



Case Report

Complex giant incisional hernia repair with intraperitoneal mesh: A case report

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ABSTRACT

Introduction and importance: An incisional hernia is one of the most frequent complications after abdominal surgery, with an estimated incidence of 2–20% after midline laparotomy. They are often caused by poor wound healing. We present the case of a complex giant incisional hernia that was repaired by implanting an intraperitoneal mesh.

Case presentation: A 63-year-old man with obesity, hypertension, and multiple previous laparotomies, who developed a complex giant incisional hernia (xipho-pubic > 10 cm wide). An open technique repair was decided with the introduction of a large mesh (Parietex™ Composite) in an intraperitoneal position, covering a 25 × 16 cm hernial ring. After two years, the patient continues to be followed due to a low-output distal enterocutaneous fistula.

Clinical discussion: Currently, there is no technique or approach that has become a gold standard for ventral incisional hernia repair. The introduction of an intraperitoneal mesh with two surfaces by laparotomy is recommended when there are contraindications for laparoscopic surgery, for example in obese patients, and patients with multiple previous laparotomies. However, it has been reported to be a complex technique with an enterocutaneous fistula rate of 0.3–4%.

Conclusion: The introduction of a composite mesh represents an alternative surgical technique for the repair of giant incisional hernias.

1. Introduction

An incisional hernia is a common complication after gastrointestinal surgery and occurs in approximately 2–20% of laparotomized patients [1]. It is important to understand that it is a condition that becomes increasingly difficult to manage over time because the hernia tends to grow in size and complexity, and therefore priority should be to prevent a giant hernia and its associated complications from occurring [2]. It has been described that the surgical repair of this kind of abdominal wall defect requires the use of a synthetic mesh as reinforcement [3].

Our objective is to report the case of a complex giant incisional hernia in an obese patient with multiple previous laparotomies, which was repaired by open technique, using a composite intraperitoneal mesh. This case report is reported in line with the SCARE Guidelines [4].

1.1. Case presentation

A 63-year-old man with dyslipidemia, arterial hypertension, grade I

obesity (BMI 33 kg/m²), without allergy history, drug use, tobacco consumption, or alcoholism, and surgical history of conventional appendectomy, Hartmann surgery for complicated diverticulitis (Hinchey IV), with subsequent incomplete evisceration of the median laparotomy that was treated conservatively. Six months after surgery, a Hartmann reversal procedure with a protective ileostomy was performed. After the ileostomy closure, he developed a giant incisional hernia with chronic central ulceration (Fig. 1).

Five months after the last surgery, reparation of the incisional hernia was scheduled. The surgical strategy was developed and executed by the main surgeon who is a senior surgeon with vast experience in abdominal wall surgery. The incisional hernia was repaired using an open technique, with wide resection of the cutaneous scar and central ulceration, progressing through layers and dissecting the hernial sac until a 25 × 16 cm hernial ring was delimited in a craniocaudal and transverse direction, respectively. The hernial sac was opened and resected, releasing the hernial ring from all peritoneal adhesions. Subsequently, the abdominal cavity was explored and the bowel loops were released from

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Fig. 1. Abdominal wall with giant incisional hernia, central chronic ulceration and other scars from previous laparotomies.

multiple firm adhesions between them and the hernial ring, and they were covered with the greater omentum. The synthetic mesh used was a 30 × 20 cm Parietex™ Composite intraperitoneal mesh (Covidien, New Haven, CT, USA), which was placed and anchored circumferentially, exceeding the hernia limits by a minimum of 5 cm (Fig. 2). This mesh is composed of monofilament polyester fabric on one side, which allows adhesion to the parietal peritoneum, and a hydrophilic absorbable collagen film on the other side, to suppress adhesion between the abdominal organs and the mesh (Fig. 3). The closure of the abdominal wall was associated with muscle unloading incisions, which allowed the musculoaponeurotic edges to be approximated and closed in the midline to isolate the prosthesis from the surgical skin wound as much as possible. Subcutaneous tissue and skin were closed over two suction drains (Fig. 4).

Immediate postoperative care was carried out in the postanesthetic recovery unit. The patient was moved after 4 hours to the general surgery area, with intravenous analgesia. He was discharged on the fourth day after surgery with adequate oral intake, adequate control of pain, and in the absence of any major complication. Follow-up was carried out by serial clinical evaluation for two years. Currently, the patient continues to be followed due to the development of a low-output distal enterocutaneous fistula (ECF).

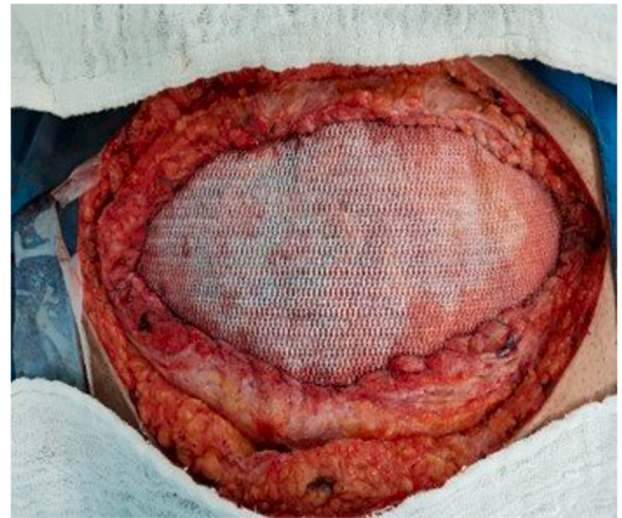


Fig. 3. Mesh in an intraperitoneal position anchored 5 cm outside of the limit of the hernial ring, covering the abdominal content.



Fig. 4. Immediate postoperative of ventral hernia.

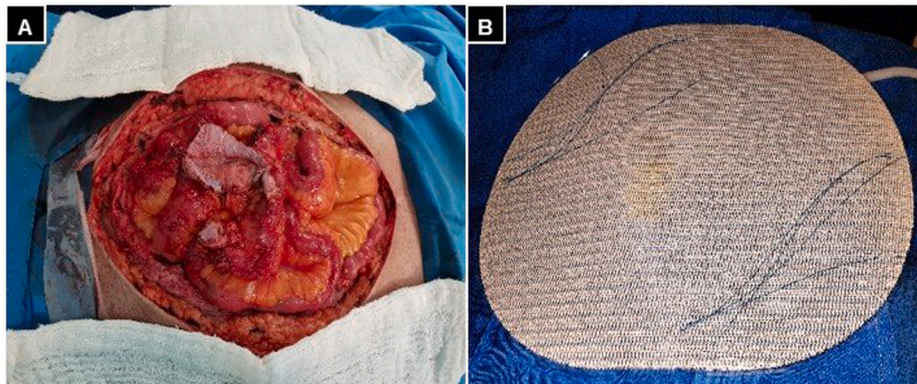


Fig. 2. A: Xiphoid-pubic laparotomy with exposure of the intestinal content without lesions, with hemostasis control and a giant hernial ring. B: Mesh (Parietex™ Composite Mesh) 30 × 20 cm in length and width, respectively.

2. Discussion

Complex giant incisional hernias (>10 cm minimum width) represent a challenge for surgeons since refunctionalization of the abdominal wall is achieved when the closure of the defect without tension is possible, which is difficult in large defects [5].

Several complex factors must be considered when planning the surgical reconstruction of a giant incisional hernia. The complexity lies in many factors, such as the size of the hernia, where the approximation of the fascial edges may require using special techniques such as separation of components [6]. Another factor is the loss of dominance when a significant proportion of the abdominal content moves from the abdominal cavity to the hernial sac [7].

Currently, there is no technique or approach that has become the gold standard for ventral incisional hernia repair. The introduction of a large intraperitoneal mesh with two surfaces by laparotomy is especially recommended when there are contraindications for laparoscopic surgery, for obese patients, for patients with multiple previous laparotomies, for those with large or multiple incisional hernias, and for patients who have hernia recurrence after placement of a preperitoneal mesh [8]. Some of these aspects occurred in our patient. This surgical approach is not exempt of complications, with an ECF rate reported in the literature of 0.3–4% [9]. However, there is no fully reliable data on the incidence of ECF. In general, this information is obtained from the analysis of different publications that usually correspond to highly complex centers that in turn concentrate these patients.

ECF is defined as any communication between the gastrointestinal tract and the skin of the abdominal wall [10]. The majority (75–85%) of all ECFs are postoperative and the surgeries that can most often be complicated by ECF are those performed for neoplastic, inflammatory, or lysis of flanges [11], being the last one the situation of our patient. Generally, they are more common after emergency surgeries, due to poor preparation or chronic malnourishment of the patient and contamination of the surgical site [12].

The definitive ideal treatment is resection of the intestinal segment with the fistula and an anastomosis, with the reconstruction of the abdominal wall. This is not feasible at the time of diagnosis in most cases, due to peritoneal adhesions, inflammation of the surrounding tissues, and malnutrition usually associated with these patients [12]. Therefore, it is important to defer the surgery until all these problems are solved and to establish a bridging therapy that allows the exteriorization of intestinal fluids to avoid continuous contact with the wound, and the correct healing and granulation of the wound until definitive surgery can be proposed [13].

3. Conclusion

The repair of a giant incisional hernia with rings larger than 10 cm represents a challenge for surgeons. The placement of an intraperitoneal composite mesh is one of the best options to repair the hernia, since it can be placed on the viscera, avoiding damage to them. However, this does not prevent the possibility that these compounds in the future will not be colonized by germs that could infect the material and may force its removal with the consequent possibility of an enterocutaneous fistula, a complex complication to solve.

Ethical approval

This is a case report study and ethical approval not required.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

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Patient perspective

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102340>.

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Author contribution

René M. Palacios Huatuco: data collection, interpretation, and writing the paper. Agustín E. Pinsak: Data analysis, and writing the paper. Rafael Palencia: Surgical treatment of the patient, and approved the final version.

Conflicts of interest

There is no conflict to be declared.

Registration of research studies

1. Name of the registry: N/A *
2. Unique Identifying number or registration ID: N/A *
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): N/A *

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Consent

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