

Open repair of an incarcerated umbilical hernia in an obese patient. A case report

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Case report

General Surgery



INTRODUCTION: Umbilical herniation is considered one of the chief abdominal wall defects and a highly prevalent surgical issue for which a diverse range of repair techniques exist, the use of which depends on the size and location of the defect, as seen in the case we now present.

Case presentation: We present a 63-year-old female patient with concomitant diseases such as: Type 2 Diabetes Mellitus, Systemic Arterial Hypertension, and grade 3 obesity. The patient does not have any prior medical records of surgical procedures, this patient presented in our institution's consult due to an umbilical herniation which upon further evaluation proved to be an incarcerated umbilical hernia of 11 years of evolution; this defect was subjected the Rives-Stoppa repair technique which involves the use of a prosthetic mesh.

Conclusions: Prompt management of umbilical hernias is as important as the surgeon's approach. Umbilical hernias of long evolution can become large and include in its contents anatomical structures which are not often found such as the stomach and large colon, should said entity turn from incarcerated to a strangulated hernia, the patient's life can be at risk. Open repair of large, incarcerated hernias using the Rives-Stoppa technique proved to be a viable approach and was capable of yielding adequate results, in an obese patient with comorbidities.

Keywords: Ventral hernia, incarcerated hernia.

Umbilical and epigastric herniation comprise approximately 10% of all primary herniations (1). The umbilical hernia was formerly defined by the European Hernia Society as a primary abdominal wall defect that ranged from 3 cm above to 3 cm below the umbilicus (2), however, the 2020 guidelines now define the umbilical hernia as a midline defect within the umbilical ring and an epigastric hernia as a defect above the umbilical ring, although they recommend a new consensus with fresh evidence is created (3). Size classification has remained relatively similar with a division of umbilical and epigastric hernias into small (0–1 cm), medium (more than 1 cm up to 4 cm), and large (over 4 cm) based on defect diameter (3).

Case report

We present a 63-year-old female patient, who has several concomitant diseases such as Type 2 Diabetes Mellitus diagnosed 30 years before our consult; Systemic Arterial Hypertension diagnosed 20 years prior; and Grade 3 obesity with a BMI (Body-Mass Index) of 44 kg/m². The patient attended consult due to an umbilical herniation of 11 years of evolution, which was never treated. Upon further examination we

discovered an afebrile and hemodynamically stable patient, with a globular abdomen at the expense of the adipose panicle, presenting an umbilical herniation of 15 x 15 cm, with a change in skin coloration depicting an erythematous and darkened hue as shown in Figure 1; The patient is capable of eating, channeling gas, and defecating. Additionally, an ulcer on the surface of the herniation could be appreciated with granulation tissue at its depth, the hernial defect ring couldn't be palpated (Figure 1). With the previous data, we integrated an incarcerated umbilical hernia diagnosis and without delay, the patient was programmed for umbilical mesh hernioplasty.

The surgical approach was performed with a horizontal incision to remove the damaged skin as depicted in Figure 1. A. A perioperative dose of a third-generation cephalosporin was used. The hernial sac was carefully dissected and the colon, caecal appendix, greater curvature of the stomach, terminal ileum, omentum, and multiple loop-loop, loop-wall adhesions were found among its contents (Figure 2 A. and B.), the abdominal wall defect was found to be of approximately 8 x 8 cm (Figure 2 C); subsequently, adhesiolysis and omentectomy were performed, the herniated content was reduced and a double-layer preperitoneal sublay mesh was placed (Figure 2 C, D);

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Figure 1: (A) Frontal view of the patient's herniary defect. (B) Lateral view of the patient's herniary defect, an atrophic ulcer can be observed. (C) Frontal view of the patient in her outpatient follow-up consult, where an adequate wound healing can be observed without the presence of a seroma or signs of infection.

additionally, a closed drainage was placed and subcutaneous cellular tissue was closed, the skin was closed with separate sutures (Figure 1 C).

In the postoperative period, the patient remained afebrile, hemodynamically stable; the drainage had an output of 80 ml/24h of serous characteristics. The patient presented peristalsis shortly after the surgery and defecated 24 hours after the procedure, the patient was discharged after 3 days of observation and her follow-up was continued by the outpatient clinic, with no complications and having an adequate evolution at 6 months and 1 year.

Discussion

Male patients tend to have an increased prevalence of umbilical hernia repair than their female counterparts, and an increased rate of relapse (4). Predisposing factors include obesity, multiple pregnancies, ascites, and abdominal tumors (5). The content of the hernial sac consists mostly of preperitoneal fatty tissue, omentum, and small intestine; a combination of them can be found (6), although, the large intestine is rarely affected (7). On our patient, colon, caecal appendix, greater curvature of the stomach, terminal ileum, omentum, and multiple loop-loop, loop-wall adhesions were found among its contents.

An umbilical herniation is a surgical entity whose diagnosis is reached mostly by clinical examination alone, the guideline group of the European Hernia Society (EHS) and American Hernia Society (AHS) guideline supports this approach (3). The patient we present in this case report had tell-tale signs of umbilical herniation and further clinical examination yielded the same conclusion, thus, imaging studies were not necessary to reach the diagnosis.

The optimal repair method for all umbilical hernias has not yet been established by international consensus, evidence for one method or the other and their respective superiority is deemed weak by the EHS (3).

The laparoscopic approach to an umbilical hernia is considered in patients with a defect larger than 4 cm, as it has shown a decrease in wound dehiscence and surgical wound infection rates compared to open repair (8). In contrast, some meta-analyses have shown no significant difference when comparing both approaches on complication rates and have shown a slight association between laparoscopic surgery and bowel injury (9). The guideline suggests tailoring the patient's approach to their needs, preferences and the surgeon's preferences and availability (3).

The use of mesh repair strategies is a safe and effective approach according to the guidelines (3). Quality of life measurements were similar to sutured repair at 12 months (10). A sutured repair can be considered in patients with a herniary defect of up to 1 cm (3).

Emergency repair in patients with an incarcerated umbilical hernia has been suggested as a safe procedure but has also shown slightly increased surgical wound infection rates compared to elective repair (11, 12). The use of open mesh repair for incarcerated umbilical hernia and the subsequent placement of the mesh outside the peritoneal cavity compared to other placements is recommended due to its association with a lower risk of seroma, surgical wound infection and a better integration of the load-bearing tissues on both sides (3, 13, 14). Laparoscopic surgery is not always a viable option due to its availability, hence, the patient's BMI and herniary sac size guided our efforts to an open approach. The patient underwent open surgery and the use of the Rives-Stoppa technique for mesh placement which

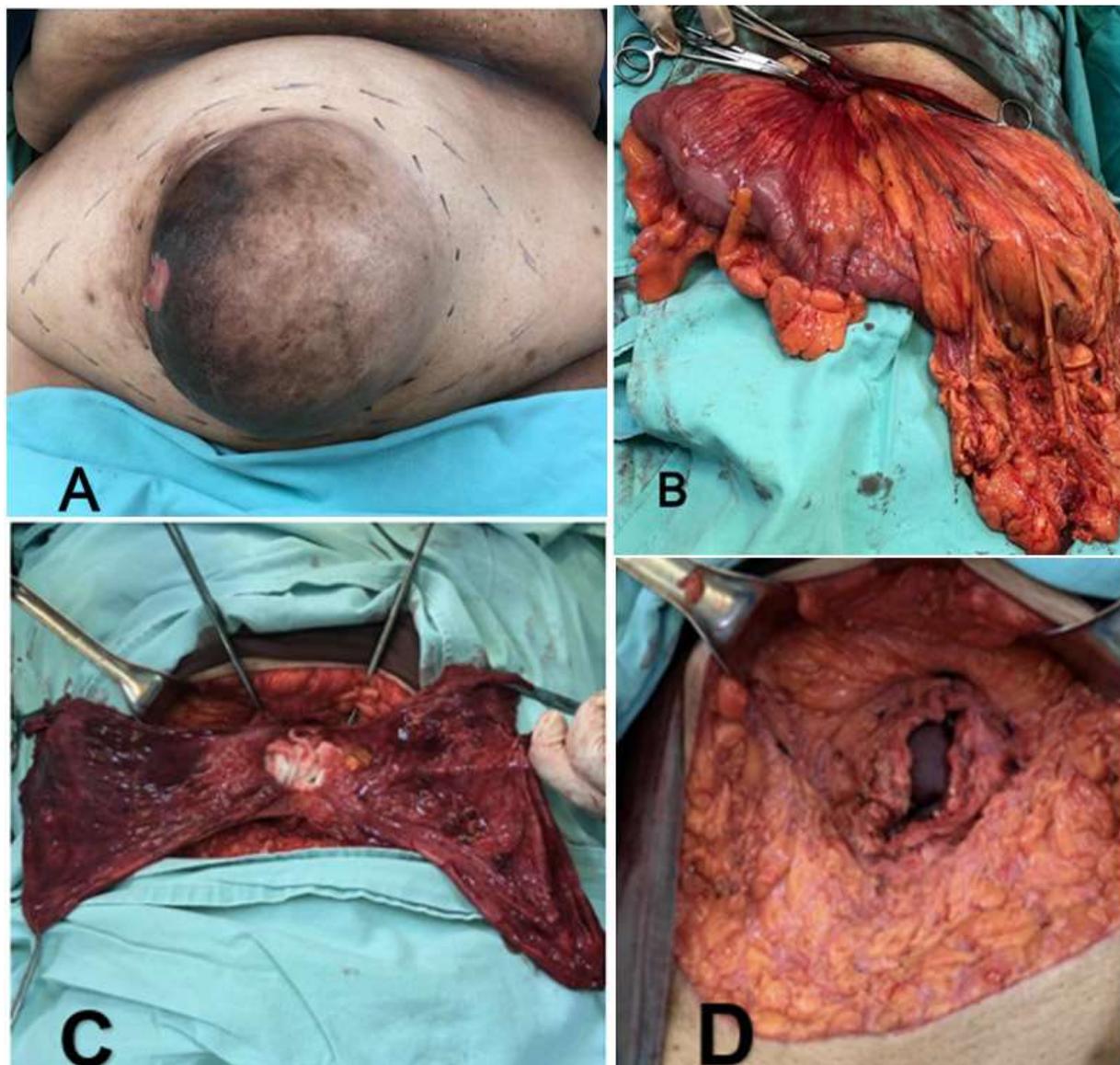


Figure 2: (A) Flap marking for the damaged skin removal. (B) Herniary sac contents where the terminal ileum and greater curvature of the stomach can be observed. (C) Reduction of herniary contents into the abdominal cavity, the abdominal wall defect can be observed. (D) Mesh placement underneath the fascia and the rectus abdominis muscles.

consists of placing the synthetic mesh posterior to the rectus abdominis muscles but anterior to its fascia, this location is classified as a preperitoneal, or sub lay approach.

The study of proper mesh overlap has shown different results as a systematic review and case series of patients who underwent laparoscopic or open repair showed no difference in long-term recurrence and complication rates, respectively (15, 16); on the other hand, a recent randomized controlled trial associated an overlap of 3 cm with low recurrence rates (10).

When preperitoneal flat mesh, onlay mesh, or intraperitoneal patch is used, the fascial defect is usually closed (10). After mesh placement, the patient's 8cm x 8 cm herniary defect was closed.

Antibiotic prophylaxis is recommended in patients who undergo open surgical repair of a herniary defect (11, 12), the type of antibiotic is not specified, and local protocol is suggested (3). Our patient received a perioperative dose of cephalothin;

consequently, signs of infection were absent during the patient's postoperative period and follow-up consult. The 3-month and 1-year follow-up postoperative consultations were settled upon, due to these periods previous use as studying points in umbilical hernia recurrence research (10).

Conclusion

Prompt management of umbilical hernias is as important as the surgeon's approach. Umbilical hernias of long evolution can become large and include in its contents anatomical structures which are not often found such as the stomach and large colon, should said entity turn from incarcerated to a strangulated hernia, the patient's life can be at risk. Open repair of large, incarcerated hernias using the Rives-Stoppa technique proved to be a viable approach and was capable of yielding adequate results, in an obese patient with comorbidities, for whom it

was possible to integrate herself back into her daily activities.

Conflicts of interests

The authors declare no conflict of interest regarding the publication of this case report.

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