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## The Results of Oesophageal Transection and Reanastomosis by Stapling in Patients with Bleeding Oesophageal Varices

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### Abstract

One hundred patients with acute bleeding oesophageal varices underwent early surgical intervention by oesophageal transection and reanastomosis by stapling combined with gastro-oesophageal devascularization together with splenectomy in 56 patients (56%) and splenic artery ligation in 44 patients (44%). The overall mortality was 7 patients (7%) and all of them were due to liver cell failure during a mean follow up period of 49.5 months. Two patients (2%) died before discharge from the hospital and 5 patients (5%) died 13 to 20 months after operation. One patient lost the follow up. Bleeding was controlled post-operatively in all patients but during follow up, it recurred in a mild form in 14 patients (14%). Late dysphagia was absent in all patients although 17 patients (17%) gave history of dysphagia in the early postoperative period. Hb% and platelet count showed significant increase in splenectomized patients. The mean serum albumin was improved significantly at the end of follow up period ( $P < 0.05$ ). Endoscopically, varices disappeared completely in 75 patients (75%) and regressed to grade I in 15 patients (15%).

### Introduction

Upper gastrointestinal bleeding (UGIB) due to bleeding oesophageal varices is one of the challenging problems in surgical practice : How to stop bleeding and how to prevent its recurrence is still controversial [1].

Initial emergency medical treatment is satisfactory short term control but recurrent haemorrhage is common requir-

ring more active management [2]. Emergency surgery in these patients is complicated by high morbidity and mortality rate. Only the safest and fastest surgical procedure that will control the bleeding could be considered [3].

Following variceal haemorrhage, mortality without surgery ranged between 22-84% at 4-6 weeks and approximately one

third of the patients rebleed within six weeks and any substantial improvement in the survival rate required rapid, safe and effective procedure in the early period. Oesophageal transection and reanastomosis by stapling being a rapid, safe and effective procedure was used in the early management of bleeding oesophageal varices with promising results in the early postoperative period[4,6].

In the Department of Surgery, Suez Canal University, several studies using different modalities had been made to face such a problem[6,13].

The aim of this work is to evaluate the late results of oesophageal transection and reanastomosis by stapling combined with splenectomy or splenic artery ligation when used as an early surgical management in patients with bleeding oesophageal varices.

#### Material and Methods

This study included 100 patients who were admitted to Ismailia General Hospital during the period between April 1987 and October 1993 with upper gastrointestinal tract bleeding proved to be of variceal origin by endoscopy. In all patients early surgical intervention by oesophageal transection and reanastomosis by stapling combined with either splenectomy or splenic artery ligation had been used as a definitive line of management.

Ninety six males (96%) and four females (4%). Their ages ranged between 15-60 years with a mean age of 38.8 years. The presenting attack of haema-

temeis was the first (56%) or the second attack of bleeding (32%) in the majority of patients 88 patients (88%). Mild ascites was found in 16 patients pre-operatively (16%) while jaundice was found in 4 patients (4%).

Pre-operative haematological assessment showed that :

- Forty patients (40%) had haemoglobin level 60 to 70%, 24 patients (24%) had hemoglobin level below 60%.
- Thirty six patients (36%) had leucopenia below 3000/mm<sup>3</sup> and 36 patients (36%) had thrombocytopenia below 100,000/mm<sup>3</sup>.

Twenty of them underwent splenectomy, stapling and sixteen underwent splenic artery ligation + stapling.

Pre-operative liver function tests were relatively good. sixteen patients (16%) had serum albumin below 3.5 gm% and four patients (4%) had serum bilirubin above 2 mg%.

The majority of our patients (78 patients) were good risk patients (78%) grade (A) according to Modified Child Risk Grading. 21 patients were grade (B), only one patient was grade (C).

Preoperative endoscopic assessment showed that 72 patients (72%) had grade III oesophageal varices, 16 patients (16%) had grade IV and 12 patients had grade II (12%). Varices occupied the lower third of the oesophagus in 80 patients (80%), lower two third in 12 patients (12%) and lower half in 8 patients (8%).

Oesophageal transection and re-anastomosis by stapling combined with vasoligation had been done in all patients. Splenectomy had been added in 56 patients (56%) while splenic artery ligation had been added in 44 patients (44%).

### Results

Post-operatively bleeding was controlled in all patients. Two patients (2%) died before discharge from the hospital and the cause of death was liver cell failure, the first one died 6 hours after operation and he was Child Grade (C) and the second one died 4 days after operation, he was Child Grade (B).

On September 1993 (after a mean follow up period of 49.5 months), the 92 survivors were reassessed. Only one patient had been lost for follow up, those who attended 92 patients were subjected to clinical, laboratory and endoscopic assessment.

The other 5 patients (5%) died 13 to 20 months after operation from liver cell failure, all of them developed ascites, jaundice and encephalopathy before death. They were classified as Child Grade (B) preoperatively. So, the overall mortality were seven patients (7%).

The follow up period ranged between 17-62 months mean 49.5 months.

Post-operative clinical assessment of those 92 patients at the end of the follow up period showed that :

Recurrent bleeding occurred in 14 patients (14%). Nine of them showed mild

single attack necessitating one unit of blood transfusion for each patient. The time of recurrence was between one, and thirteen months after operation. In the other five patients, bleeding recurred 2 times in four patients, 4 times in the fifth patients. It was mild in each attack only necessitating one unit blood transfusion and no other active measure had been used to stop bleeding.

Two patients (2%) who had ascites pre-operatively still had ascites post-operatively till the end of the follow up period, but it was of mild degree and under medical control.

Two patients (2%) developed incisional hernia due to postoperative wound infection and repair of the hernia had been done.

Seventeen patients (17%) had a history of dysphagia during their follow up period. It developed after a period ranged between one week and one month and it persisted for a period ranged between 2-4 months and disappeared spontaneously without treatment. At the end of follow up period, none of our patients had any complaint of dysphagia.

### *Haematological Assessment :*

The mean Hb% increased from 68.13% pre-operatively to 79.55% at the end of follow up period (mean period 49.5 months) and the difference was statistically significant ( $P < 0.05$ ) and none of our patients had haemoglobin level below 60% although it was present in 24 patients (24%) pre-operatively.

Table (1) : Liver Function Tests, Pre-operatively and at the End of Follow Up Period.

Time of assessment	Pre-operatively			End of follow up			P value
	Range	Mean	SD	Range	Mean	SD	
S. Albumin (gm%)	2.5 - 4.6	3.72	0.87	3.4 - 4.9	4.21	1.05	< 0.05
S. Bilirubin (mg%)	0.6 - 2.8	1.12	0.51	0.6 - 1.8	1.05	0.63	> 0.05
SGPT	14 - 60	40.2	39.45	27 - 66	37.23	35.30	> 0.05
Alk. Ph.	11 - 17	39.5	30.76	14 - 60	35.42	26.50	> 0.05

The mean leucocytic count improved in splenectomized patients but this improvement was statistically insignificant ( $P < 0.05$ ). No patients had leucocytic count below 3000/mm compared to 20 patients pre-operatively while in patients who underwent splenic artery ligation no apparent improvement in the 16 patients who had WBCs below 3000.

The mean thrombocytic count improved markedly in splenectomized patients and this improvement was statistically significant ( $P < 0.05$ ). No patients had platelets count below 100,000/mm compared to 20 patients pre-operatively while no improvement in patients who underwent splenic artery ligation (16 patients).

The mean serum albumin was increased from 3.72 gm% preoperatively to 4.21 gm% at the end of follow up period

and the difference was statistically significant ( $P < 0.05$ ).

Other liver function tests (S.bilirubin, SGPT, Alkaline phosphatase) showed statistically insignificant improvement at the end of follow up period compared to that pre-operatively difference ( $P < 0.05$ ). (Table 1).

Endoscopically, oesophageal varices disappeared completely in 75 patients (75%) and regressed to grade I in 15 patients (15%). it remained as grade III in 2 patients (Table 2).

Modified Child's Risk Grading showed no change after operation : 78 patients (78%) were Child Grade (A) and 14 patients (14%) were Child Grade (B) both preoperatively and at the end of follow up period (Table 3).

Table (2) : Endoscopic Assessment, Pre-operatively and at the End of Follow Up Period.

Time of assessment Grade of varices	Pre-operatively		End of follow up	
	No.	%	No.	%
No varices	0	0	75	75
Grade I	0	0	15	15
Grade II	12	12	0	0
Grade III	72	72	2	2
Grade VI	16	16	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>92</b>	<b>92</b>

*Liver Pathology :*

Liver pathology was done in 81 patients it showed pure bilharzial lesion in 46 patients (46%), bilharzial lesion + cirrhosis in 22 patients 22%, and bilharzial lesion + chronic active hepatitis was found in 11 patients 11% while only 2 patients had pure chronic active hepatitis 2%.

**Discussion**

The main problem of portal hypertension is bleeding from oesophageal varices, how to stop and how to prevent its recurrence is still a challenging problem[1,14].

The overall mortality in our study was 7 patients (7%), two of them (2%) died early before discharge from the hospital and 5 late during a mean follow up period of 49.5 months. The liver pathology in those seven patients showed mixed bilharzial hepatic fibrosis and post-hepatitis cirrhosis in 6 patients, chronic active hepatitis in one patient. This is compared to early mortality of 14% a late mortality of 17% in a group of patients done by Johnson[4].

This difference in mortality was due to different liver pathology, Johnson had studied 80 patients all of them had alcoholic cirrhosis. In Ezzat study[15] which included 35 patients who were followed up for a mean period of 20 months, early and late mortality were 3.5% and 7% respectively while in Alexandria Bessa[5] had early and late mortality 5% & 10% respectively after follow up period of 18 months. Their results are comparable to our results. Their better results were assumed to be due to the fact that the major-

ity of cases in Egypt were (Child Grade A) and the liver pathology in them was either pure schistosomal fibrosis or mixed by post hepatic cirrhosis which had better prognosis than that of alcoholic cirrhosis [16].

Recurrence of bleeding occurred in 14 patients (14%). It was mild and controlled by blood transfusion only while in Johnson's study[4], it was 17.5% and it was fatal in one third of cases.

In Egypt, recurrence of bleeding was 7% in Ezzat & his colleagues study in El-Mansoura[15] and 10% in that of Bessa[5]. Good results in Egyptian studies were assumed to be due to proper vasoligation which together with oesophageal transection and re-anastomosis ensure complete portazygos disconnection both in the oesophageal wall and peri-oesophageal veins. Splenectomy or splenic artery ligation reduce portal inflow and portal pressure.

Varices disappeared completely in (75%) of our patients and regressed in (17%) at the end of follow up. These results simulated that of Bessa[5] and Moaty[6]. This is attributed to complete interruption of subepithelial, submucosal and periesophageal veins. This ensure complete porto-azygos disconnection and this together with splenectomy or splenic artery ligation will decrease portal inflow and so varices regress or disappear.

In other studies in which no other maneuver was added to stapling, varices regressed to a lesser extent. It disappeared in 7 patients (50%) in the study of

Mir[17] which included 14 patients with a mean follow up 20 months.

In the study of Johnson[4] varices occurred in 28.6% after a mean follow up of 36 months.

Hemoglobin level had been improved after operation and this is attributed to the fact that after stapling minor bleeding from varices was stopped as varices was regressed or disappeared. Also splenectomy had improved markedly blood picture due to removal of hyperactive spleen, this improvement was reported by Moaty[6] and his study included 24 patients. Serum albumin was increased significantly ( $P < 0.05$ ) and this is due to improvement of liver function due to absence of bleeding which represent a great burden on the liver and its function.

From this study we came to the conclusion that oesophageal stapling, vasoligation is the most suitable modality for treatment of oesophageal varices. Splenectomy should be added in cases of hypersplenisms.

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