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A case report and review of the literature



Ann. Ital. Chir.
e-publish 29 October 2012
pii: S2239253X1202021X
www.annitalchir.com

Antonino Buffone*, Mario Costanzo*, Guido Basile*, Lorenza Terranova*, Vanessa Papa*, Antonio Catania**, Matteo Angelo Cannizzaro*

*Department of Endocrine Surgery, (Chair: Prof. M.A. Cannizzaro), "Vittorio Emanuele" Polyclinic, University of Catania, Catania, Italy
**La Sapienza University, Rome, Italy

Spontaneous rupture of the umbilical hernia in a cirrhotic patient with ascites. A case report and review of the literature

The authors, report a case of spontaneous rupture of an umbilical hernia in a cirrhotic patient with ascites and perform a literature review. Their results and the published data suggest that it is preferable to perform elective surgery after stabilization of the ascites and the patient's general condition in order to prevent complications and mortality.

KEY WORDS: Ascites, Hernioplasty, Spontaneous hernia rupture

Introduction

Twenty percent of cirrhotic patients with ascites develop an umbilical hernia^{1,2} containing peritoneum, omentum or part of the intestine and ascitic fluid³. This can be followed by complications such as strangulation or rupture of the hernia, the latter being associated with a mortality rate of 30%⁴.

Treatment of umbilical hernia in these patients (the choice between surgery or a watch and wait approach) is problematic because of the high risk of mortality^{5,6}.

Our observation of a cirrhotic patient with ascites complicated by a ruptured umbilical hernia and necrosis of the omentum, led us to review the literature on the subject.

Materials and methods

A 61-year-old male with cirrhosis came to our attention at the department of endocrine surgery of the university hospital in Catania, Italy when he was transferred from the department of internal medicine due to a ruptured umbilical hernia with leakage of ascitic fluid, evisceration of omentum which appeared to be partly necrotic and fever (38,2 °C). The patient had a history of alcoholism. Fifteen years prior to admission he had developed cirrhosis, 3 years prior ascites, treated with diuretics and occasional paracentesis, and 2 years prior an umbilical hernia.

For 5 days prior to admission progressive distension of the patient's abdomen had resulted in increased intraab-

Pervenuto in Redazione Agosto 2012. Accettato per la pubblicazione Ottobre 2012.

Correspondence to: Antonino Buffone, Via Sgroppillo 21, 95027 San Gregorio, Catania (email a.buffone@unict.it)

dominal pressure on the umbilical hernia and, after 2 days, some necrosis of the overlying skin was observed. During the night before transfer to our department, the hernia spontaneously ruptured with a loss of ascitic fluid and evisceration of omentum which had some necrotic areas (Fig. 1).

Physical examination revealed a tear in the abdominal wall and leakage of ascitic fluid. The patient was found to be in poor general condition with fever and sepsis. Laboratory test results were as follows: red blood cell count 3340000 mm³, hemoglobin 9.7 mg/dl, hematocrit 27%, white blood cell count 12300 mm³, neutrophils 82%, serum glutamic oxaloacetic transaminase (SGOT) 323 IU/L, serum glutamic pyruvic transaminase (SGPT) 401 IU/L, albumin <3.0 mg/dl, bilirubin >1.5 mg/dl, prothrombin time 0.8 seconds, partial thromboplastin time 25 seconds.

We decided to perform emergency surgery to remove the necrotic surgery and close the defect in the abdominal



Fig. 1: Ruptured umbilical hernia and evisceration of omentum with necrotic areas.



Fig. 2: Hernioplasty.



Fig. 3: After the placement of 2 drains and skin closure.

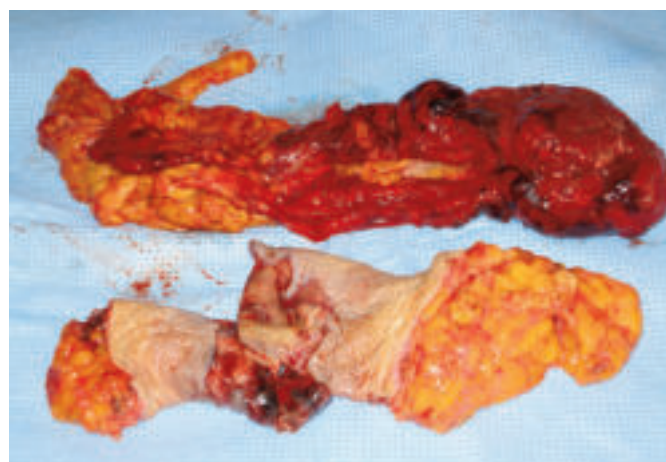


Fig. 4: The specimen: skin, umbilicus and omentum.

wall. A transverse lozenge-shaped incision was used and the umbilicus and hernia sac as well as necrotic omentum were excised. Approximately 4 liters of ascitic fluid were aspirated and samples were sent for cytology and culture. Abdominal wall repair was performed using Mayo's technique, with non absorbable sutures (Fig. 2). Two drains were positioned and connected to drainage systems with faucets to permit abdominal decompression using paracentesis when needed, i.e to avoid pressure on the abdominal wall (Figg. 3,4).

No prosthesis was used for repair due to suspicion of ascitic fluid infection given the patient's septic state.

Results

During the first two days after surgery the patient's septic state improved, he had no fever and his white blood cell count was 9300 mm³. He was given fresh frozen plasma and diuretics to control the ascites, antibiotics (1000mg intravenously 3 x daily), intravenous fluids

(long chain branching aminoacids 1000ml, electrolyte solution 500 ml, glucose 5% 500 ml).

On postoperative day 3 the patient's general condition deteriorated and he developed a high fever (38.6 °C) and respiratory insufficiency. After he was transferred to the intensive care unit he was managed with orotracheal intubation, controlled ventilation and cardiovascular support, but 5 hours later he died.

Staphylococcus aureus was found in the ascitic fluid.

Discussion

In 81% of cases³ there is discoloration of the skin over the hernia, and this is the warning sign of ulceration followed by rupture^(2,3).

O'Hara and colleagues⁸ reported spontaneous umbilical hernia rupture in 3 out of 35 cirrhotic patients (8.6%) and skin ulceration in 7 (20%). Sixteen patients (45.7%) in their series underwent emergency surgery and 19 (54.3%) underwent elective surgery. Eight patients (22%) developed complications and 6 died (16%).

In a study conducted by Koscielny and colleagues⁹, 22 patients with decompensated cirrhosis and umbilical hernia were divided into 2 groups (a group of 10 patients in whom two drains were placed to control the ascites and a group of 10 patients without drains). The authors reported 25% morbidity in the patients without drains and 10% morbidity in those with drains.

Marsman and colleagues⁶ studied 34 cirrhotic patients with ascites and umbilical hernia. Seventeen of whom underwent elective surgery (with simple fascial sutures used in 16 cases and preperitoneal apposition of polypropylene mesh in one case), 13 of whom were managed conservatively, and 4 of whom underwent hernia repair during liver transplantation. Three of the patients who underwent elective surgery had local skin complications and 4 had hernia recurrence (11-24 months after surgery). One of the 4 patients with recurrence had spontaneous skin tearing and one incarceration of intestinal loops. In 3 cases of recurrence prosthetic material was used for hernia repair. In the group of patients managed conservatively, 10 out of 13 patients had complications. There were 9 cases of visceral incarceration and 1 case of spontaneous rupture with externalization of the viscera. There were 2 deaths, both due to sepsis.

In the liver transplant group, there were no complications in the immediate postoperative period. Long-term complications consisted of 1 case of hernia recurrence. Ammar² conducted a study on the surgical repair of umbilical hernia in 80 cirrhotic patients with ascites divided into 2 groups of 40 patients each. Group I underwent simple fascial repair and group II hernioplasty with polypropylene mesh. Eight patients, 5 from group I and 3 from group II were excluded from the study when resection of a gangrenous part of the ileum was required during hernioplasty. The author reported

the following complications: in group I (n=35), 3 cases of surgical site infection treated with antibiotic therapy and 5 cases of hernia recurrence; in group II (n=37) 6 cases of surgical site infection, also treated with antibiotics, and 1 cases of hernia recurrence. There was no mortality.

The best treatment strategy (conservative or surgical) and the best timing for surgery are still matters of debate and a challenge for the physician.

Both of these decisions are conditioned by the poor general state of the patients (dysmetabolism, malnutrition, dyscoagulation) which leads to higher morbidity and mortality rates.

McKay and colleagues⁴ in a study conducted in 16 centers in Canada observed that a) the important factors affecting decision-making about hernioplasty were symptom severity, control of ascites, and Child classification; b) the indications for hernia repair were strangulation, rupture with loss of ascitic fluid and evisceration of omentum or small intestine; c) leakage of ascitic fluid and bluish discoloration at the umbilicus predict rupture. Moreover this multicenter study showed that in 10 centers surgery was aimed at simultaneous treatment of the ascites and hernia repair. In only 6 centers was prosthetic material always used for repair no matter what the degree of ascites was. Morbidity after hernia repair ranged from 13.9% (Child-Pugh class A) to 53.1% (class C). Mortality ranged from 3.8% (class A) to 28.9% (class C). A wait and watch approach can be used if the ascites is drained so that it does not exert pressure on the umbilicus⁸. Ascites is the main risk factor for intestinal strangulation or hernia rupture both of which require emergency surgery. The risk of complications and mortality is therefore greater than when elective surgical repair is performed⁶. Conservative management of a ruptured hernia with antibiotics is associated with a very high mortality rate (88%)⁷.

Maniatis and Hunt¹¹ in a study on umbilical hernia repair in cirrhotic patients, covering the period from 1956 to 1990, report a mortality rate of 2% in patients who underwent elective surgery and 14% in those who had emergency surgery.

Thus according to the literature elective hernia repair seems to be the best solution since it is performed under more favorable conditions (stabilized cirrhosis, reduction of ascites) and both complication and mortality rates are lower^{8,12}. When the ascites is refractory to pharmacological treatment, elective surgery is associated with higher morbidity and mortality rates (30% and 5% respectively), than when there is no ascites present (15% and 0% respectively)¹. Ascites predisposes for mesh infection² which necessitates removal of the prosthesis¹³, and a rare potential complication is bacterial peritonitis which can be managed conservatively with antibiotics¹³. Another potential complication when the ascites does not respond to pharmacological or surgical therapy is hernia recurrence⁴.

The negative prognostic role of ascites is confirmed by a comparative study conducted by Belghiti and colleagues¹⁴ on 2 groups of cirrhotic patients who underwent umbilical hernioplasty, one group of 26 patients without ascites and one of 14 with ascites treated with a peritoneovenous shunt (PVS). There was 1 case of hernia recurrence in the first group and 10 in the second.

Conclusions

Umbilical hernia rupture is a serious complication that can occur in cirrhotic patients with ascites. Control of the ascites with repeated paracentesis, diuretic therapy, administration of albumin, nutritional support, shunts (transjugular intrahepatic portosystemic shunt (TIPS), PVS), and peritoneal dialysis make it possible to obtain good results in 100% of patients with Child class A cirrhosis.

If possible, surgical repair (with or without prosthetic material) of umbilical hernias in cirrhotic patients with ascites, should be performed as elective surgery, when the patient's metabolic parameters are stabilized, in order to reduce the risk of morbidity or mortality

Riassunto

Gli Autori riferendo su un caso clinico di rottura spontanea di ernia ombelicale in cirrotico in fase ascitica, e rivisitano i dati della letteratura. I risultati e i dati pubblicati suggeriscono che è preferibile attuare la terapia chirurgica in elezione dopo stabilizzazione dell'ascite e del quadro clinico generale, momenti essenziali per la prevenzione delle complicanze e della mortalità.

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