Treatment of permagna incisional hernia with skin necrosis and abscess: case report

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Abstract
Ventral incisional hernia rate is decreasing due to the introduction of new clinical and surgery methods. As a result, the complex incisional hernias, are less often described and rarely treated. We describe our experience in emergency case. We present the case of permagna incisional hernia with skin necrosis, subcutaneous abscess and bowel perforation which cause a long-lasting bedding. The successful management includes an emergency surgery applying hernia reduction, bowel resection and abdominal wall reconstruction through a biological mesh and positioning of VAC System. There is not a gold standard treatment that obtained an unanimous consensus, however we recommend the following procedure in that, in our patient, it shows no recurrences, infections and other post-operative complications. Clin Ter 2014; 165(2):e158-161. doi: 10.7417/CT.2014.1701

Key words: bowel perforation, permagna incisional hernia, VAC System

Introduction
Ventral incisional hernia occurs in 10-20% of the patients, whom underwent abdominal surgery. Usually, hernia arise within the first five years following to surgery with an overall recurrence’s rate of about 33%; risk factors are obesity, hernia size, infection, diabetes, age, steroid use and an history of aorto-iliac aneurysm. In the last 40-years, due to the introduction of synthetic and biological mesh, the recurrences have been lowered to 8-24%. As a result, general and plastic surgeons meet complex ventral incisional hernia sporadically (1, 2).

The European Hernia Society classifies incisional hernia according to the size of defects: small, with a length or width <5 cm; medium, 5-10 cm and large >10 cm. There is no unanimous definition of giant incisional hernia however the classification presented by Chevrel suggests a transverse diameter >15 cm.

Habitually, complex hernia does not allow a single-time closure, due to infections or necrosis, that cause loss of one or more abdominal wall component. The injury can be divided in two groups (Type I and II) depending on the presence or absence of intact and stable skin coverage (3, 4).

Complex ventral hernia is a surgeon’s challenge: besides the difficulties in reconstruction, many patient present medical complication showing multiple comorbidities. We present a successful single-time treatment of permagna incisional hernia with skin necrosis, abscess and bowel perforation in hernial sack.

Case report
A 63-year-old woman came to the Emergency Department of Policlinico “Umberto I” of Rome with fever, abdominal pain and giant ventral incisional hernia in subumbilical and left paramedian region with skin necrosis (Fig. 1). Last year the local state, persisted for over 17 years, increased in dimension and forced the patient to bed; the mandatory supine position caused a bedsore in sacral region. She had an history of obesity, hypertension and surgeries, such as colecistectomy, appendectomy and umbilical hernioplasty. Pre-operative CT scan showed numerous bowel loops with their mesentere in hernial contest, wide necrosis signs of hernial sack with collection and aerial beads in the subcutaneous adipose tissue (Fig. 2).

Blood tests underlined the increase of inflammation indexes (15700 WB; 35,4 RCP; 908 Fib). The patient underwent a single urgent surgical intervention: in the first step we made a local incision, the drain of purulent collection and the isolation of giant necrotic hernial sack that was filled with bilious and enteric material; in the second step we faced the ascending colon and ileal loops with signs of parietal necrosis and perforation in the sack (Fig. 3).

We performed a resection of 80 cm of suffering ileum and ascending colon, followed by intestinal continuity reconstruction through a T-T anastomosis; in the third step we mended abdominal wall with a properitoneal underlay biological mesh and stitched miofascial plains. The skin was partially closed with direct stitches and was positioned a Vacuum Assisted Closure on the remaining part. In the post-operative time the patient underwent to follow up CT,

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regular medication with progressive closing of lost skin; she gradually started to assume the erect position thanks to physiotherapy. The patient had an uneventful recovery except for short bowel syndrome due to lower compliance to proper diet for the new intestinal status. Ten months after surgery the patient does not show recurrences or other local complication.

Surgical mending of complex incisional hernia has been a challenge due to the large loss of tissues, the great number of loops contained with ample resection, the dirty surgical site...
for abscess and perforation, the abdominal wall closure. At our knowledge, this is the first case reported in literature for complexity and severity; the low incidence of similar cases provides limited experience with their procedures (5, 6).

Multiple approaches to the repair of ventral incisional hernia have been described in literature but no gold standard method has attained unanimous consensus. One of the causes of recurrence is excessive tension across the midline that leads to ischemia or mechanical slicing of suture through tissues, producing fascial dehiscence and hernia recurrence; several methods for reducing tension and reinforcing the hernia repair have been applied clinically.

The particular position of incisional hernia, that was not on midline but in left paramedian region, does not allow to use the diffuse application of Component Separation. In this technique the external oblique muscle is separated along the avascular plane from the internal oblique muscle creating two rectus abdominis-internal oblique muscle-transversus abdominis flap to sutured on midline (3, 7-9).

Whether the abdominal wall loss is wide, usually, incisional hernia cannot be mended with single-time closure: bridged repairs with mesh might be necessary to reduce the gap, but this procedure is associated with a reduction of wall functionality and physiology, a risk for laxity or bulging, visceral adhesion, bowel erosion and high rates of mesh extrusion. We didn’t follow this treatment because the abdominal wall had a good motility and a low tension on a line of suture with the possibility to direct closure (10-13).

There are three positions available for mesh placement: inlay, underlay and onlay. The inlay repair is not recommended. The onlay technique contribute to reinforce the fascial suture, to displacing tension from the closure to the prosthesis and abdominal musculature, to ensures continuous contact between the biologic repair material and the underlying tissue enhances revascularization and positive regeneration of biologic material; is also technically easier. The underlay placement is employed during laparoscopic hernia repair and in open repair whether complete fascial closure is not possible. Using this method intra-abdominal pressure push the mesh against the wall rather than away from the repair, but increase the risk to form adhesions to mesh and enterocutaneous fistulae (10, 14). In our case we positioned the mesh in pre-peritoneal layer: there were a loss of skin and subcutaneous tissue as a consequence of the gap, but this procedure is associated with a reduction of recurrence is excessive tension across the midline that might develop for the disparity between the size of the herniated visceral mass and the capacity of the peritoneal cavity. In other case the temporary abdominal closure brings favorable outcome with the aim of repairing at a later stage when it is possible and tolerated by the patients: the temporary extracorporal compartment allows a gradual adaptation of increasing abdominal capacity (3).

Conclusions

We have presented a singular clinical case of permagna incisional ventral hernia. We suggest that the successful treatment of this difficult case is due to the combination of some management with the resolution of wall alteration. The use of biological mesh and VAC therapy allows to do a single time surgery and to minimize the risk of infection despite the abscess, necrosis and bowel resection. Besides the surgical intervention, performed in emergency circumstance and not in election, such as other similar cases described in literature, did not allow a stabilization of patient conditions with abdominal pain, fever and alteration of inflammation indexes.

References