

Laparoscopic Umbilical Hernia Repair in the Presence of Extensive Paraumbilical Collateral Veins: A Case Report

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Abstract: A patient with an umbilical hernia presenting with collateral veins in the abdominal wall and umbilicus is a case that every hernia surgeon has to deal with occasionally. Several underlying diseases have been described to provoke collateral veins in the abdominal wall. However, the treatment strategy should be uniform. We herein report a case of a successful laparoscopic umbilical hernia repair in a patient with collateral veins in the abdominal wall and umbilicus. A 63-year-old man was referred to the surgical outpatient clinic with a large symptomatic umbilical hernia and collateral veins in the abdominal wall, secondary to an occlusion of both common iliac veins. Because of collateral veins in the umbilicus and the size of the hernial defect, he was offered laparoscopic hernia repair without compromising these veins. Because of the extensive abdominal wall collaterals, duplex sonography vein mapping was performed preoperatively to mark a safe collateral-free area for trocar introduction. The defect was repaired by mesh prosthesis.

Key Words: umbilical hernia, laparoscopic mesh repair, collateral veins, occlusion common iliac veins, abdominal wall

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Umbilical hernias in adults are acquired, rather than congenital, and occur more commonly in female than in male patients. Umbilical hernias are associated with increased intra-abdominal pressure due to obesity, chronic abdominal distension, fascia weakness, ascites, malnutrition, and pregnancy.¹

Nowadays, laparoscopic approach to umbilical hernia with a lower recurrence rate and fewer complications has found increasing popularity among hernia surgeons.^{2,3} It can be performed in complex surgical patients with a low rate of conversion, short hospital stay, moderate complication rate, and low risk of recurrence.²

In this case report, we present a complex surgical patient with occlusion of both iliac veins and a large symptomatic umbilical hernia. Umbilical and abdominal

subcutaneous collateral veins are frequently found in patients with portal hypertension, mainly associated with liver cirrhosis.⁴ In this particular patient, the veins in the abdominal wall were induced by occlusion of both common iliac veins 30 years ago. After preoperative duplex ultrasonography vein mapping, a collateral-free area for trocar introduction was marked.

CASE REPORT

A 63-year-old man presented with a large symptomatic umbilical hernia at the surgical outpatient clinic. Thirty years ago, he was diagnosed with deep vein thrombosis of both common iliac veins. Since then, the patient was being treated with phenprocoumon. Because of the occlusion of both common iliac veins, he developed venous collaterals in the abdominal wall. Inspection of the abdomen showed extensive subcutaneous venous collaterals at the typical escape routes, together with an umbilical hernia (Fig. 1A). Abdominal ultrasonography also showed collateral veins in the umbilicus. Abdominal ultrasonography and laboratory parameters for liver function revealed no signs of liver cirrhosis.

To prevent injury of the paraumbilical collateral veins and complications with potential hemorrhage, the patient was offered laparoscopic hernia repair with a mesh prosthesis. To create an overview of the collaterals and to determine a collateral-free area for trocar position, a preoperative duplex ultrasonography was performed with road mapping of the venous collaterals within the abdominal wall. At the lower left quadrant of the abdominal wall, there appeared to be an area free of collaterals. This area was externally marked by a water-free pencil before the laparoscopic procedure (Fig. 1B).

The patient underwent laparoscopic repair of the umbilical hernia with composite mesh prosthesis (R/Parietex Composite; Covidien). The surgical procedure was performed under general anesthesia with the patient in supine position. Abdominal access was obtained with the introduction of one 10 mm and two 5 mm trocars in the safe area at the lower left quadrant of the abdominal wall. The fascial defect was identified (Fig. 2A), and the mesh prosthesis was positioned. Subsequent mesh fixation was performed circumferentially with tacks using the double crown technique (Fig. 2B). After the trocars were withdrawn, the 10-mm trocar site was closed using absorbable fascia sutures, and the skin was closed with intracutaneous absorbable sutures.

The patient tolerated the surgery well and was discharged on postoperative day 2 without complications. At 22-month follow-up, the patient was doing well with no hernia recurrence.

DISCUSSION

Paraumbilical and abdominal collateral veins are frequently found because of portal hypertension in liver

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The authors declare no conflicts of interest.

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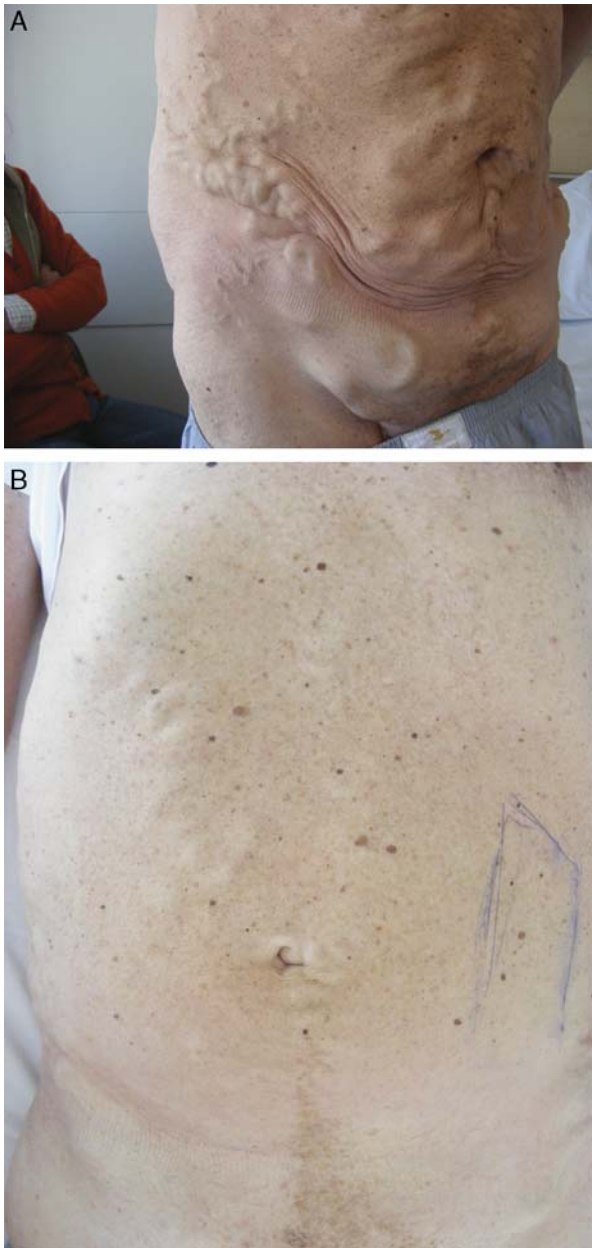


FIGURE 1. Patient with extensive subcutaneous venous collaterals in the abdominal wall (A). Marked area free of collaterals, determined by duplex sonography vein mapping (B).

cirrhosis or in patients with abdominal tumors and sometimes in patients with congenital absence of the inferior vena cava.⁵ In this particular patient, the collaterals in the abdominal wall were caused by occlusion of both common iliac veins 30 years ago. Venous drainage of the anterior abdominal wall tends to be more variable than arterial pathways; however, veins typically follow the course of arteries. Above the umbilicus, venous drainage is directed toward the subclavian veins, and below the umbilicus it is directed to the external iliac veins. These veins may be dilated in patients with obstructed blood flow through the liver and porta hepatis or, as in our case, the common iliac

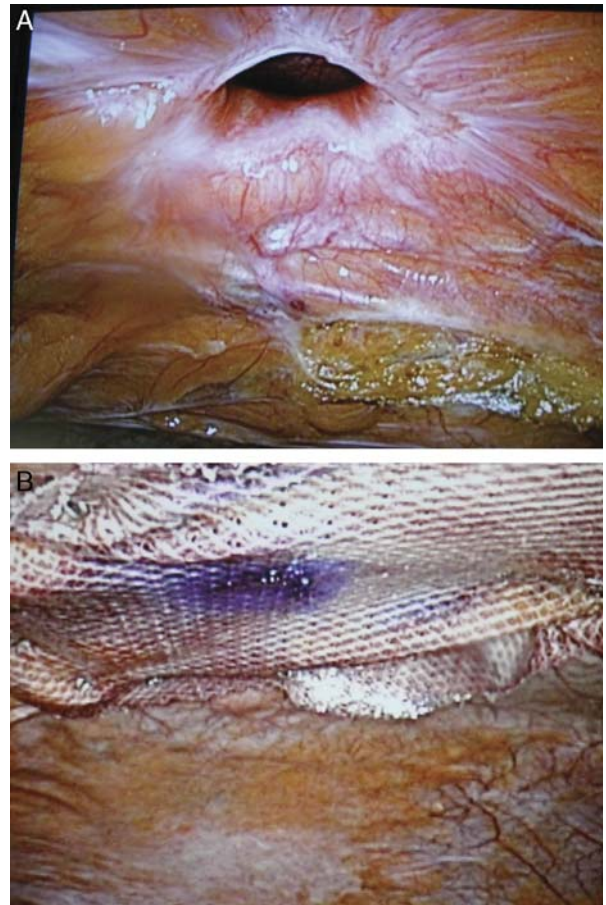


FIGURE 2. Hernial port in the abdominal wall (A). Mesh prosthesis positioned over the hernial port (B).

veins. In complex surgical patients, laparoscopic hernia repair can be accomplished safely with a low conversion rate, moderate complication rate, short hospital stay, and low recurrence risk.² Belli et al³ showed that laparoscopic incisional and umbilical hernia repair is technically feasible and safe, even in patients with portal hypertension and liver cirrhosis.

Many authors recommend duplex ultrasonography for the assessment of varicose disease, especially when there is an indication for surgical treatment.^{6,7} Carrying out duplex ultrasonography for varicose vein assessment is useful to identify the origin of the venous reflux, relationships of the different venous systems, and their possible anatomic variations.⁷ As described in our case, duplex ultrasonography revealed an overview of the collaterals in the abdominal wall and an area free of collaterals in order to place the trocars safely, followed by an uncomplicated laparoscopic procedure.

CONCLUSIONS

This case demonstrates a safe laparoscopic umbilical hernia repair in a patient with extensive collateral veins in the abdominal wall and umbilicus after deep venous thrombosis of both common iliac veins. Patients with a large umbilical hernia and extensive collateral veins preferably

should not undergo open mesh repair considering the risk of hemorrhage complications.

When a laparoscopic procedure is indicated in a patient with extended collaterals in the abdominal wall, it is recommended to perform preoperative mapping of the veins using duplex ultrasonography to overview the venous collaterals and to determine an area for safe trocar placement.

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