

## COMPLICATED UMBILICAL HERNIA IN CIRRHOTIC PATIENTS WITH ASCITES\*

By

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**Background:** *The treatment of umbilical hernia in the setting of cirrhosis poses unique specific management problems due to pathophysiology of cirrhotic ascites.*

**Purpose:** *Thirty cases of liver cirrhosis have been studied for the outcome of complicated umbilical hernia in the presence of ascites. Methods:* *From November 2001 to October 2002, we received 30 cases of complicated umbilical hernias in patients suffering from liver cirrhosis with ascites. Twelve of these patients were classified as Child C while 18 of them were considered Child B. All the cases were subjected to surgical management under local anesthesia.*

**Results:** *Six cases had ruptured umbilical hernia and they underwent closure in two layers after reduction of the contents. Twenty-four cases presented with irreducible hernia and upon exploration, 12 cases had gangrenous omentum that was resected and the other 12 cases had gangrenous intestinal loops where resection and anastomosis was carried out without drains. Out of 30 patients, 8 patients developed postoperative tense ascites that responded to medical treatment in 6 of them and 2 patients needed paracentesis. One patient of this series died on fourth postoperative day of liver failure while the rest of the patients had an uneventful postoperative course in a follow up period ranging from 3 to nine months.*

**Conclusion:** *Complicated umbilical hernia can be managed safely in ascitic patients under local anesthesia.*

*Keywords – Liver cirrhosis, ascites, umbilical hernia.*

### INTRODUCTION

Spontaneous drainage of peritoneal fluid through an umbilical hernia, a rare and potentially fatal complication, was first described in 1901<sup>(1)</sup>.

The treatment of umbilical hernia in the setting of cirrhosis poses unique and specific management problems due to the pathophysiology of cirrhotic ascites. The high intra-abdominal pressures generated by ascites when applied to areas of parietal weakness are the cause of hernia formation and enlargement. Successful surgical treatment depends on minimization of ascites and prevention of postoperative ascetic leakage.<sup>(2-5)</sup>

Treatment of hernia varies depending on whether transplantation is an option. In liver transplantation candidates, hernia repair can be performed at the end of

the transplantation procedure. If transplanation is not envisaged, repair of hernia should be saved to management of complications. After the appearance of umbilical hernia in cirrhotic patients with ascites, the progressive increase in pressure causes overstretching of the hernial coverings with progressive thinning out that may end up in rupture of the hernial sac. Moreover, the floating intestine may be overcrowded under the growing pressure into the hernial sac precipitating strangulation of the contents with impending gangrene. Umbilical rupture and hernia strangulation are the most life-threatening complications of umbilical hernia with ascites and they demand urgent surgical intervention.<sup>(6-8)</sup> Death after drainage can be attributed to peritonitis, sepsis, hepatic or renal failure.<sup>(9)</sup> This work aimed at assessment of the management of complications of umbilical hernia in cirrhotic patients with ascites.

## PATIENTS AND METHODS

All patients presenting to the emergency Unit of El-Minia University Hospital with a complicated umbilical hernia upon a background of liver cirrhosis and ascites we've included in the study. Written informed consent was received from all patients. All patients received a thorough history taking and clinical examination while necessary laboratory investigations were carried out before the operation and on daily basis postoperatively to evaluate liver function, coagulation profile as well as renal function. Plain abdominal radiographs as well as abdominal ultrasonography were performed preoperatively and daily postoperative ultrasonic examination was used to assess the volume of ascites.

All patients were subjected to surgical management under local anesthesia (lidocaine hydrochloride anhydrous 2%) and the findings were managed accordingly. Cases of ruptured hernias with prolapsed omentum were managed by excision of the prolapsed part and repair in two layers of interrupted sutures using polypropylene 1. Cases of strangulated hernia containing omentum were managed similarly after excision of the devitalized omentum and closure in two layers without drain. Cases of strangulated hernia with gangrenous intestinal loop were managed by resection and primary anastomosis and closure in two layers without drain. Oral feeding was started in patients of the first and second group on first postoperative morning after restoration of bowel movement while the third group started oral feeding on fifth postoperative day. Operative outcome was assessed by the changes in the liver function test as well as morbidity and mortality.

### *Statistical analysis*

The data are presented as a mean + S.D. The significance of differences was analyzed by Student's t-test, and a p value of < 0.05 was considered significant.

**Table 1: Clinical findings upon admission:**

<i>Finding</i>	<i>No. of Patients</i>
H. of hematemesis	5
H. of bilharziasis	12
H. of hepatitis	13
Smoking	8
Alcoholism	3
Jaundice	5
Gynaecomastia	2
Flappy tremors	4
Edema LL	9
Divaricated recti	14
Petichae	4
Venous hum	1
Caput medusa	1
Testicular atrophy	1

## RESULTS

During the period from November 2001 to October 2002, a series of 30 patients was included in this study (18 males and 12 females with a mean age of 48.6 + 13.7 years). The clinical findings upon admission are shown in (Table I). According to Child classification, the series included 12 patients with Child C class and 18 patients with Child B class and the overall Child-Pugh score was 10.1 ± 1.08.

Upon exploration, the patients were classified into three groups according to the operative findings:

(1) Six cases of ruptured umbilical hernia with prolapsed omentum that required urgent interference to control the leakage of ascetic fluid by exploring the wound and excising prolapsed omentum and closure without intraperitoneal drain or mesh repair (Fig 1).<sup>(2)</sup> Twelve cases of strangulated omentum in an irreducible hernia that were managed similarly with excision of prolapsed omentum and closure without drain.<sup>(3)</sup> Twelve cases of strangulated gangrenous intestine in an irreducible hernia where all cases were gangrenous small intestine that underwent resection and primary anastomosis without drain (Fig 2)

The biochemical profile on first postoperative day did not show any significant difference from that of preoperative profile (Table II).

The postoperative morbidity during the follow up which arranged from 3 to 9 months (6.2 + 2.3 months) varied from ileus, wound infection, hematemesis, chest infection and leakage of peritoneal fluid through the wound (Table III). All these case were managed conservatively, no cases of recurrence were recorded during the follow up period. Postoperatively, and out of 30 patients, 8 patients developed postoperative tense ascites that responded to medical treatment in 6 of them while two patients needed paracentesis. Nevertheless, one patient of this series died on fourth postoperative day of liver failure.

**Table 2: Laboratory data:**

<i>Laboratory data</i>	<i>Preoperative</i>	<i>Postoperative</i>
Prothrombin	14.1 ± 1.3	16.2 ± 2.3 *
Serum albumin	3.18 ± 0.73	2.64 ± 0.79 *
Total bilirubin	1.1 ± 0.43	1.51 ± 0.56 *
Platelet count (x1000)	155.3 ± 72.7	150.5 ± 71.6 *
SGPT IU/L	47.2 ± 23.1	83.42 ± 21.9 *

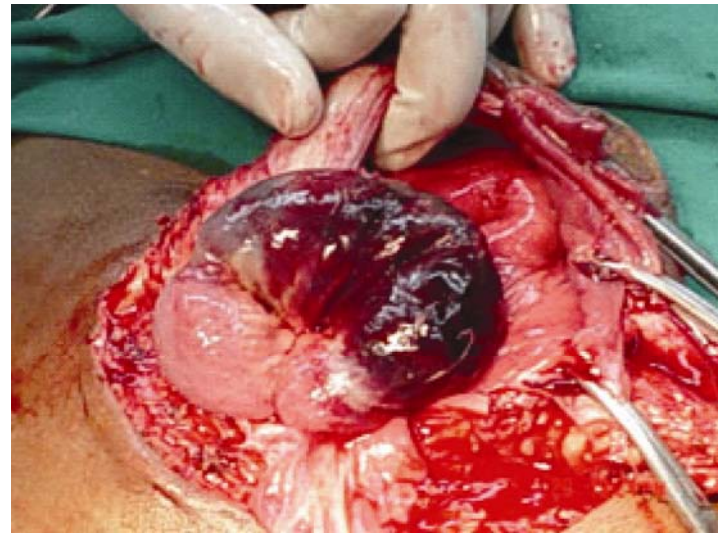
\* p value > 0.05 (non - specific)

**Table 3: Postoperative morbidity**

<i>Complications</i>	<i>Number of patients</i>
Ileus	4 (12%)
Wound infection	1 ( 3%)
Hematemesis	2 ( 6%)
Chest infection	5 (15%)
Leakage of fluid	2 ( 6%)
Tense ascites	8 (24%)
Hepatic failure	2 ( 6%)
Renal failure	0
Recurrence of hernia	0



**Figure1: 1 A case of ruptured umbilical hernia with prolapsed omentum**



**Figure 2: A case of strangulated umbilical hernia with a gangrenous small intestinal loop**

## DISCUSSION

Long standing liver disease may be accompanied by abdominal organomegaly as well as ascites. These pathological changes result in chronic increase in intra-

abdominal pressure. The umbilical scar may yield under this pressure resulting in appearance of umbilical hernia in cirrhotic patients. After the appearance of umbilical hernia in cirrhotic patients with ascites, the progressive increase in pressure may end up in rupture of the hernial sac.<sup>(10)</sup>

Moreover, the floating intestine may be overcrowded under the growing pressure into the hernial sac precipitating strangulation of the contents with impending gangrene.<sup>(12)</sup>

Ascites plays a key role in the development of umbilical hernia as well as development of complications in cirrhotic patients. Both tense ascites and rapid evacuation of ascetic fluid may cause an umbilical hernia to complicate as the tense ascites stands behind the enormous increase in intra-abdominal pressure while rapid uncontrolled evacuation may precipitate an incarcerated hernia.<sup>(13,14)</sup> The relation between ascites and umbilical hernia also entails a combined paracentesis and herniorrhaphy as drainage of the ascetic fluid can be performed through the umbilicus.<sup>(15, 16)</sup>

General anesthesia exerts a considerable load on the cirrhotic liver,<sup>(17)</sup> for this reason all the patients in our study were managed under local anesthesia to ensure minimal insult to the liver.

Although some authors recommended prophylactic repair of umbilical hernia because of the high rate of complications, in our series, we prefer to perform surgery only to patients who already develop complications as the operative interference carries a mortality and morbidity that should be avoided in end-stage liver disease patients.<sup>(18)</sup>

Some surgeons have successfully used a synthetic mesh for the repair of hernias in cirrhotic patients,<sup>(19)</sup> however, we assumed that a synthetic mesh may carry a high incidence of infection in such immune-compromised patients and we preferred to perform a two-layer herniorrhaphy rather than a hernioplasty.

In cases of strangulated hernias that contained a gangrenous intestinal loop, a successful resection with primary anastomosis without drainage was carried out without recording of any cases of leakage. This result encourages us to recommend primary anastomosis without drainage for all cases of intestinal surgery unless fecal soiling of the peritoneum occurs because we believe that intraperitoneal drain does not affect the prognostic outcome of intestinal anastomosis.

In conclusion, complicated umbilical hernia in cirrhotic patients with ascites can be managed safely under local anesthesia without mortality and with an acceptable morbidity rate.

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