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Massive ventral hernia with loss of domain and skin necrosis presenting as a large mass

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Abstract

A ventral hernia with loss of domain is a challenging clinical scenario. We present a case of a 55-year-old female with a massive ventral hernia exhibiting loss of domain and significant skin necrosis. Surgical management involved extensive debridement, the components separation technique for tension-free reduction of herniated contents, and the placement of a synthetic mesh for abdominal wall reconstruction. Postoperatively, split-thickness skin grafts and negative pressure wound therapy were utilized. Intensive postoperative care included monitoring, targeted antibiotic therapy, and strict glycemic control. Despite a complicated recovery with an initial wound infection, the patient achieved satisfactory healing at a 1-year follow-up. This case underscores the efficacy of a multidisciplinary approach in complex hernia management.

Keywords: Hernia, diabetes mellitus, abdominal wall reconstruction, components separation technique, negative pressure wound therapy

Introduction

Case Presentation

A 55-year-old female with a history of multiple abdominal surgeries presented with a large, painful, and necrotic abdominal wall mass. She had a history of poorly controlled diabetes mellitus and obesity (BMI 35). Physical examination revealed a massive ventral hernia extending from the xiphoid to the pubic symphysis, with significant skin necrosis over an area approximately 20 cm in diameter. The patient reported increasing discomfort and difficulty in performing daily activities. Laboratory tests indicated an elevated white blood cell count, suggestive of infection, and a HbA1c level of 9.2%. A CT scan of the abdomen demonstrated a large ventral hernia containing bowel loops and omentum, with a significant portion of the herniated viscera residing outside the abdominal cavity, confirming the loss of domain.

The patient underwent extensive preoperative optimization, including glycemic control and broad-spectrum antibiotics. During surgery, a large midline incision was made, and extensive debridement of necrotic skin and subcutaneous tissue was performed. The components separation technique (CST) was utilized to create additional space and reduce tension, allowing for the gradual reduction of the herniated contents into the abdominal cavity. A synthetic mesh was placed for abdominal wall reconstruction and secured with a tension-free closure. Split-thickness skin grafts were applied over the debrided area, and negative pressure wound therapy (NPWT) was initiated to promote graft adherence and expedite wound healing. Postoperatively, the patient was monitored intensively in the ICU, received tailored antibiotic therapy, and continued strict glycemic control. She had a complicated postoperative course with initial wound infection, which was managed with targeted antibiotics and wound care, leading to satisfactory healing of the skin graft over the following months. At a 1-year follow-up, the patient showed no recurrence of the hernia and had regained functional status.

Discussion

The management of massive ventral hernias with loss of domain and associated skin necrosis presents a formidable challenge due to the complexity of surgical and postoperative care. Loss of domain (LOD) hernias, where a significant portion of the abdominal viscera resides outside the abdominal cavity, risk abdominal compartment syndrome (ACS) upon reduction of the herniated contents. The components separation technique (CST) employed in this case is a well-established method for achieving primary closure in complex abdominal wall reconstructions by strategically releasing muscle layers to create additional space and reduce tension^[1].

In this patient, synthetic mesh was chosen due to its superior tensile strength, although it required meticulous handling and stringent infection control measures postoperatively [2]. The extensive debridement of necrotic tissue followed by the application of split-thickness skin grafts and negative pressure wound therapy (NPWT) facilitated graft adherence and expedited wound healing. Postoperative management was critical in ensuring successful recovery, especially given the patient's diabetic status, which necessitated stringent glycemic control to promote wound healing and reduce infection risk. Intensive monitoring in the ICU allowed for early detection and management of potential complications, such as wound infections and seroma formation. Prolonged antibiotic therapy tailored to culture sensitivities was essential in controlling infection and supporting the healing process [3].

This case highlights the importance of a tailored, multidisciplinary approach in managing complex hernias, integrating advanced surgical techniques with meticulous postoperative care to achieve both immediate and long-term satisfactory outcomes.



Fig 1: Massive Ventral Hernia with Loss of Domain and Skin Necrosis

Conclusion

The successful management of a massive ventral hernia with loss of domain and skin necrosis necessitates a multidisciplinary approach, integrating advanced surgical techniques with meticulous postoperative care. This case highlights the importance of a tailored approach in managing complex hernias, ensuring both immediate and long-term patient outcomes. The use of CST combined with synthetic mesh and NPWT demonstrates the efficacy of these techniques in achieving durable repair and satisfactory healing.

Differential diagnosis

1. Abdomen wall malignancy.
2. Abdominal Abscess or Hematoma.
3. Cystosarcoma phylloides.
4. Necrotizing Fasciitis.

Declaration of Patient Consent: the authors hereby declare that written informed consent was obtained from the patient in his own vernacular language.

Conflicts of interest: None.

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