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Splenectomy only, and splenectomy with devascularisation in a rural hospital: a six years experience of a General Surgeon

Adil Ibrahim Fadlalla, MBBS, MCS.

Assistant Professor of Surgery, Department of Surgery, Faculty of Medicine, University of Khartoum

Abstract

Bilharzial portal hypertension is a common problem in Elgezira Scheme, Sudan, where this study was conducted. The most serious complication of this disease is bleeding from oesophageal varices, and many patients present with features of hypersplenism.

Splenectomy is a known effective procedure to cure cytopenia in patients with hypersplenism but also play a role in arresting variceal bleeding when coupled with devascularization.

The aim of this study is to determine the indications, outcome and complications of splenectomy only and splenectomy with devascularisation (SD) in patients with bilharzial portal hypertension in an area with limited hospital facilities. The hospital lacks equipments for sclerotherapy, has limited blood bank service, no consultant anaesthetist and no intensive care unit.

Patient & Methods

The study was conducted during the period between June 1994 & June 2000 at Elmanagil hospital. This is a retrospective study and patients were followed up every 6 months for 3 years.

Correspondent author:

Adil Ibrahim Fadalalla

Email: dradilbrahim@yahoo.com

Results

One hundred and fifty patients underwent SD and 116 underwent splenectomy; 72% patients were males. 90% of the patients ages were between 20 - 60 years. Following splenectomy, cytopenia was corrected in all patients with hypersplenism within 3 months after operation. The recurrence rate of haematemesis was 12% in those 111 patients who could be followed up for 3 years. The commonest post operative complications were malaria (6%), chest infection (4%). Less common complications were wound sepsis 1.5% intra - abdominal sepsis 1% & pseudopancreatic cyst 1% . Six patients died within the first 3 weeks (2.2%)

Conclusion

Splenectomy is an effective procedure to correct hypersplenism while SD control variceal bleeding due to bilharzial portal hypertension within 3 yrs period of follow up.

Introduction

Bilharzial portal hypertension is a common problem in the Sudan, especially in Algezira scheme where this study was conducted⁽¹⁾. Although patients with bilharziasis or even those with bilharzial portal hypertension can lead a normal life, many of them may develop serious problems necessitating medical or surgical intervention. They may present with hypersplenism, variceal bleeding and ruptured spleen^(1,2,3).

Splenectomy is a known effective procedure to cure cytopenia in patients with

hypersplenism⁽⁴⁾. As for variceal bleeding there are several procedures to arrest or prevent bleeding such as Hassab's operation, distal spleno-renal shunt, oesophageal transaction, sclerotherapy, band ligation and trans- jugular intra-hepatic porto-systemic shunt (TIPS)^(3,5,6). Although endoscopic sclerotherapy is commonly used to arrest bleeding it has a high percentage of rebleeding (30-50%) and needs regular follow-up and repeated sessions^(7,8,9).

Rubber band ligation has less recurrence of variceal bleeding compared to endoscopic sclerotherapy & with lower rate of complications⁽⁷⁾.

TIPS has a low rate of rebleeding but has an increase risk of encephalopathy & had high rate of shunt obliteration⁽¹⁰⁾.

The operative portal decompressions is more effective, more durable and less costly than TIPS in healthy liver child – Pugh class A& B with variceal bleeding⁽¹⁰⁾. The shunt operations for patients with variceal bleeding result in the lower of rate of rebleeding but a higher rate of encephalopathy compared to non- shunt surgical procedures^(7,11,12).

The objective of this study is to assess the outcome of splenectomy for hypersplenism and SD in patients with bilharzial portal hypertension.

Patients and Methods

Two hundred & sixty seven patients who underwent splenectomy or SD in the period June 1994 to June 2000 at Elmanagil hospital, were studied retrospectively.

The inclusion criteria were bilharzial portal hypertension with one of the following:

1. hypersplenism (with cytopenia)
2. one or more major attack of variceal bleeding necessitating blood transfusion

3. traumatic rupture of the spleen

All patients had complete blood count, liver function tests, abdominal ultrasound scans and oesophagoscopy. Those patients who presented as an emergency with ruptured spleen did not have endoscopy.

The operative procedure

Due to inappropriate blood bank refrigeration, blood used was collected fresh from donors when needed. Donors were grouped and cross matched and kept near the blood bank to donate whenever the surgeon asked for blood. One unit of blood is always available at the start of operation. On average a patient needed 1 – 2 pints of blood.

The splenic pedicle was approached through the lesser sac and secured in most of the cases. The lino-renal ligament was then incised; adhesions between the spleen and adjacent structure were ligated and divided. The spleen was mobilized and the artery and vein were separately ligated and divided in most cases although it was occasionally necessary to apply mass ligature to the pedicle.

In patients presenting with variceal bleeding the fundus of the stomach and the lower oesophagus were devascularised by ligating vessels.

After ensuring good haemostasis the abdomen was closed with no drains.

All patients received broad spectrum antibiotics at induction and postoperatively. Anti-malarials were not routinely used.

Patients were followed initially on monthly basis for three months and then every six months. They were checked clinically and had complete blood count done.

The preoperative haematological values were compared to the values at the end of the first and third postoperative months

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using the paired T-test. Values were expressed as mean \pm SD. P values <0.05 was considered significant.

Results

151 patients with variceal bleeding underwent splenectomy & devascularisation, while 116 patients with hypersplenism or

traumatic rupture of spleen underwent splenectomy only. Their age and sex distribution are shown in Table I. Ninety per cent of them were aged between 20 and 60 years. Males constituted 72% of them and the females were 28%.

Table (I): Age and sex distribution of patients who had splenectomy and Splenectomy & devascularization in patients with portal hypertension (n=267)

Age in years	Male	Female	Total
0 – 20	20	4	24
21– 40	97	38	135
41 – 60	74	32	106
> 60	2		2
Total	193 (72%)	74 (28%)	267

The indications for splenectomy are shown in (Table 2). Hypersplenism was the indication in 35.5%, haematemesis in 33%, a

combination of hypersplenism and haematemesis was the indication in 23.5% and traumatic rupture was the indication in 8%.

Table (2): Indications for splenectomy and splenectomy with devascularization in patients with portal hypertension (n=267)

Indication	Number of patients	%
Hypersplenism	95	35.5%
Haematemesis	88	33.0%
Hypersplenism and haematemesis	63	23.5%
Traumatic rupture	21	8.0%

Within three months postoperatively there was statistically significant rise in haemoglobin concentration, white cell count

and platelets count in patients with hypersplenism (Table 3).

Table (3): Pre- and post-operative haematological values in patients who had splenectomy and devascularization in patients with portal hypertension (n=267)

	Pre-op	One month post-op	Three months post-op
Haemoglobin (g/dl)	10.3 \pm 0.65	11.3 \pm 0.42 p< 0.0001	11.8 \pm 0.42 p< 0.0001
White blood cells (cell/mm3)	3050 \pm 608		4923 \pm 1540 p< 0.0001
Platelets (1000/mm3)	174.6 \pm 66.6		295.8 \pm 79.8 p< 0.0001

The recurrence rate of haematemesis was 5% in those patients who attended the follow up clinic for a year (132 patients) and rose to

7% after three years follow up. However, the patients who attended the follow up clinic for three years were 111 patients (Table 4).

Table (4): Recurrence of haematemesis following splenectomy and devascularisation in patients with portal hypertension

Years of follow up	Number of patients seen	Number of patients with recurrent haematemesis	%
1 year	132	7	5%
3 years	111	8	7%

The postoperative complications are shown in Table 5.

Post operative malaria occurred in 6% of the patients, chest infection in 4%, wound sepsis in 1.5%.

Table (5): Postoperative complications

Complication	Number of patients	%
Postoperative malaria	16	6%
Chest infection	12	4%
Wound sepsis	4	1.5%
Ascites	4	1.5%
Intra-abdominal sepsis	2	1%
Pseudo-pancreatic cyst	2	1%

Six patients out of 267 patients died within the first two postoperative weeks (2.4%). Two of them died of septicaemia due to intra-abdominal sepsis, one patient died of postoperative bleeding, One patient died of postoperative hepatic failure. A 19 years old patient died two weeks postoperatively with fulminant pneumonia and one patient died on the third postoperative day and the cause of death unknown.

Discussion

Patients with bilharzial portal hypertension have a good liver reserve compared to patients with portal hypertension due to liver

cirrhosis and their mortality and morbidity is mainly due to variceal bleeding and effects of hypersplenism.

Although many surgical procedures are available for dealing with variceal bleeding, splenectomy remains the best option for hypersplenism and when combined with devascularisation seems to be a less technically demanding and useful treatment for variceal bleeding in areas of very limited facilities^(2, 3, 7, 12).

In this study 95 patients had hypersplenism only and following splenectomy their cytopenia was corrected within three month

postoperatively. This is in keeping with other studies⁽⁴⁾.

Of the 151 patients who underwent splenectomy and devascularisation for haematemesis only, 132 could be followed up for one year and 5% of them had recurrent haematemesis. 111 patients could be followed up for three years and 7% of them had recurrent haematemesis. These recurrence figures are lower than what has been reported in other studies^(3, 5,13,14).

The commonest postoperative complication in our study was malaria. The study area is endemic of malaria and it is known that splenectomy reduces the immunity to malaria⁽¹⁵⁾.

In this study, only four patients developed wound sepsis (1.5%). This is a low rate of sepsis compared to other reports⁽¹⁶⁾ and this could be attributed to our policy of intra-operative antibiotics and not using drains.

Two of our patients developed pseudo-pancreatic cysts that required surgical drainage.

Six patients died within the first three weeks after operation (2.4%) which compares

favourably to other studies⁽⁵⁾. Many studies were done worldwide to evaluate the different methods that has been used to treat variceal bleeding. These studies reported that endoscopic sclerotherapy has a high rate of rebleeding in patients with liver cirrhosis (30-50%), and needs regular follow-up and repeated sessions to get better results. Mudawi and his colleague have shown a rebleeding of 30% following endoscopic sclerotherapy for Sudanese patients with periportal fibrosis. Moreover, band ligation has lower rate of rebleeding compared to injection sclerotherapy (12%) but the patient need rigid follow-up with possible repetition of the procure. With regard to TIPS, it is less durable and more costly and less effective in patient with good liver reserve⁽¹⁰⁾.

So, we can conclude that despite these recent innovations, oesophogogastric devascularization remains acceptable and effective option for selective patient with variceal bleeding secondary to bilharzial portal hypertension in areas with limited facilities^(7,8,10,11,12).

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