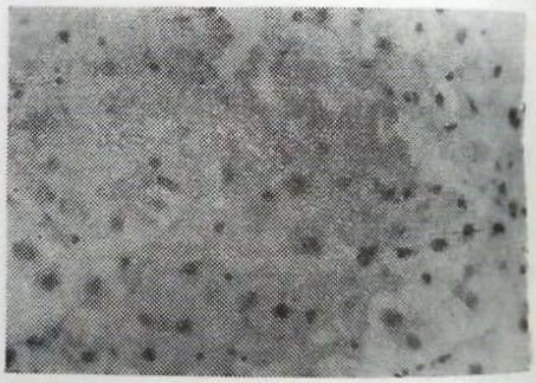
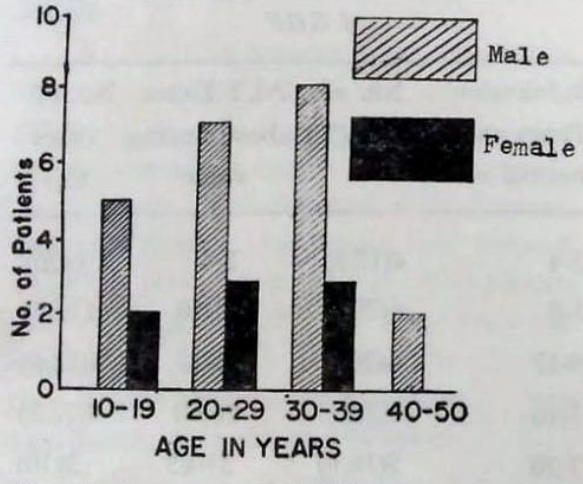


Fig –3 *Bridging Necrosis of hepatocytes connecting portal tracts and central vein areas (400X).*



Fig—1 *There were 21 (70%) patients between 20-39 years. Six of them were female.*

Prognosis :

Subacute Hepatic Failure is a serious disease. In this study nine (30%) patients improved without residual symptoms. Five (16.7%) showed marked improvement but complained of marked lethargy, decreased appetite and flatulence. Four (13.3%) patients during the follow up period did not improve clinically and biochemically. This group of patients showed progressive increase of jaundice, ascites and deterioration of coagulation profile during six months from the onset of symptoms. Twelve (40%) patients died during the period of follow up. The results are shown in table-IV.

Table—IV

Prognosis in 30 cases with SHF

Course	No. of cases (%)
Improvement without residual symptoms	9(30)
Improvement with residual symptoms	5(16.7)
Deterioration	4(13.3)
Died	12(20)

Only 9 (30%) patients improved without residual effect. Twelve (40%) died during follow-up.

Fig—4 *Bridging necrosis of hepatocytes connecting portal tracts and central vain areas (440X).*

Treatment of subacute hepatic failure :

Treatment of subacute hepatocellular failure is very unsatisfactory. The disease runs a downhill course within a short span of time. Therefore, the present trend of management is only supportive. In this study patients were encouraged for maintenance of calorie, fluid and nutrition through oral route. In severely ill patients those who could not swallow, nutrition was maintained mostly with Ryles tube feeding. Only occasionally I/V route was used in desperately ill patients. In presence of hepatic encephalopathy the calorie requirement was man g d by carbohydrate diet in addition to gut sterilization by lactulose or metronidazol. Ascites and oedema were dealt with combination of proximal tabular and loop diuretics besides salt restriction. Fresh plasma and blood was transfused as and when indicated when coagulation profile was not corrected after vitamin K administration. Systemic antibiotics were used only in cases of overwhelming infection. Response was good in those who survived with or without residual symptoms. Those who died, did not respond to this supportive therapy. There appears no role of corticosteroids in the treatment of subacute hepatic failure, rather it was found deleterious in patients with hepatitis B infection.

Fig—5 *Irregular islands of viable parenchyma separated by bridging necrosis giving a false impression of cirrhosis (440X).*

Discussion :

The idea about subacute hepatic necrosis was conceived long time ago by

several authors, (Saint et al, 1953; Havens, 1962; Alsted, 1947; Klatskin, 1958; Sherlock, 1966). Earlier authors noticed that less than 3% of patients following acute hepatitis the disease worsens over a 1—3 months period and extensive necrosis of hepatocytes occurs. This condition was referred to as acute hepatitis with confluent necrosis or subacute hepatitis (International group, 1971; Boyer and Klatskin, 1970). The term subacute hepatic necrosis is no longer used now a days. Fulminant hepatic failure has been defined as hepatocellular dysfunction of such severity that coagulopathy and encephalopathy become detectable within eight weeks of the onset of liver disease (Jones and Schafer, 1982). In fulminant hepatic failure morphologically the liver shows massive, multilobular or bridging necrosis (Horney and Galambos, 1977; Goertz and Williams, 1973).

Those who survive, the liver may heal without functional sequelae and without development of cirrhosis (Karvountzis et al, 1974; Desmet et al, 1983). The term subacute hepatic failure has been coined as a distinct disease state in which liver failure develops insidiously at least eight weeks after the onset of hepatitis. It appears that hepatocellular damage is severe in acute hepatic failure than in subacute hepatic failure. Most (70%) of the patients belonged to the age range between 20 and 39 years. This was close to the findings of other authors (Nayak, 1983). Number of male patients were about three times that of females. This is probably not true representative figure because of social constraint, where females get less attention than males. Hepatitis B virus infection appeared as a predominant aetiological factor in this study. Mass motivation with campaign about vaccination in the society could probably reduce the magnitude of this problem. All the patients presented with marked evidence of hepatocellular failure. Jaundice and varying degree of ascites were common accompaniment. About 60% of patients had hepatic encephalopathy some time during the course of follow up. Clinical findings of this study kept close approximation to the cases reported from India (Tandon, 1983). None of the patients were alcoholic and two had insulin dependent diabetes mellitus. Two patients gave history of recent blood transfusion. Biochemical parameters were suggestive of advanced hepatocellular dysfunction in most of the patients. The follow up period in this study was not adequate. Even than 12 (40%) patientsdied during the course of observation. Subacute hepatic failure is undoubtedly associated with high mortality and morbidity. Experiences suggest that SHF is a great hepatobiliary problem in Bangladesh. Many patients are deprived of proper medicare in the initial period of jaundice because of social prejudice and ignorance. Alertness on the part of the physicians and prevention of viral hepatitis in the community would probably reduce morbidity and mortality. It is worth to note that HAV and HBV infections are now preventable by vaccination. However, the role of HCV and HEV in the present series as an aetiological factor of SHF was not looked for. It is presumed that blood born non-A, non-B hepatitis is probably related to HCV infection (Alter et al, 1989). Therefore, it is likely that HCV infection may be associated with SHF which needs to be confirmed by further

study. HEV infection on the other hand behaves like that of HAV. HEV particles can be visualised by immune electron microscopy in faeces of patients with HEV at the late incubation period and early acute phase of infection. Recently ELISA method for detection of HEV antigen in faeces and an IgM anti HEV in serum has been developed (Hui et al, 1989). Therefore, in Bangladesh there is scope to study whether HEV has any role in the causation of SHF. Supportive treatment in seriously ill patients is yet unsatisfactory. This gives rise to the question whether liver transplant would be of help in this group of patients in future.

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ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY EXPERIENCE OF 100 CASES AT IPGMR, DHAKA

M Hasan, MT Rahman, AKM Khorshed Alam, AK Azad Khan

Key words :

Endoscopy, Cholangiopancreatography, Retrograde.

Summary :

Endoscopic retrograde cholangiopancreatography (ERCP) is a very useful investigation in the diagnosis of pancreatic and biliary tract diseases. This technique has been in use in IPGMR, Dhaka and reported here are the findings of the first 100 cases. This is the first report of ERCP in Bangladesh. Most patients were between the ages of 11 and 40 years. The clinical indications were chronic pancreatitis (50 patients), obscure abdominal pain (15 patients), post cholecystectomy syndrome (14 patients), common bile duct stone (11 patients), obstructive jaundice (nine patients) and ampullary carcinoma (one patient). ERCP was successful in outlining one or both ducts in 75 cases and the desired duct could be outlined in 64 cases. In 44 patients a definite diagnosis was reached. Even in the 31 cases where no abnormality was found at ERCP, this helped to exclude a presumed clinical diagnosis. There was no major complication in these patients. ERCP is a safe and useful investigative procedure in the diagnosis of biliary tract and pancreatic diseases.

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Introduction :

Even in the early seventies pancreas and biliary tree were remote areas, diagnostically accessible only at laparotomy. Since that time a number of diagnostic methods have come into use, which can define the normal and abnormal features of the biliary and pancreatic ductal system. Endoscopic retrograde cholangiopancreatography (ERCP) is one of these important techniques. Since most pancreatic diseases and virtually all causes of surgical jaundice have characteristic ductal abnormalities, these studies provide valuable and accurate diagnostic informations. ERCP is a fairly safe and expeditious procedure with an 82 to 93 percent success rate (Cotton, 1976 ; Silvis et al, 1976 ; Gaisford, 1976). However, ERCP needs specialized equipments such as side viewing endoscopes and X-ray machines with image intensifiers, and also needs

endoscopic skills of the highest degree. Hence this technique has not become widely available.

In Bangladesh, this procedure began to be used for the first time in May 1984 in the Gastroenterology department of the IPGMR, as equipment for this became available. We have been performing ERCP on selected patients in the Gastroenterology department of the IPGMR since that time. We report here our experience with the first one hundred cases. This is the first report of ERCP from Bangladesh.

Materials and Methods :

This report includes the first 100 cases who have undergone ERCP at IPGM&R. Sixty nine patients were from the IPGM & R, most of them admitted in the Gastroenterology department. The indications for ERCP of these patients are shown in Table I. Thirty one patients were referred from the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dhaka. These patients had undergone ERCP as part of investigations indicated for tropical calcific pancreatitis.

Table—I

Indications for ERCP

Indication	No. of Patients
Chronic pancreatitis	50
Obscure abdominal pain	15
Post cholecystectomy syndrome	14
Common bile duct stone	11
Obstructive jaundice	9
Ampullary carcinoma	1

The methodology of ERCP has become standard and is described in many texts (Dagradi, 1983 ; Vennes and Silvis, 1989). Briefly, the patients were brought to the X-ray department of IPGMR in a fasting state. They were put on the table of an X-ray machine equipped with an image-intensifier and sedated with intravenous diazepam (10 to 20 mg) and pethidine hydrochloride (50-100 mg). A side viewing endoscope (Olympus GIF-B4) was then introduced upto the second part of the duodenum. The papilla of Vater was identified and cannulation was attempted. If cannulation could be done, contrast was injected and the passage of contrast was observed on the screen of the image intensifier. Pictures were also taken. If one of the ductal systems was cannulated, cannula could be withdrawn and attempts made to cannulate the other duct system from another direction. Patients were taken to the wards after the procedure and kept fasting till the evening. If there was no complication, patients were given light meal in the evening.

Results :

Of the total patients 37 were females and the rest were males. Age distribution of the patients in this study are shown in Table II. Most of the patients were in the second and third decades of their life. Elderly patients were fewer in number. Age was not recorded in 13 patients.

In 75 patients one or both (pancreatic and biliary) ductal systems could be cannulated and pictures taken after outlining the duct by contrast. In one patient, the diagnosis of ampullary carcinoma was made by the characteristic appearance at ERCP,

Table—II

Age distribution of 100 patients undergoing ERCP

Age group in years	No. of patients
11-20	19
21-30	32
31-40	15
41-50	5
51-60	10
Above 60	6
Not recorded	13

Table—III

Distribution of duct systems outlined in 75 patients in whom ERCP was successful

Duct outlined	No. of patients
Only pancreatic duct outlined	31
Only bile duct outlined	23
Both ducts outlined	21

Table—IV

Outlining of the desired duct system in 75 patients

Desired duct outlined	64
Desired duct not outlined	11

Table—V

Diagnosis made at ERCP in 76 patients

Diagnosis	No. of patients
Chronic pancreatitis	22
Stone in common bile duct	13
Bile duct stricture	4
Obstruction in cystic duct	2
Stone in left hepatic duct	1
Bile duct carcinoma	1
Ampullary carcinoma	1
No abnormality found	31

although the ducts could not be outlined. The diagnosis was confirmed by histopathological examination of biopsies taken through the endoscope. In the remaining 24 patients, the procedure was a failure. Of the 75 patients in whom the ducts could be outlined, 21 patients had both ducts outlined, 31 had only pancreatic duct outlined and in 23 only the bile duct was outlined (Table III). In many of these cases, once the ductal system which was suspected to be the site of the disease was outlined, no attempt was made to outline the other ductal system. This was done to save screening time. This is evident from Table IV which shows that of the 75 successful cases, the desired duct could be outlined in 64 patients.

Table V shows the diagnosis reached at ERCP. In 44 patients a definite diagnosis was made, most of which were chronic pancreatitis (Figure 1) and stones in the common bile duct (Figure 2). Even in the 31 cases where no lesion was found at ERCP, this was helpful in excluding a suspected disease.

Fig—1 *Endoscopic retrograde pancreatography showing dilatation, irregularity and obstruction of the pancreatic duct due to chronie pancreatitis.*

Fig—2 *Eadoscopic retrograde cholangography showing stones in the common bile duct.*

In this series, there was no major complication. Five patients complained of mild abdominal pain after the procedure, but this settled down within a few hours with an additional dose of pethidine hydrochloride.

Discussion :

McCume (1968) was the first to report successful cannulation of the papilla of Vater. Intense efforts by Japanese optical engineers and endoscopists resulted in the development in 1968 of a 10 mm diameter side-viewing endoscope (Oi et al, 1969) and retrograde filling of pancreatic and biliary ductal systems became a reality (Ogoshi et al, 1970). In the early seventies, the technique was acquired in Europe and North America (Cotton, 1977 ; Ingelfinger, 1972). With continuing experience normal ductal characteristics were defined and abnormal patterns in various diseases become recognized. Indications have become clear. In the biliary tract ERCP is of value in (1) the diagnosis of obstructive jaundice (2) abdominal symptoms after biliary tract surgery (3) when abnormal tests suggest biliary tract disease. Therapeutic application of this for the non-operative removal of common bile duct stones and papillary stenosis has also come into use (Kawai et al, 1974 ; Cotton, 1980). In pancreatic disorders, ERCP is indicated in the following situations: (1) to discover remediable causes in patients with recurrent acute pancreatitis (2) as preoperative evaluation in patients with chronic pancreatitis and chronic pain (3) in the investigation of suspected pancreatic carcinoma and in patients with a pancratic mass (Vennes and Silvis, 1989). Success rate of ERCP has been reported to be 80 to 90 percent in other series (Cotton, 1977; Silvis et al, 1976; Gaisford, 1976). In this series the success

rate was 64 percent. The lower success rate is due to our initial lack of experience. The success rate was higher in the later part of the series as our experience increased. A large proportion of our patients had a clinical diagnosis of chronic pancreatitis. This was because a study of idiopathic calcific pancreatitis was being conducted at that time and ERCP was done as a part of the investigations. Since this disease occurs in younger patients, the proportion of younger subjects in this study is also higher. The proportion of patients with chronic pancreatitis will be much lower in future patients.

ERCP contributed significantly to the diagnosis in our patients (Table V). In 44 patients a definite diagnosis was reached. Even in patients in whom no abnormality was found, ERCP helped to exclude a presumed clinical diagnosis.

Complications have been found to occur in three percent of patients, with a mortality of 0.1 to 0.2 percent (Bilboa et al, 1976; Nebel et al, 1975). In our patients there was no major complication.

It is apparent, therefore, that ERCP is a useful and safe investigative procedure for biliary tract and pancreatic diseases. However, this should only be done when proper indications are present, because the facilities available are limited and the procedure is costly. At present the facilities for ERCP are limited to two centres in the country. This is technically a difficult procedure to perform and skilled manpower is limited. Since the procedure is useful, it is hoped that facilities for ERCP will be extended to other centres. But even then judicious care should be exercised in the selection of patients.

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EFFECTIVENESS OF SEQUENTIAL AUTOVENOUS BY-PASS GRAFTING IN THE RECONSTRUCTION OF LOWER LIMB ARTERIES : A STUDY ON 27 CASES

S A N Alam

Key words :

Autogenous venous graft, Sequential by-pass grafting.

Summary :

The sequential by-pass grafting with autogenous veins was tried in femoro-popliteo-tibial arterial segments in 27 patients. Intraoperative flow measurements showed increased blood flow through sequential grafts. High rate of graft-flow ensured better graft patency both in the early and late post-operative periods.

Introduction :

Restoration of blood flow in occlusive arterial diseases of lower limbs depend on the suitable graft material and the surgical technique used. Emphasis is also given, for a better outcome, on indication of operation and skill of the vascular surgeon. Use of autogenous veins as graft material improved the result of surgery. Inspite of this, most of the authors register a 10-20% early postoperative graft failure due to thrombosis (Raviola et al 1982; Szilagyi, 1982; Knyazev et al, 1984). The problem of decreasing the rate of early postoperative graft failure is really difficult and still to be solved.

Defects in blood coagulation, low flow rate of blood through the graft, disturbances in the inflow and outflow tracts and technical faults account for most of the early post-operative graft failures (Blackshear et al 1980; Druk et al, 1986). Cardiac surgeons (Bartley et al, 1972) successfully used the sequential by-pass method to increase the rate of blood flow through aorto-coronary by-pass graft. Stimulated by this finding efforts were taken in the present study to use the sequential method in lower limb arterial reconstruction.

The aim of the study was :

1) to see whether the results of surgical treatment for atherosclerotic occlusion of lower limb arteries can be improved by using sequential autovenous by-pass grafts ;

2) to elucidate the effectiveness of the sequential by-pass in the surgery of 'multi-stage' occlusion and as prophylaxis against early postoperative graft failure.

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Materials and Method :

Twenty seven patients in the age group of 45 to 70 years undergone femoro-popliteo-tibial autogenous saphenous vein by-pass grafting by sequential method. This method differs from the conventional grafting in that an additional side to side anastomosis is placed besides those usual proximal and distal anastomoses. Nineteen such side to side anastomoses were formed between the superficial femoral artery and graft in the adductor canal. In one case femoro-posterior tibial by-pass was performed, the anterior tibial artery being sutured to the graft by an additional anastomosis. In seven patients popliteal artery served as the site for such side to side anastomosis. Proximal anastomosis was placed either to the superficial or common femoral arteries. Superficial femoral, popliteal, anterior and posterior tibial arteries were used for distal anastomosis. The great saphenous vein having an average diameter of 7.47 ± 0.75 mm was used as graft.

For the assessment of the degree of vascular insufficiency in lower limbs and effectiveness of surgical procedures all patients underwent capilliaroscopic, electrothermometric, rheovasographic, angiographic and angioscintigraphic investigations. Angiographic examinations were done with 'Tridoros-Optimatic-1000' of Siemens (FRG). Angioscintigraphy was performed in a Gammacomplex 'MB 9100' of 'GAMMA' (Hungary) using 99m Tc-pertechnetate as isotope. Intraoperative flow measurements were obtained using an electromagnetic flowmeter 'PKE-2' (USSR) and calibrated probes. All distal anastomoses were done under operating microscope (4-10× magnification) using microsurgical instruments and techniques. In evaluating the results, various methods of data processing were used in SM-4 (USSR) computers.

Assessment of the results of operation was based on clinical observation (pattern of ischemic rest pain, condition of trophic ulcers and so on) and results of vascular laboratory investigations.

Results :

Intraoperative blood-flow recordings from popliteal arteries showed an average increase from 32.32 ± 14.86 ml/min. (prior to grafting) to 178.81 ± 22.38 ml/min (after grafting). The average graft-flow recorded were 226.35 ± 35.90 ml/min (above the additional anastomosis) and 179.65 ± 23.96 ml/min (below or distal to the additional anastomosis) respectively. This quantitative reduction in flow between the proximal and distal graft segments may be considered as the amount of arterial 'outflow steal' (48.70 ± 11.97 ml/min).

Angiography showed patent grafts with considerable amount of new collateral vessels. Angioscintigraphy of the leg showed speedy accumulation of isotopes and improvement of its capillary phase in all cases. Postoperative capillary phase reading in relation to that of the preoperative one was increased by 28-49% on an average.

Results of operation was evaluated as 'good' when there was complete relief of rest pain and popliteal or distal tibial artery-pulsation in 21 (77%) patients and 'satisfactory' when clinical symptoms of vascular insufficiency became less but popliteal or distal tibial artery-pulsation was absent in six

Table—I

Results of Sequential Autovenous By-Pass Grafting of Lower Limb Arteries

Stage of disease (degree of ischemia)	No. of patients	Results of operation			
		Good	Satisfactory	Ineffective	Bad
II	7	7	—	—	—
III	15	12	3	—	—
IV	5	2	3	—	—
Total	27	21	6	—	—

(22.2%) cases (table-I). Three patients out of later six were having IVth degree vascular ischemia prior to grafting. There was no early graft failure.

Discussion :

So far the reconstructive vascular surgery of lower limb is concerned, sequential method of by-pass grafting had limited use. In related papers informations about the use of autogenous veins as graft material with sequential technique as the method of by-pass are scanty. Our study showed not only the positive sides of the sequential method, but also pointed out its extensive scope in multistage occlusion of lower limb arteries. This study showed that in following circumstances the sequential method may be used on priority basis : (1) in 'two-stages' occlusion of the femoral artery; (2) in critical stenosis of the femoral and popliteal arteries ; (3) in 'multistage' occlusion of the femoro-popliteo-tibial arterial segments. With the reinclusion of vital collaterals (which would otherwise be excluded from circulation in conventional method of by-pass) into the main stream by means of sequential anastomosis, the out-flow tract was increased. This in turn decreased the peripheral vascular resistance and increased overall graft-flow. Flow rates measured on the operating table clearly demonstrated this. It should be mentioned in this connection that the so-called 'out-flow steal' (observed as quantitative change in flow between the proximal and distal segments) is the amount of blood redistributed into the distal part of the ischemic limb through collateral system.

There has been a greater response to surgery, with return of peripheral pulses, warmth of the foot and rapid healing of trophic ulcers as compared with conventional method of femoro-popliteal and femoro-tibial anastomosis. In fact, the sequential method made it possible to restore circulation in a group of patients in whom reconstructive vascular surgery would be otherwise have been difficult or impossible.

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CLINICAL PROFILE OF KALA-AZAR IN RAJSHAHI : A PROSPECTIVE STUDY OF 273 HOSPITALISED PATIENTS DURING ONE YEAR

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Key Words :

Kala-azar (Visceral leishmaniasis), Clinical features.

Summary :

A total of 273 consecutive cases of Kala-azar (Visceral leishmaniasis) admitted in all the medical and paediatric units of Rajshahi Medical College Hospital during one year period from October, 1988 to September, 1989 were studied. Kala-azar patients constituted 3% of total admission in those units. Majority of the patients (61%) were within 20 years of age. Male-female ratio was 2 : 1. Fever, hepatosplenomegaly, anaemia, pigmentation, weight loss despite normal or even voracious appetite were the important features observed. The clinical features were classical. There were some atypical presentations, mostly noticed in the older age groups. Leucopenia and high ESR were the important laboratory findings. The importance of Aldehyde test and CFT in the diagnosis of Kala-azar in our setting is discussed. The death rate was 5.9% which is much lower in comparison to other series.

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Introduction :

Kala-azar or Visceral lesishmaniasis had been known to exist in the territory that corresponds to present day Bangladesh since nineteenth century with epidemics occuring every 15-20 years (Napier, 1946). The disease was an important public health problem during the pre-malaria eradication period in the 1950s (Gramiccia and

Sacca, 1953). With the launching of malaria eradication programme by WHO, Kala-azar almost disappeared from this country during 1960s as incidental effect of DDT on the sand fly vector (Elias et al, 1989). But, after the cessation of DDT spraying, increasing number of cases of Post kala-azar dermal leishmaniasis (PKDL) and visceral leishmaniasis are being reported from various parts of Bangladesh (Rahman and Islam, 1983 ; Khan, 1977 ; Islam, 1982 ; Hussain and Rashid, 1987). The situation in Shajadpur Upazila in Sirajgonj district have already been reached in an epidemic form (Elias et al, 1989) and the situation in Rajshahi district is no less worse (Elias et al, 1989 ; Hossain and Chowdhury, 1988). In India, there was an epidemic outbreak of Kala-azar in Bihar state in around 1977 and (Thakur, 1984) in Malda and Murshidabad districts of West Bengal in 1980-81, (Chakraborty et al, 1982) showing an east wide spread. The spread of Kala-azar in Assam was up and down the Brahmaputra valley and subsequently spread up the hot, humid and alluvial Gangetic plains upto Lucknow. In Bihar, the disease was mostly confined to the moist hot belt on either side of the Ganges (Aikat et al, 1979). Rajshahi, the north western part of Bangladesh adjoining West Bengal of India is situated on the bank of the river Padma which is a continuation of the Ganges. The current outbreak of Kala-azar in Rajshahi has provided us with an opportunity to study kala-azar cases in large numbers to see the clinical pattern of the disease which may vary from epidemic to epidemic and in different geographical areas leading to diagnostic failure (WHO Tech Rep, 1984). Lack of modern laboratory facilities even in most of our largest medical centres makes it essential in an endemic or epidemic area to give special emphasis on the clinical features for suspicion and diagnosis of Kala-azar cases that will pave the way for early treatment thus helping the control of the disease.

Material and Methods :

A total of 333 consecutive suspected Kala-azar cases admitted in all the medical and paediatric units of Rajshahi Medical College Hospital (RMCH) during one year period from October, 1988 to September, 1989 were studied. In each case detail history was taken which included age, sex, occupation, residence, socioeconomic status, living condition, exact duration and pattern of fever, appetite, pigmentation, cough, diarrohea etc. and were recorded in a prepared format devised for the study. All the patients were examined for evidence of anaemia, koilonychia, jaundice, oedema, ascites, pigmentation, hair changes and lymphadenopathy. Temperature chart was maintained in each case. The spleen was measured in centimeter from the costal margin in the anterior axillary line to the tip, and the liver was measured in centimeter in the mid clavicular line from the costal margin to its margin. Other systemic examinations were also carried out. All the findings were recorded in the protocol. Investigations included total and differential leucocyte count, thrombocyte count, routine stool and urine examination, erythrocyte sedimentation rate (ESR), haemoglobin (Hb) estimation and Aldehyde test (AT). Complement fixation test (CFT) for Kala-azar

using an extract of *Mycobacterium phlei* (Rahman, 1975) was done in 278 cases. A positive CFT in 1 : 100 (or more) dilutions of serum was taken as strongly positive, in 1 : 50 dilutions as moderately positive, and in 1:25 dilutions as weakly positive. In AT, a positive reaction within 20 minutes was taken as strongly positive, within two hours as moderately positive, and within 24 hours as weakly positive. Chest X-ray was done routinely. ECG, Liver function test (LFT) and Tuberculin test were done when felt necessary. Bone marrow aspiration was done in all but eight cases and stained with Giemsa stain for Leishmania donovani (LD) bodies. Splenic puncture was done in selected eight cases where bone marrow aspiration failed to reveal LD bodies and there were strong clinical suspicion of the disease. Culture in modified NNN medium containing rabbit's blood was started initially but abondoned later due to contamination of the culture tube by bacteria.

Kala-azar was diagnosed when LD bodies could be demonstrated in the smear of bone marrow or spleen. Cases with strong clinical suspicion of Kala-azar with positive AT and CFT, after exclusion of all other possible causes for the illness, were also taken as Kala-azar in our study.

Results :

Two hundred seventy three cases fulfilled the diagnostic criteria of Kala-azar which constituted 3% of total admission in all the medical and paediatric units of RMCH during the study period. One hundred and ninty one cases (70%) were LD body positive, 74(27%) cases were LD body negative and in eight cases bone marrow or splenic aspiration could not be done. Aldehyde test done in all cases was found positive in 256(93.8%) cases. CFT for Kala-azar done in 233 and was positive in 221(94.8) cases. Out of 60 patients who did not fulfil the diagnostic criteria of Kala-azar, 32 were of doubtful Kala-azar and 28 were non Kala-azar cases, and these were excluded from the study.

Of the 273 Kala-azar cases, 184(67.4%) were male and 89(32.6%) were female (M:F=2:1). in paediatric population, the male to female ratio was 1.35:1, whereas in the adult group the ratio was 2.65:1. The maximum number of patients were in the age group of 11-20 years (32.2%) followed by the age group 0-10 years (Table-I). The youngest patients were two children of 18 months, age of the oldest being 60 years.

Table—I

Age and sex distribution of Kala-azar patients (n=273)

Age in years	No. of cases	Percentage
0-10	79	28.9
11-20	88	32.2
21-30	54	19.8
31-40	37	13.6
> 40	15	5.5
Sex		
Male	184	67.4
Female	89	32.6

Fever was the most prominent symptom (present in 98.5% cases) for which patients sought medical advice (Table-II). There

Table—II

Symptoms of patients with Kala-azar (n=273)

Symptoms	No. of cases	Percentage
Febrile Intermittent with double or triple rise in 24 hours	269	98.5
	104	38.7
Intermittent fever	52	19.3
Remittent fever	37	13.7
Low grade fever	26	9.7
Irregular fever	50	18.6
Afebrile	4	1.5
In apyrexial period	159	58.2
Loss of weight	240	87.9
Decreased appetite	131	48.0
Cough	96	35.2
Loose motion	43	15.8
Haemorrhagic manifestations	21	7.7

were four afebrile patients also. Of them one 45 years old male patient presented with dysentery, chronic cough with evidence of malnutrition and found to have associated pulmonary tuberculosis ; one 35 years old male was admitted to the hospital for abdominal pain ; another 50 years old male presented with dysentery and evidences of malnutrition and one 35 years old female admitted to the hospital with the complaints of general weakness and feeling of lump only. All of them had marked splenomegaly and LD bodies were found in the bone marrow. The duration of fever before admission ranged from 10 days to four years, most of them being within 1-6 months (Table-III).

Spleen was palpable in 270(98.9%) cases (Table-IV), the largest spleen being 20 cm.

Table—III

Duration of fever in Kala-azar patients (n=269)

Duration in months	No. of cases	Percentage
<1	1	0.4
1-3	126	46.8
4-6	70	26.0
7-12	61	22.7
>12	11	4.1

Table—IV

Physical signs in Kala-azar patients (n=273)

Signs	No. of cases	Percentage
Splenomegaly	270	98.9
Hepatomegaly	249	91.2
Anaemia	264	96.7
Sparse and brittle hair	105	38.5
Ankle oedema	36	13.2
Hyperpigmentation of skin	124	45.4
Jaundice	18	6 6
Ascites	6	2 2
Lymphadenopathy	26	9.5
Koilonychia	8	2.9
Splenic infarction	6	2 2
Generalised bony tenderness	2	0.7

In one child in whom spleen was not palpable though the duration of illness was curiously reported to be 18 months and LD bodies were demonstrated in the bone marrow. In two adults in whom spleen was also not palpable, had fever respectively of 1.5 and 2.5 months duration and in one bone marrow could not be aspirated even on two attempts and another patient left the hospital before bone marrow aspiration, but AT and CFT were positive in both of them.

Hepatomegaly was present in 91.2% cases. The splenic enlargement was much more than the hepatic enlargement in 95% cases. Hepatic enlargement was more marked in 5% patients, mostly noticed in early cases. The size of the spleen corresponded with the duration of fever in the majority (Table-V). However, in 52(19%) cases in this series the splenic size was much larger than expected for the duration of fever.

Table—V

Splenic size, hepatic size and duration of fever in Kala-azar patients

No. of cases	Splenic size in cm.	Mean hepatic size in cm.	Mean duration of fever in months
3	0	0	2.0
26	Upto 3	2.9	4.3
100	More than 3	3.2	4.4
76	More than 6	3.6	5.0
78	More than 9 (mean 12.4)	4.4	8.3

The mean spleen size in those cases was 8.6 cm and mean duration of fever was 1.5 months. In eight (3%) cases the splenic enlargement was much smaller than expected for the duration of fever, the mean spleen size being 1.6 cm and mean duration of fever 10 months.

Increased pigmentation, mostly generalised, was observed in 126(46.2%) cases. In early stage of the illness there was usually generalised earthen grey pigmentation of the skin and in chronic cases actually the true hyperpigmentation developed all over the body, particularly more marked over the extremities, knee and elbow joints, face and over the forehead. It was interesting to note that most of the remaining patients were of darker complexion which was normal for them. The distinction between normal black complexion and hyperpigmentation was made by the repeated questioning of the patients or their relatives regarding the recent change in the skin complexion. Lymphadenopathy was present in 26(9.5%) patients and in most of them these were thought to be due to secondary infection. In only two cases the lymphadenopathy was suspected to be due to leishmanial involvement. But LD bodies could not be demonstrated in the lymph node aspirates. Clinical jaundice was observed in 18(6.6%) patients but it could not be ascertained whether they were due to visceral leishmaniasis itself or due to associated viral hepatitis though in none of them HBs Ag could be detected. Two patients had generalised bony tenderness which disappeared after anti-leishmanial therapy was started. Haemorrhagic manifestations in the form of epistaxis, haemoptysis, haematemesis, melaena, purpura and gum

bleeding were observed in 21(9.7%) patients and in most of the cases thrombocyte count was reduced. Splenic infarction was suspected clinically in six patients and one patient developed appendicular lump during hospital stay. Five patients developed herpes zoster in the hospital. Nine cases had associated pulmonary tuberculosis and one patient had bilateral pleural effusion who died before the cause could be ascertained. Sixteen patients (5.9%) died in the hospital during treatment with sodium stibogluconate. The causes of death in these cases have been shown in Table—VI.

The result of Aldehyde test and Complement fixation test is shown in Table—VII. Raised ESR, leucopenia and moderate to severe anaemia were the important features noted (Table—VIII). The peripheral blood film showed hypochromic microcytic red cells with anisocytosis and poikilocytosis in most of the cases. LD bodies were detected in the bone marrow aspirates in 187 cases and in splenic aspirates in four cases. In 10 patients, LD bodies could only be detected on second bone marrow aspirate (Tabe-IX). Splenic aspirate could reveal LD bodies in four out of eight patients, in whom bone marrow was negative for LD body. LD bodies could not be demonstrated in 16 patients due to inadequate marrow aspirate and in six patients LD bodies could only be found after careful review of the slides repeatedly. Tuberculine tests were done in 20 adult patients of whom 17 (85%) showed negative reaction, one showed strongly positive reaction and two showed just 10 mm induration.

Table—VI

Showing cause of death in Kala-azar (n=16)

Sl. no.	Sex	Age in year	Causes of death
1.	M	28	Appendicular lump, haematemesis, retinal and subconjuctival haemorrhage
2.	M	45	Splenic infarction with shock
3.	M	30	Diarrohea, vomitting, subconjunctival haemorrhage
4.	M	45	Pulmonary tuberculosis, melaena
5.	M	45	Renal failure
6.	M	22	Pulmonary tuberculosis
7.	M	36	Bilateral tuberculosis
8.	F	35	Severe malnutrition
9.	F	17	Sudden unwarrented death
10.	F	55	Sudden shock after completion of treatment
11.	M	05	Gastrointestinal bleeding
12.	M	1.5	Diarrhoea
13.	M	08	Diarrhoea
14.	F	10	Sudden unwarrented death
15.	F	04	Sudden unwarrented death
16.	F	08	Haematemesis

Table—VII

Results of AT and CFT in Kala-azar

Results	AT No. of cases (%)	CFT No. of cases (%)
Strongly positive	228(83.5)	201(86.3)
Moderately positive	14(5.1)	13(5.6)
Weakly positive	14(5.1)	7(3.0)
Negative	17(6.3)	12(5.1)
Total	273	233

Table—VIII

Haemoglobin level, WBC count and ESR in Kala-azar patients

Investigations	Results	No. of cases	Percentage
Haemoglobin level	<30%	3	1.1
	30-60%	216	79.1
	> 60%	54	19.8
WBC count	<3x10⁹/L	60	22.0
	3-6x10⁹/L	159	58 2
	> 6x10⁹/L	54	19.8
ESR	<25mm	11	4.0
	25-50mm	42	15.4
	51-100mm	120	44.0
	101-150mm	88	32.2
	> 150mm	10	4.4

Table—IX

Details of bone marrow and splenic aspirate studies

LD body positive cases (n—191)	No.
LD body found in BM on the first attempt	167
LD body found in BM on 2nd attempt	10
LD body found in BM on 2nd attempt due to inadequate marrow on the first	3
LD body found in BM on the 3rd attempt	1
LD body found in BM on review of the slide	6
LD body found not in BM but in splenic aspirate	4
LD body negative cases (n—74)	
LD body not found in BM on the single aspirate	41
LD body not found in BM due to inadequate marrow	16
LD body not found in BM even on 2nd or 3rd attempt	13
LD body found neither in BM nor in splenic aspirate	4
BM or splenic aspiration not done	8

BM—Bone marrow

Discussion :

Kala-azar has again returned to Bangladesh, particularly in the north western part of the country adjoining West Bengal of India, where the last epidemic of Kala-azar occured in 1980-81 (Chakraborty et al, 1982). The spread of Kala-azar in Assam was up and down the Brahmaputra valley and in Bihar and West Bengal the disease was mostly confined to the moist hot belt on either side of the Ganges (Aikat et al, 1970). Rajshahi shares some common meteorological features with these endemic zones and appearanec of Kala-azar cases indicate that a situation for endemicity of Kala-azar is also prevailing here Sporadic cases of visceral and dermal leishmaniasis reported from different parts of Bangladesh (Rahman and Islam, 1983 ; Khan, 1977) probably served as reservoir of infection. With the discontinuation of DDT spraying the vactor density has increased, and these along with the existing reservoir of infection and steady movement of people from

Rajshahi to West Bengal and vice-versa might have resulted in the recent outbreak of Kala-azar or it may be one of the many cycles of Kala-azar recurring every 15-20 years as suggested by Napier (1946).

Kala-azar is a disease of rural environment and almost all the patients in our series were from very low socioeconomic group with wall of their houses made of of mud where there are lots of cracks and crevices which form day time resting places for sandfly. Many of them have cattle sheds in close proximity of their dwelling units.

In this series the maximum number of cases were in the age group of 11-20 years that agrees with Manson-Bahr (1982) and Thakur (1984). The next frequent occurrence was in the age group 0-10 years. Aikat et al (1979) reported maximum incidence in these group of patients. Males have been affected twice the females whereas recorded ratio of 4 : 1 male preponderance was reported by Manson-Bahr (1982). Aikat et al (1979) of course reported only slight male preponderance. Napier 1946 used to believe that if a house to house survey could be conducted, the incidence would be almost the same in both sexes. The male preponderance in different series including ours could merely be due to the fact that males present themselves for the treatment more frequently than females.

The temperature pattern noted in this study is similar to the text book teaching (Chatterjee, 1988). The afebrile patients were of older age group and were perhaps having partial immunity due to previous infection. Fifty percent of patients had normal to voracious appetite and almost the same percentage of patients presented with hyperpigmentation of the skin which corroborates with the findings of Manson—Bhar (1982). Although lymphadenopathy has been reported in Indian Kala-azar cases (Nandy and Chowdhury, 1984) we failed to demonstrate LD bodies in two of our suspected cases with lymphadenopathy. In most of the cases the spleen was enlarged more than the liver except in 14 cases where the size of the liver was more than that of the spleen. There was a positive correlation between the relative size of the spleen and duration of fever, though there were some individual variations. In some cases the spleen was much larger than the corresponding duration of fever whereas in some others much smaller spleen was found than its expected size in relation to the duration of fever. This variation could be due to unreliable history in few cases regarding the exact duration of fever because of apyrexial periods in the natural history of the disease process. Bleeding manifestations including epistaxis, haemoptysis, haematemesis, melaena, purpura, subconjunctival haemorrhage and bleeding gums were similar to the findings of Thakur et al (1981). The association of pulmonary tuberculosis in nine cases in the present series also corroboratd with the findings of Thakur et al (1981). They also found coexisting malaria in their series which was not found in our series, might be due to indiscriminate use of antimalarial drugs for any febrile illness.

Few atypical cases of Kala-azar have been observed during the study ; amongst them were four afebrile adult patients belonging to the susceptible group possibly having some degree of immunity who

presented with some other associated conditions like dysentery, malnutrition or anaemia. Splenic infarction found in this series have not been reported by Indian authors but have been reported from Kenya (Kager et al, 1984). Hospital mortality in our series (5.9%) is lower than that of Maru (1979) from Ethiopia (16.6%) and Van Peenen and Reid (1962) from Sudan (20%). The high mortality in their series was thought to be due to malnutrition, poor general condition, decreased immunity amongst the migrants and inadequate supportive measures in the complicated cases.

In general the laboratory results in this series were typical of those of Kala-azar patients in other parts of the world Leucopenia with low platelet count, anaemia and high ESR were the important features noted. Negative tuberculin tests throws some light on the immunological response in Kala-azar. It indicates depressed delayed hypersensitivity reaction there by indicating depressed T-cell function.

Although splenic aspirate is supposed to yield better result than bone marrow aspirate (Ho et al, 1948), we were reluctant to do splenic aspiration initially because of the apprehended chance of bleeding (WHO Tech Rep, 1984) due to low platelet count so commonly encountered in Kala-azar. However, splenic aspiration done in bone marrow negative but highly suspicious cases of Kala-azar yielded high positive result and there were no complications except pain. It is obvious that when LD bodies could not be demonstrated for the first time, a second bone marrow or a splenic aspirate is necessary before excluding Kala-azar. In case of doubt repeated examination of slides should be done to look for LD body. CFT had been found reliable in the diagnosis of Kala-azar (Burney et al, 1979 ; Khaleque, 1965). AT, though nonspecific is very simple to perform and is used as a diagnostic tool in epidemiological surveys (Chakraborty et al, 1982 ; Ahmed and Ahmed, 1983). It may be found useful in the clinical diagnosis of Kala-azar if its limitations are kept in mind. In LD body negative cases when there are strong clinical suspicion, a combination of pancytopenia. high ESR, positive AT and CFT strongly favour the diagnosis of Kala-azar, more because of the fact that a patient with Kala-azar is unlikely to be negative in both AT and CFT (Rahman and Islam, 1983). Facilities for culture of leishmania and ELISA and immunofluoresence methods of diagnosis of Kala-azar are not available in the north-western part of Bangladesh where the disease is most prevalent. Demonstration of LD bodies in a bone marrow or splenic aspirate is the only confirmatory method of diagnosis available here. But if the parasites are scanty it may give a negative result (Chatterjee, 1988). Splenic aspiration may not be possible in all cases. So, in these cases when there is a strong clinical suspicion of Kala-azar, with positive AT and CFT, it is rational to treat such patients with full course of sodium stibogluconate.

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(Continued from front contents back page)

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PSYCHOSEXUAL OUTCOME OF FEMALE PERMANENT STERILIZATION

W Chowdhury, S K Ahmed, H Islam

Key words :

Sterilization, Psychosexual.

Summary :

Sixty female subjects between age 21 and 40 years who have undergone permanent sterilization by tubal ligation, were investigated for their sexual practice and development and/or aggravation of any psychosexual symptoms and other psychological or physical symptoms after six months of operation. Majority of the subjects (54%) were in the age group of between 26 and 30 years. Almost all were coming from urban areas (94%) and most of them (92%) were having a nuclear family. Eighty four percent (84%) women were having usual sexual arousal before sterilization which went down to 64% after sterilization but 12% of the subjects reported an increased arousal after operation. No remarkable change was found in the frequency of intercourse and orgasm. Their socioeconomic status, attitude towards sterilization and development of any other psychological or physical symptoms were also noted. Sixty eight percent of subjects had positive attitude towards sterilization before the operation. Only physical symptom complained was pain around the scar (55%) and only a small minority developed psychological symptoms like insomnia, irritability, restlessness and fear of loss of love of husband.

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Introduction :

A large number of studies have been done regarding different aspects of permanent sterilization of females but only a few had dealt with the psychosexual aspects of this procedure. The number of women undergoing voluntary sterilization has been steadily increasing in the most part of the world over the past two decades, yet its mental health effects are still insufficiently studied. Wing et al (1976) and Enoch and Jones (1975) described several psychiatric problems following sterilization operation. Although the frequency of occurence of symptoms varies widely (from 15% to 83%) (Lu and chun, 1967 ; Khorana and Vyas, 1976) in most studies their incidence was low.

Since the starting of sterilization procedure in our country, no follow up study has been carried out to see the psychosexual problems encountered by the females after operation. The present study attempted to find out the nature and extent of the psychosexual problems of permanent sterilization in our country.

The objective of the study was to see what proportion of the women develop psychosexual problems and other physical or psychological problems after operation. It would also include the different types of phychosexual problems they may have developed and the relationship between the emergence of these problems and different aspects of their social and family life.

Materials and Methods :

Sixty female subjects who attended the family planning clinic of Sir Salimullah Medical College and Mitford Hospital from January 1 to March 13 for the purpose of sterilization by tubal occlusion were interviewed.

Interviews were taken before operation, then on three successive occasions, one month, three months and six months after operation by using a semistructured questionnaire designed to evaluate the psychosexual outcome of the operation. Out of 60 subjects, 50 could be followed up after operation and other 10 were not traceable in the addresses given. Physical examinations were done where indicated. During interviews emphases were also given to the responsiveness of the subjects, sexual history, relationship with in-laws and different sociodemographic aspects including the attitudes towards sterilization operation of the subjects as well as of their spouse and other family members.

The main psychosexual aspects considered were the sexual desire, frequency of intercourse and sexual satisfaction. Individual scale was used to satisfy these standards of relationship.

Sexual practices were described under the heading of sexual satisfaction both before and after operation. Sexual arousal before and after the procedure were compared in terms of 'usual', 'low' or 'increased'. Frequency of intercourse was also compared in terms of 'usual', 'decreased' or 'increased'. Orgasm was compared in terms whether it was satisfactory or not.

Results :

Results given in the tables are findings obtained before and six months after operation. The findings at one month and three months after operation are not shown because most of the subjects interviewed did not involve themselves in any sort of sexual practice during the first three months after operation. The findings in first two interviews after operation only included physical complaints like pain and itching around the scar and vague abdominal discomfort. The main idea of these two earlier follow up was to maintain a close relationship with the subjects so that the final follow up can be carried out properly.

Fifty four percent of subjects were in the age group of 26 to 30 years followed by those in 31-35 years (28%) (Table-I). Most of them were coming from urban areas (94%) and almost all of them were having a nuclear family (92%). Majority of the subjects, their spouses and family members showed a positive, and some of them strongly positive, attitude towards

Table—I

Shows distribution of women of different age groups.

Different age group (in years)	21 to 25	26 to 30	31 to 35	36 to 40	Mean Age
Number of women with	05	27	14	04	29.42
percentage	10%	54%	28%	08%	

the sterilization procedure as a method of contraception (Table-II). No significant difference was found in the relationship with the spouses before and after operation (table-III). Eighty Four percent of subjects reproted of usual arousal before operation and rest 16% were having lower sexual arousal. Although the corresponding figures after sterilization were 64% and 24% respectively, there were six (12%) subjects who reported increased arousal after operation (Table-IV).

Twenty eight subjects reported of pain around the scar, the only prominent physical symptom after sterilization, and only a minority had psychological symptoms (Table-V).

Table—II

Shows attitudes towards sterilization.

Types of Respondents	Positive	Strongly positive	Negative	Casual
Self	34 (68%)	16 (32%)		
Spouse	27 (54%)	05 (10%)	03 (06%)	15 (30%)
Family members	28 (56%)	02 (04%)	05 (10%)	15 (30%)

Table—III

Shows relationship of the subjects with spouses

Relationship	Good	Average	Below average
Before sterilization	32 (64%)	11 (22%)	07 (14%)
After sterilization	38 (76%)	10 (20%)	02 (04%)

Table—IV

Shows sexual practices before and six months and experience after sterilization and their outcome

Time of Practice and experience	Arousal			Frequency		Orgasm		
	Usual	low	increased	Less than thrice a week	More than thrice a week	More than 5 times a week	Experienced	Not experienced
Before Sterilization	42 (84%)	08 (16%)	—	17 (34%)	33 (66%)	00 (01%)	35 (70%)	15 (30%)
After sterilization	32 (64%)	12 (24%)	06 (12%)	09 (18%)	33 (66%)	08 (16%)	38 (76%)	12 (24%)

Table—V

Shows distribution of different psychological and physical symptoms developing after operation

Physical symptoms	Pshychological symptoms		
Pain around the scar	Insomnia, irritability, Restlessness	Regret	Fear of loss of husbands love and affection
28 (56%)	04 (08%)	03 (06%)	07 (14%)

Discussion :

Reaction to the sterilization procedure as a contraceptive method is greatly influenced by cultural, social and personal attitude of the subjects and their family towards the procedure (Wynter et al, 1979). The procedure has been popular in our country for last two decades. Initially this programme of population control was a very sensitive issue and the people expressed negative attitude towards this procedure and this negative attitude was mostly based on prejudice, social custom and religious belief.

This study is an initial effort to find out the psychosexual consequences of sterilization among females. In the present study out of 50 subjects 27(54%) was in the age group of 25 to 30 years and most of them came from nuclear family of low socioeconomic background with poor literacy. This age incidence corresponds to the census figures of this country for females of child bearing age (Statistical year book of Bangladesh, 1987). Though 94% of the subjects came from urban areas, most of them were originally from rural areas and they have migrated to their place of work in the urban areas. Despite wide variation in the socio-cultural background and economic status between our population and those of western world, most of the findings of this study well conformed with those of previous studies (Cooper et

al, 1982) except that about the sexual arousal after operation. In this study it appeared that the subjects reporting lower sexual arousal after operation were relatively more in number but the difference is not statistically significant ($P \geq 0.05$). Moreover, women experiencing lower sexual arousal six months after operation were living longer duration of marriage and attitude of their husbands were not always positive. Whatever might be the explanation of this low libido, it needs further enquiry and follow up for a longer duration to establish the exact cause behind it.

Six of the subjects reported increased sexual arousal, and no remarkable change was found in other aspects of sexual practice like frequency of intercourse and sexual satisfaction, rather there was apparent increase in the frequencey of sexual intercourse and improvement in orgasm. This is in agreement with the findings of Sim (1973) Emens (1973) and Jordon (1972). Absence of fear of pregnancy might be one of the contributing factors for this improved functional status of sexual life.

Only six percent of patients expressed regret at not being able to have more children and this result was same as the result of the study carried out by Wynter, Martadial and Burkett who found eight percent of subjects who regretted failure to procreate (Wynter et al, 1979). Stronger motivation and presterilization counselling are essentially two importart prerequisites to bring down post operative regret (Wynter et al, 1979).

Regarding the psychological symptoms found in the subjects in this study, only eight percent of the women experienced insomnia, irritability and restlesness, which is significantly less than many previous studies. (Cooper et al, 1982; Sim, 1973; Emens 1972). However, seven of the subjects reported of fear of loss of love of their husbands. These were the subjects where the attitude of their husbands towards the procedure was not that positive.

Strongly positive attitude of the spouse and the relatives towards sterilization, improvement of overall motivation status and acceptance of the sterilization as a contraceptive measure is probably having a positive effect on the mental health of sterilized women. Hence the popular belief about developing psychosexual problem after permanent sterilization is appearing to be unfounded. However, it needs a comprehensive attitudinal and long term follow up study to establish the findings of this brief preliminary time limited study.

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HERNIA–CLINICAL ANALYSIS OF 305 CASES

A Haque

Key words :

Inguinal, Abdominal, Incisional, Hernia.

Summary :

A clinical analysis of 305 cases of external abdominal wall hernias attending a district hospital was done. Male-female ratio was 19 : 1 and maximum number of patients were in the age group of 41-60 years. Inguinal hernias were the commonest (94.75%) followed by Incisional hernias. Among the inguinal hernias right sided hernias were commoner and 3.46% were bilateral. Only 10% were complicated by obstruction and strangulation. About 85% patients were operated under local anaesthesia. Orchiectomy was necessary in 10 cases of recurrent hernia. One patient had traumatic (iatrogenic) small gut perforation repair.

Introduction :

Abdominal hernias specially inguinal hernia is a very common condition irrespective of age and there is no alternative to operative treatment. Here 305 cases of such hernias operated in a district hospital of Bangladesh with limited facilities have been analysed and results are compared.

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Materials and Method :

During the period between November 1986 and November 1988, 305 case of anterior abdominal wall hernias were treated in the district hospital of Noakhali, Bangladesh. The cases were analysed in respect of age, sex, site, operative technique, type of anaesthesia given and complications. Most of the inguinal hernias were explored by classical inguinal incision, reduced manually and hernial sacs were separated from cord by gentle dissection. The sac was ligated at the neck carefully with catgut and remainder of the sac amputated. Later herniorrhaphy was done by interrupted silk suture (Bassini's method). Anterior rectus sheath was mobilised (Oland J et al, 1987) whenever felt neeessary. In some patients external oblique aponeurosis was repaired behind the spermatic cord as an additional support. Except a few, in all the under 5-age inguinal hernias only herniotomy was done. Orchiectomy had been done in 10 patients with recurrent hernias. Resection anastomosis of small gut was necessary in four patients with strangulated hernias. Majority of the inguinal hernias were treated under local anaesthesia (83.6%) by 2% lignocaine 10-30 c.c. The patients were premedicated with diazepam 5-10 mg and pethidine 25-100 mg. In others, open ether general anaesthesia was employed.

Results :

Case analysis : Out of these 305 cases 289 cases (94.75%) were of inguinal hernia and rest 16 cases (5.25%) were having other external abdominal wall hernias.

Table—I

Show types of anterior abdominal wall hernia

Types of Hernia	Number	Percentage
Inguinal	289	94.75%
Femoral	1	0.34%
Umblical	1	0.34%
Epigastric	2	0.68%
Incisional	12	4%
Total	305	100%

The age of the youngest patient was six months and oldest patients was of 93 years of age.

Table—II

Shows the age incidence of the patients

Years	Number of cases	Percentage
0—10	43	14.1%
11—20	28	9.18%
21—30	40	13.12%
31—40	42	13.77%
41—60	107	35.08%
Over 60	45	14.75%
Total	305	100.00%

The number of male patients were 292 (95.24%) and female patients were 13(4.76%).

Table-III shows sides of inguinal hernias. More than half (51.95%) of the patients having inguinal hernia had right sided hernia.

Table—III

Side of inguinal hernia (n=289)

Side	Number of cases	Percentage
Right sided	150	51.95%
Left sided	129	44.69%
Bilateral	10	3.46%
Total	289	100.00%

In 257 cases the hernia was reducible, 25 patients had their hernia obstructed with or without strangulation. Only six cases had history of recurrence (Table-IV).

In one case of inguinal hernia the sac was found to be inflammed which was probably due to application of some unknown harbal material.

Table—IV

Shows clinical types of inguinal hernia

Types of Hernia	No. of cases	Percentage
Reducible	257	88.93%
Recurrent (Reducible)	6	2.08%
Obstructed ± Strangulated	25	8·65%
Inflammed hernia	1	0.34%
Total	289	100%

Immediate post-operative complications are shown in Table V. Most common complication was stitch abscess followed by wound infection.

Table—V

Post-operative complications

Complication	No. of cases	Percentage
Urinary retention	5	1.64%
Haematoma	2	0.65%
Stitch abscess	10	3.28%
Catgut rejection	2	0.65%
Wound infection	7	2.30%
Orchitis	4	1.31%
Total	30	9.83%

One patient having orchitis later developed abscess that necessitated orchiectomy. There was no death in this series.

Discussion :

Presentation aud management of this common condition in a district hospital of Bangladesh is prospectively studied in 305 patients. Inguinal hernia was the commonest type (94.75%) as elsewhere in the world (Greenburg, 1987 ; Lichtenstein, 1987). It was followed by Incisional hernia (4%) found mostly following Caesarean section and emergency laparotomies. Like other studies the incidence of femoral hernia was very less (0.34%) in this small study (Rain and Mann, 1988 ; Lichtenstein, 1987 ; Maximo et al, 1987). There is also no gross variation in sex incidence (M: F = 19 : 1) when compared to other studies (Lichstenstein, 1987). Number of patients belonging to 0-10 years age group were quite high here as there is no separate facility for children needing surgery in any district hospital. There is no difference in site preponderance (Right/ Left or bilateral) comparing to other studies (Greenburg, 1987 ; Lichtenstein, 1987 ; Maximo et al, 1987). The incidence of incisional hernia (4%) is relatively higher than those of other studies (Lichtenstien, 1987). They are mostly from caesarean section. The cause of this higher incidence needs to be evaluated. In elderly patients and where there is lax muscles, the external oblique aponeurosis was sutured behind the cord, obliterating the inguinal canal which acts as an additional support. This technique is very much satisfying apparently but needs a long term followup evaluation. In 10 old patients (3.46%) with recurrent inguinal hernias including patient with orchitis leading testicular abscess following previous herniorrhaphy orchiectomies have been done. The testicular abscess in an unwanted and unfortunate complication which happened in one old patient with neglected very big complete hernia. Vigorous taxis by an inexperienced surgeon carries a lot of risk and sometimes gives rise to complications as happened in one case here needing repair of traumatic perforation of small gut. Other complications like stitch abscess, wound infection, retention of urine and hematoma is significantly higher (9.83%) than those in other studies (5% and 1.24%) (Lichtenstein, 1987 ; Maximo et al, 1987). This higher complication rate is probably due to handling of cold cases and septic or contaminated

cases in the same operation theatre in an under equipped district hospital.

Acknowledgement :

I am indebted to Prof. M. Kabir Uddin Ahmed, Professor and Head of the department of surgery and Associate professor Shafiqul Hoque of department of surgery, DMCH, Dhaka for their guidence and advice. I am also grateful to the Superintendent, General (District) Hospital, Noakhali for giving me the permission to carry out and publish the study.

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GIANT LYMPHOID HAMARTOMA–A CASE REPORT

A N N Ahmed, S Hoque, S Huda

Key words :
Hamartoma, Lymph node.

Summary :

A young female of 20 was admitted with the complaints of swelling on the left side of neck for three years. All the investigations including routine and biochemical tests were within normal range except raised ESR and serum globulin level. Ultrasonogram examination revealed an extrathyroidal swelling. The mobile mass excised completely. The hamartoma was diagnosed after histopathological examination. The raised ESR and globulin level came down to normal in the follow-up period.

Introduction :

Hamartoma is a malformation, characterised by an excessive focal overgrowth of mature normal cells and tissues in an organ that do not produce normal structure (Cotran et al, 1989). It may involve many organs like lung. heart, liver, kidney, blood vessels (Cotran et al, 1989) and even lymph nodes (Moir et al, 1982). Giant lymphoid Hamartoma is an uncommon tumour like condition of lymph node which is benign in nature and usually harmless (Moir et al, 1982). Castleman first described it in 1954 as an unusual hyperplasia in the mediastinal lymph node (Castleman, 1954). Since then many cases have reported (Anagnoston et al, 1972 ; Symmers 1978; Moir et al, 1982). Most of the cases were asymptomatic other than the mass (Anagnoston et al, 1972). A few percentage of cases had constitutional symptoms which disappeared after surgery. The nature of this condition is still not certain but may be inflammatory (Moir et al, 1982), neoplastic or developmental in origin (Anagnoston et al, 1972; Cotran et al, 1989; Harrison et al, 1963). Mediastinum is the commonest site, next is the neck which is followed by abdomen (Anagnoston et al, 1972; Castleman 1954, Harrison et al, 1963; Tung et al 1967). So this benign condition merits complete investigation and evaluation as this may clinically resemble a thymoma or a lymphoma (Symmers, 1978). The diagnosis of giant lymphoid hamartoma is only established after histopathological examination (Anagnoston et al 1972, Castleman 1954, Moir et al, 1982; Symmers 1978, Tung et al, 1978).

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After reviewing the local literatures, we found that giant lymphoid hamartoma has not been reported so far. It was, therefore, thought appropriate to report the present case.

Case Report :

A young female of 20 was admitted in the surgical ward of Dhaka Medical College in the month of August, 1988. She complained of right sided neck swelling for about three years. The mass increased in size gradually. She was rather worried about her neck mass, but it was relatively symptomless. No history of hepatosplenomegaly and loss of weight or appettite was reported. Also the lymphoreticular system was found normal.

On examination, the mass was free, non-tender and appeared to be a large solitary lymph node under the left sternocleidomastoid muscle below the level of hyoid bone. No local temperature or any change of skin colour were found. Mild anaemia was noted on physical examination. Clinically no definite diagnosis could be made but thought to be a large lymph node.

Most haematological and biochemical investigations were within normal range except raised ESR and globulin and a fall in albumin fraction of serum and haemoglobin percentage.

Radioiodine uptake of thyroid was within normal range. Ultrasonogram examination revealed an extrathyroidal swelling.

Under general anaesthesia the mass was removed in toto and thought to be a large lymph node. Histopathological examination of the neck mass confirmed the diagnosis of giant lymphoid hamartoma. Postoperatively the patient responded well to usual treatment. Also raised ESR and globulin level came down to normal.

Pathological examination :

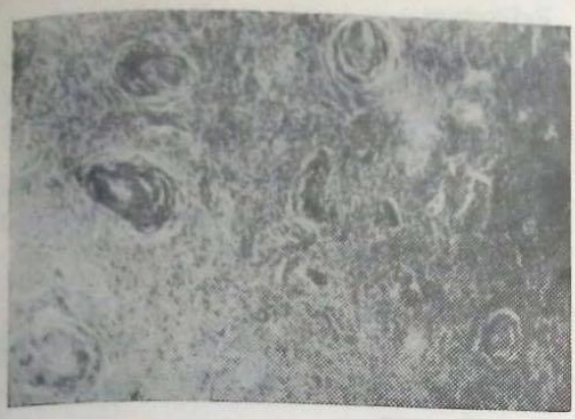
Gross examintion :

Specimen consisted of an enlarged lymph node, grossly resembling thymus, measuring about $12 \times 4.4 \times 2$ cm and weighing about 500 gms. There was a soft homogeneous greyish to fleshy cut surface. Along with it two other apparently normal lymph nodes were also seen. Two representative blocks were taken including the capsule and processed in Carnoy's fixative for subsequent paraffin embedding and Haematoxylin and Eosin (H&E) staining.

Microscopic examination:

Sections through the large lymph node revealed an altered architecture. The sinuses and trabeculae were absent, also the distinction between the cortex and meduila obliterated. The lymph node showed many small follicles, being traversed by blood vessels. Most of the follicles contained concentric arrangement of mature lymphocytes and histiocytes in the centre, simulating Hassal's corpuscles. But a few follicles contained germinal centres. Blood vessel proliferation was seen between the follicles (Figure 1 and 2). No evidence of granuloma, thymoma or lymphoma was seen. These features were considered diagnostic of giant lymphoid hamartoma which is synonymous with angiofollicular lymphoid hyperplasia.

Diagnosis was thus confirmed after histopathological examination of the mass.



Fig—1. *Gaint lymphoid hamartoma. The lymph node shows some follicles traversed by blood vesels. (H & E X 44).*

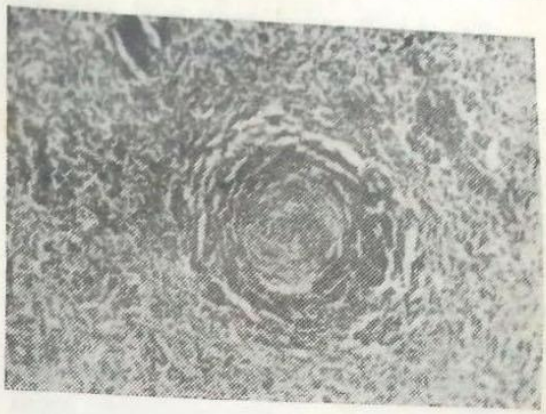


Fig.—2. *Gaint lymphoid hamartoma. The lymphoid follicle shows concentric arrangement of lymphocytes and histiocytes like Hassal's corpuscles (H & E X 100).*

Discussion :

Giant lymphoid hamartoma is a relatively rare, histologically distinct benign condition which usually occurs in adults (Tung et al 1967, Castleman 1954, Harrison et al, 1963; Moir et al, 1982). Both sexes are equally affected (Anagnoston et al, 1972; Symmers 1978; Moir et al, 1982). Over 200 cases of giant lymphoid hamartoma or hyperplasia have been reported till 1982 (Pheloan, 1982). The commonest site of involvement is mediastinum (Anagnoston et al, 1972; Harrison et al, 1963; Moir et al 1982). It may be found as a neck mass which was the presentation in this case and is possibly the second common site after mediastinum (Anagnoston et al, 1972). The usual presentation is asymptomatic except an encapsulated neck mass (Anagonston et al, 1972; Harrison et al, 1963) which was clearly the case in this instance. Routine examination of blood may exhibit raised ESR and globulin with anamia and lowered albumin level (Harrison et al, 1963; Moir et al, 1982) which were again noted in the present case. Finally diagnosis was based on histopathological examination, which showed typical findings of a giant lpmphoid hamartoma, (Anagnoston et al, 1972 ; Harrison et al, 1963 ; Moir et al, 1982).

Histologically there are two types of this condition, one is hyaline vascular type, the most common one (Harrison et al, 1963) as is the present case. The other is the plasma cell type where symptoms of hypergammaglobulinaemia and fever are usual (Harrison et al, 1963).

Thymoma and lymphoma can easily be diffrentiated histologically from this giant lymphoid hamartoma, as in thymoma the tumor cells are mostly lymphocytic often admixed with epithelial cells and in lymphoma the tumour cells are monomorphic and lymphoreticular in origin unlike the present case.

Raised ESR and globulin level returned to normal after surgical removal of the mass as documented by others also (Anagnoston et al, 1972; Moir et al, 1982). The patient was followed for two years witbout recurrence of mass or appearence of any symptom and the progress of the patient was excellent which was again true for others (Anagnoston et al, 1972; Pheloan 1982). The patient only needs reassurance.

This condition has been described by a variety of names reflecting the different opinion regarding their histogenesis as giant lymphoid hamartoma (Moir et al, 1982) angiofollicullar lymph node hyperplasia (Anagnoston et al, 1972; Symmers WS, 1978), angiomatous lymphoid hamartoma (Cotran et al, 1989) and giant lymph node hyperplasia (Harrison et al, 1963; Castleman 1954). The nature of this condition is not certain but some think it to be reactive or inflammatory in origin (Harrison et al, 1963; Moir et al, 1982). Again other proposed that perhaps the basic defect is developmental, or mechanical or it may be a benign neoplasm (Harrison et al, 1963). But most believe it to be a malformation (Harrison et al, 1963; Tung et al, 1967; Anagnoston et al, 1972) or hamartoma.

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NEUROFIBROMA OF THE STOMACH–A CASE REPORT

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Key words :

Stomach, Neurofibroma.

Summary :

Neurofibroma of the stomach is a distinct type of neoplasm, originating from autonomic nerve elements in the stomach wall. It is usually situated upon peripheral nerves and are occasionally encountered in the gut (Ghosh, 1975; Rasnknowski, 1971). It is a rare benign neoplasm of the stomach and very difficult to diagnose. Such a case, so far known to us, is yet to be reported in Bangladesh. So a case of neurofibroma of the stomach in a middle-aged female is considered to be worth reporting.

Introduction :

Most of the submucosal tumours of stomach are thought to arise from stomach muscle cells. Primary neurogenic tumours of gastrointestinal tract are extremely rare (Walker, 1988) and differentiation from myogenic tumour is often difficult (Soroku Yagihashi, 1987). Originally these are classified into two groups based on light microscopic findings (Walker, 1988), those of peripheral nerve sheath origin (Schwanoma or neurofibroma) and those arising from sympathetic chromaffin system (neuroblastoma, ganglioneuroma). Tumour with a mixed histological pattern have also been described (Dahl, 1957; Kepes, 1971; Reed 1977). Based on the criteria of necrosis, cellular pleomorphism, mitotic activity and local invasiveness, up to 15% of these tumours may be malignant (Walker, 1988). Most submucosal tumours are thought to arise from smooth muscle, but this is not true. With the invention and increasing use of electron microscope, it has been found that a good number of tumours actually of neuronal origin (Dvorak, 1982). A recent view suggested that although some submucosal tumours of the gut may be derived from the Schwann cells, the majority are composed of undifferentiated cells. The present report describes the clinical features and histopathological structures of the submucosal tumours originally described as benign gastric polyp.

Case Report :

Mrs. JK, a 45 years old housewife from Jessore was admitted in surgical unit of IPGMR in november, 1989, with five years history of upper abdominal pain, vomiting, gradual loss of weight and weakness. Abdominal pain was moderate in nature associated with epigastric fullness after meal. Initially she had no history of vomiting but

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as time went on she developed vomiting after meal which was more marked during later few months. She was seen by local doctors and was treated as a case of peptic ulcer. But inspite of all medical treatments, her condition gradually deteriorated, hence lastly she was referred to IPGMR. On physical examination she was weak, emaciated, anaemic and dehydrated. Local examination of her abdomen showed no abnormality.

Investigations :

Her reports of urine examination, blood for TC, DC, fasting blood sugar, blood urea, and electrolytes were within normal limit. Only exception was her Hb% which was 50% and ESR was 30 mm in 1st hour, X-ray chest showed normal findings. ECG was also normal.

Double contrast Ba-meal X-ray of the stomach and duodenum showed a regular outlined smooth surfaced growth arising from the posterior wall of the antrum, seemed to be a submucosal tumor. (Fig—1 and 2).

Endoscopic Findings :

A sessile polyp from posterior wall of antrum projecting into the lumen of the stomach was seen. A biopsy taken from the polyp was histologically reported as atrophic gastritis.

Operation Note :

Abdomen was opened by an upper midline incision. All other structures including gall bladder was found to be normal. Only a palpable firm lump was felt at the pyloric antrum. No enlarged palpable lymph node was present in and around the stomach. Lower partial gastrectomy was done with Billroth—I anastomosis. Post-operative period was uneventful and the patient completely recovered and was discharged from the hospital on 6th November, 1989.

Fig. 1. *Double contrast Ba-meal X-ray of the stomach showing regular outlined smooth surfaced growth.*

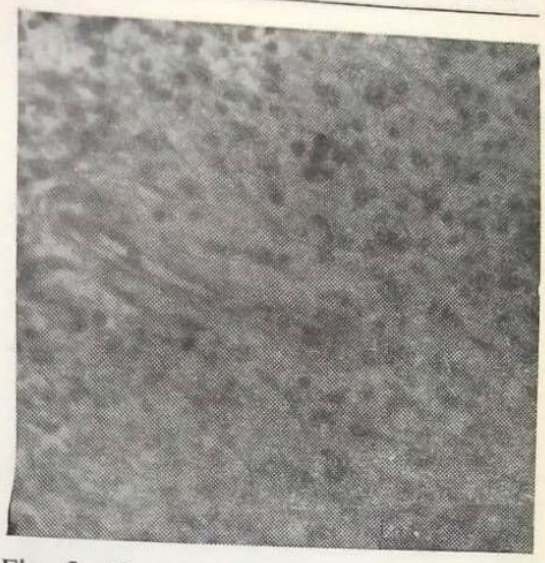
Gross Appearance of the Operated Tissue :

It was a large sessile polyp originating from the posterior wall of the stomach. The base of the polyp was 4 cm and length 5 cm. The top of the polyp was devoid of normal mucous membrane.

Histopathology :

Sections showed stomach. Subjacent to the mucosa was seen a benign tumour.

Fig—2. *Double contrast Ba-meal X-ray of duodemun showing the outline of tumour.*



Fig—3. *Shows interlacing bundles of spindle cells with weavy serpentine nuclei (440X).*

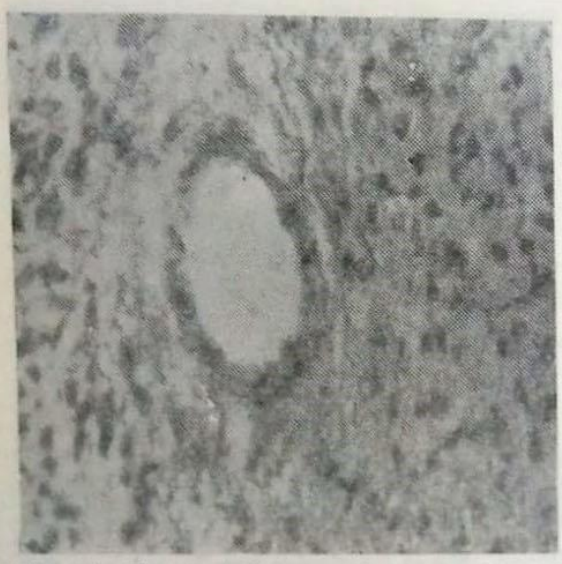
The tumour was composed of interlacing bundles of spindle cells with weavy serpentine nuclei. The submucosal region at places was infiltrated by neutrophil and eosinophils (Fig.-3 and 4). The diagnosis was neurofibroma.

Discussion :

Neurofibroma of the stomach is a very rare condition (Masson, 1932). Most of the benign tumours of the stomach are of smooth muscle origin (Barrie, 1960; Deverall, 1968; Huddy, 1972). Gastrointestinal tract and mesentery are occasional sites for neural tumour. Neurofibroma having its origin from neuroectodermal elements in general resembles neoplasm of fibroblastic origin, but it has its own distinctive features. Some of the cells of neural tumour may contain melanin pigment (Masson, 1932).

Soroku Yogihashi et al (1987) studied twelve cases originally diagonsed as leiomyoma and leiomyosarcoma under light microscope. But three of them were found to be neural tumours by special staining neurogenic marker S—100 neuron specific enolase and electron microscopic studies.

Electron microscope (EM) has become an essential tool in the accurate diagnosis of many tumours (Dvorak, 1982). The use of light microscope alone, for example, for



Fig—4. *Shows infiltration by neutrophil and eosinophils (440X).*

differentiation between leiomyosarcoma and neurogenic sarcoma is difficult if not impossible (Bruneton, 1983 ; Herbsman, 1980). With the increasing use of EM, it is likely that more neural tumours will be accurately diagnosed and their origin recognized.

The clinical features of all submucosal tumours are more or less similar like epigastric pain, anaemia due to blood loss, haematemesis and melaena and some times a palpable lump. A pedunculated polyp prolapsing through the pyloric orifice may cause ball and valve type of intermittent obstruction (Sabiston, 1981) which was present in this case.

About the nature of the tumour, neither the radiology nor the endoscopy could give the final diagnosis. Gross characteristics distinguishing malignancy are usually not found in these tumours (Soroko Yagihashi, 1987).

The basic principle of surgical treatment of this type of tumour of the stomach is local excision with two to three centimeter healthy margin of the gastric wall (Sabiston, 1981). If the excised margin on frozen section biopsy shows invasion by malignant cells, additional gastric wall may be excised. In a large tumour at the pre-pyloric region, a standard gastric resection may be the most expeditious form of excision, regional lymphadenectomy is not necessary (Stout, 1962).

The biological behavior of this tumour is difficult to determine. High cellularity, an increased number of mitosis, large size and the presence of haemorrhage and necrosis have been reported. However, there appears to be no decisive histological criteria to determine the likely behavior of this tumour.

Acknowledgment :

We are grateful to Mr. Zaki-Uddin Ahmed, Chief Librarian of National Health Library and Documentation Centre who took all the pains to bring reference papers required to publish this article from WHO regional office, Delhi, We are also grateful to the doctors of the ward who helped us in managing the patient. We also extend our thanks to the Director, IPGMR and Superintendent of PG Hospital for kindly allowing us to use the records of the patient.

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