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Case Presentation

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How A Bowel Obstruction in A Giant Abdominal Post Incisional Hernia May Become A Surgical Challenge in Emergency

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Abstract

Incisional hernias (IH) are the most common postoperative complications of laparotomy incisions and contribute to a significant burden. The etiology of IH may depend on several factors such as the extent of the wound or wound infection, obesity or respiratory disease. Many patients present with abdominal distension and some degree of discomfort and, in emergencies, the presentation is usually as intestinal obstruction or strangulation, requiring immediate surgical treatment. Hernias can be repaired by closing the defect with a non-absorbable suture or by using mesh but this is not always possible easily and definitively if the wall defect is very large and if intestinal resections are required and/or if the field is infected. Furthermore, hernia recurrence rates have not decreased significantly, even after the introduction of mesh. We present a unique case of a giant abdominal post-incisional hernia with intestinal obstruction in a 60-year-old man treated in an emergency with a primary repair of the wall defect with biological prosthesis, plant in collagen of porcine dermis, and abdominoplasty.

Keywords: Incisional hernia; Biological Prothesis; Abdominoplasty

Introduction

IHs are defects that can occur at the abdominal wall on the site of a previous surgical incision and be more or less evident depending on the size of the wall defect and the quantity of abdominal contents inside it. The conditions that can favor the appearance of IHs are advanced age, overweight, obesity, a previous wound infection, type and the length of the surgical

incision. They often originate due to a poor wound healing or an insufficient tissue healing. Incisional hernias are one of the most common complications after abdominal surgery, with an estimated incidence of 10%–20% following a midline laparotomy [1]. Risk factors for incisional hernias include smoking, diabetes and elderly age. Morbidity and recurrence rates after surgery are significantly influenced by obesity [1,2]. IH causes discomfort as they grow, limiting patients' ability to work and participation in other physical activities. Cosmetic issues may also arise. Overall, a patient's quality of life can be strongly affected. IH complications include pain, bowel obstruction, incarceration and strangulation, as well as the risk of having to undergo another surgery intervention. The surgical repair often depends on the size of the hernia and may use component separation, synthetic mesh overlay or even a biological mesh underlay to completely fix the defect [3]. Furthermore, the operative repair must balance the ability to completely repair the defect without increasing the risk of post-operative complications, given its association with hernia recurrence [4]. It is essential to underline the difficulty of the topic, in consideration of the lack of certified and unified guidelines for the treatment of complex cases. We aim to report the case of bowel obstruction in a ventral incisional hernia in an obese 60-year-old male and discuss its treatment and outcomes.

Case presentation

A 60-year-old male came to the emergency room with a three-day history of constipation, along with multiple episodes of vomiting and severe abdominal pain. The patient provided a history of an abdominal open surgery performed 10 years before the presentation, for a right hemicolectomy with ileum transverse anastomosis. The patient gave a history of IA and FAC. During the examination, the patient had an irreducible IH in hypogastric abdominal wall, covered with thin and shiny skin **(Figures 1 and 2).**

Figure 1

Figure 2

Blood investigations revealed normal white blood cell, raised serum creatinine at 4.01 mg/dl, raised C-reactive protein at 280 mg/dl and albumin at 4.9g/dl. CT scan showed: ‘’median incisional hernia in the pelvic area, with engagement of mesentery-related loops that present multiple hydroaerial levels with signs of parietal pneumatosis and vasa recta stretching’’ **(Figure 3 and 4)**.

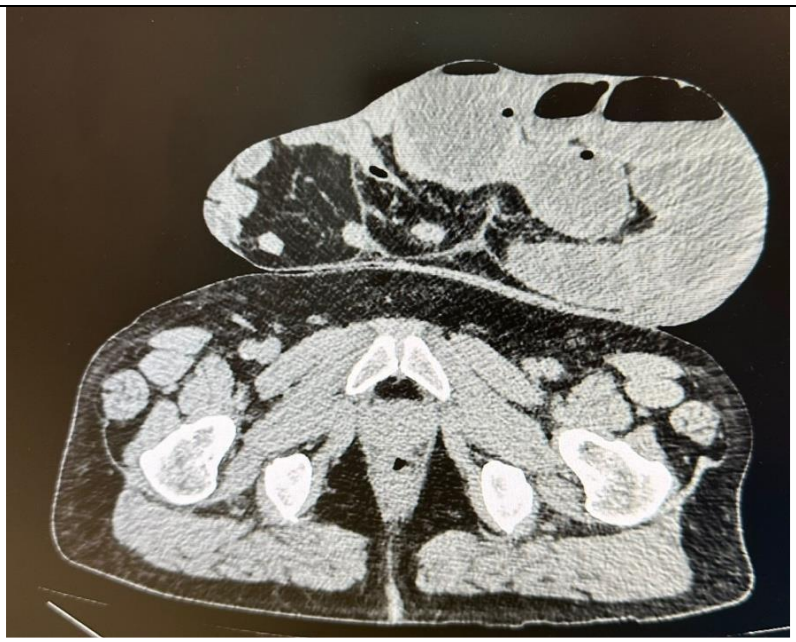

Figure 3

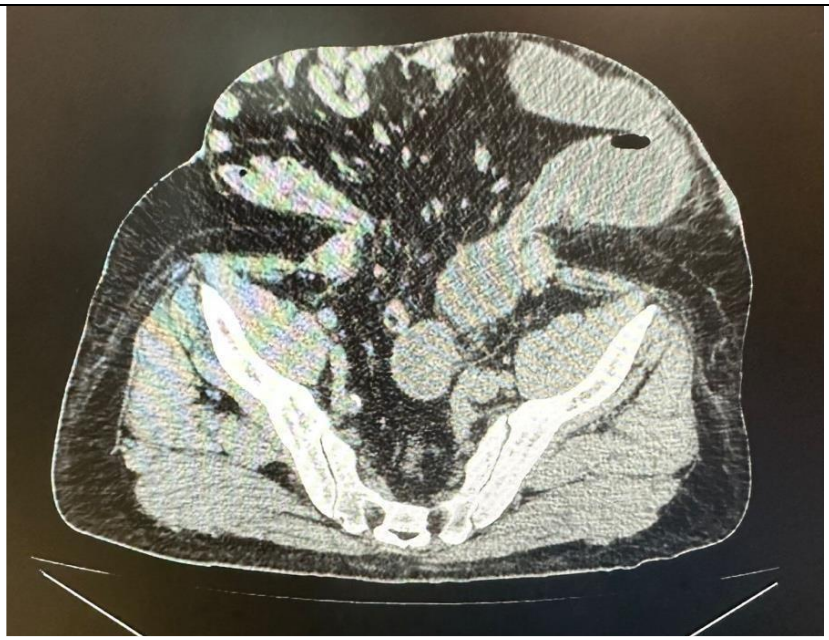

Figure 4

The patient underwent to transversal incision between the two iliac spines, and then enlarged with a xipho-subumbilical incision. Opening the skin, some loops of the small bowel were found to be significantly dilated and others empty but both in an adhesion context with a cerebroid appearance **(Figure 5).**

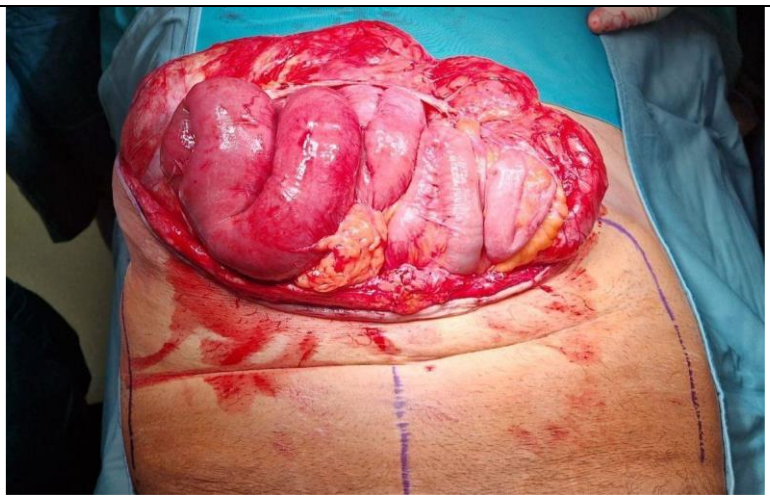

Figure 5

We proceed with careful adhesiolysis until the point where a bridle was identify, approximately 80 cm from the last hilum loop. Section of the bridle and continuation of adhesiolysis from the occlusion up to the Treitz's ligament. The posterior fascia of the rectus muscles with the parietal peritoneum was detached for approximately 5 cm on each side, creating a pocket in which the biological prothesis was housed and fixed to the fascia and muscles with Prolene 2/0 with detached points. Before placing the prosthesis, a 24 Fr drain was positioned with its apex in the pelvic cavity given the significant adhesiolysis **(Figure 6)**.

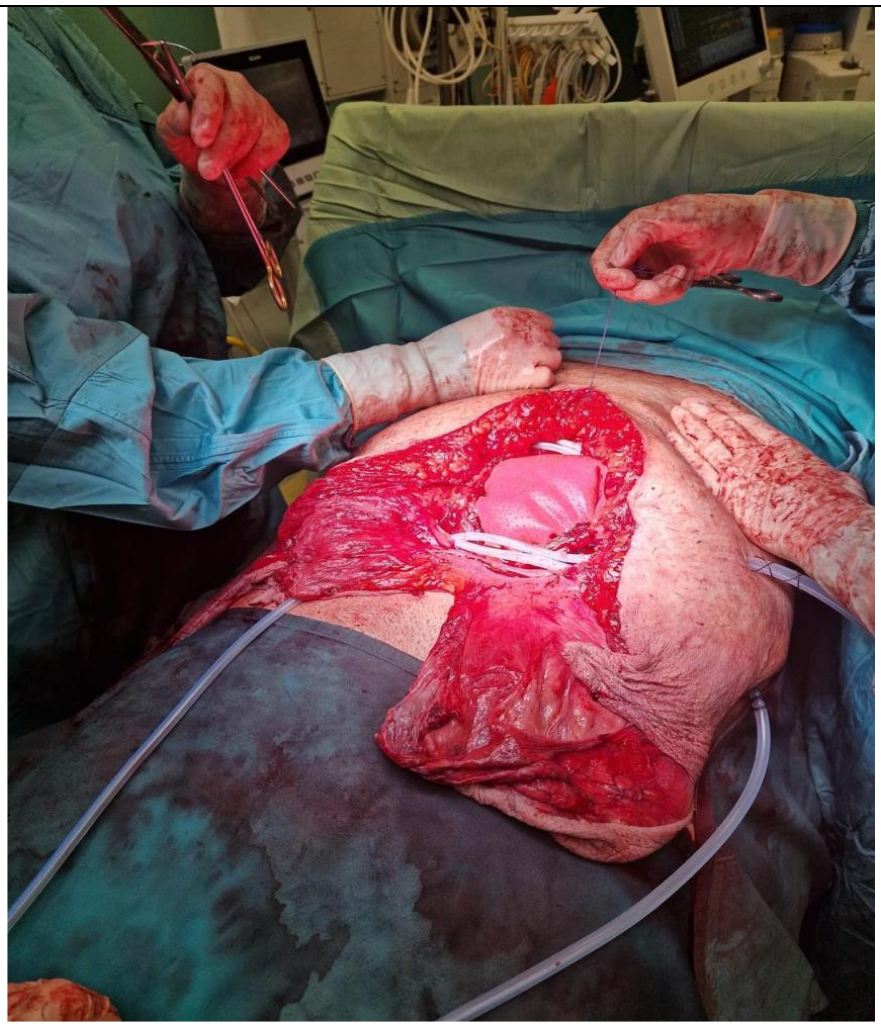

Figure 6

Two 19 Fr peri-prosthetic drains are positioned. Since it is not possible to cover the prosthesis with muscle fascia or muscle flaps given the importance of the defect, the subcutaneous area is retreated with self extracting Vycril zero and the excess skin of the wall defect is trimmed by performing abdominal skin plastic surgery **(Figure 7)**.

Figure 7

The postoperative course was characterized by initial respiratory failure with tachycardia and tachypnea and left basal pneumonia CT on the third POD. The patient was treated with antibiotic therapy and respiratory physiotherapy until complete resolution of the respiratory function in 7 days. The drains were removed on the sixth and seventh day of the post-operative respectively. The patient fed from the third day and he was mobilized from the first POD with post-operative restraining. The surgical wound, in 15 POD, appeared hyperemic and hypertrophic with skin redundancy especially in the site of the previous abdominal defect **(Figure 8).** The patient was treated with 'Kaloidon Patch'™ polyurethane patch containing onion extract, allantoin and hyaluronic acid 11, for 21 days with a clear aesthetic improvement of the surgical wound **(Figure 9).**

Figure 8

Figure 9

The patient was reassessed 12 months after surgery, he had no surgical complications and a marked improvement in quality of life.

Discussion

Incisional hernia represents the most common wound complication after abdominal surgery, with an incidence ranging from 10% to 20% and recurrence rates ranging from 20% to 46%. An accurate evaluation of the patient is necessary to observe any predisposing factors that can lead to a recurrence of the hernia. These include inadequacy of the local fascial and muscle layers due to previous tissue loss, muscle denervation or vascular insufficiency due to previous irradiation or infection, wound infection, obesity, chronic lung disease, malnutrition, sepsis, anemia, and corticosteroid therapy [5]. Added to this is the patient's failure to consider the risks he or she may face as his or her situation worsens, as in the case we are describing. The wall defect had appeared

10 years earlier with progressive worsening, and although the patient had been advised several times to undergo surgery, “fear” of undergoing a new operation and of complications always kept him from deciding for its surgical correction. Some studies have reported that the use of mesh for hernia repair has reduced recurrence rates up to 15%, [6] while a recent meta-analysis showed a significant reduction compared with open surgery alone without mesh [7]. The “controversy over the use of mesh” lies in the fact that it can lead to mesh-related complications such as infection, seroma, fistulae, and chronic pain. It is hypothesized that chronic pain is associated with suture-related nerve entrapment or nerve irritation induced by mesh fixation with sutures [8]. These studies, however, were conducted with the use of a biological mesh. Many features make the biological mesh a high-potential prosthetic implant: it is biocompatible; immunologically “inert” and does not cause fibrotic encapsulation; sterile; promotes rapid cell growth and revascularization; promotes natural wound healing; and maintains strength after implantation; The prosthesis can be contoured and thus easily circumscribed to the abdominal defect, and in view of the impossibility of complete repair of the defect with muscle and fascial tissues, the possibility of maintaining contact of intestinal loops and subcutaneous fat. Biologic mesh is a feasible alternative to synthetic materials, particularly useful in infected fields within complex abdominal wall hernia repairs. Biologic materials have inherently lower inflammatory response and resilience, making them an attractive option for high-risk patients [9]. Despite their advantages, biologic mesh comes at a high price. However, considering the maximum flexibility, excellent results, and reduction in infections and adverse reactions with a marked reduction in hospitalization days, the use of biologic prosthesis justifies the price.

Conclusion

By making a rapid diagnosis of complicated giant incisional hernia with immediate surgical treatment, using biological prostheses in more complicated cases or at risk of infection, and with skin plastic surgery, optimal results are achieved with a reduction in hospitalization and post-surgical complications, as well as excellent aesthetic results that significantly change the patients' quality of life. To date there are no guidelines for the treatment of IH in emergency and on the type of materials to be used. The use of biological prostheses reduces the risk of post-surgical complications and increases surgical performance. Finally implement, in patients with increased risk of altered healing of surgical wounds, the use of Koloidon patches that significantly improve the aesthetic result of the surgery, could definitely increase patient satisfaction and better tolerability to the surgery.

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