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Reinforced Bridge Suture with Sheathed Threads for Laparotomy Wound Closure Following a Strangulated Ventral Hernia Complicated by Necrotizing Fasciitis

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The treatment of complex wounds with skin loss, such as those encountered in severe cases like abdominal necrotizing fasciitis, often requires multidisciplinary approaches. Among the various options such us interrupted or continued closure technique (1), suturing with reinforced skin bridges using sheathed sutures has proven to be a valuable technique for promoting progressive healing and managing skin tension. This method involves inserting a sheathed suture beneath the skin, with tubes or cushions made of silicone or soft materials placed on the surface.

These devices evenly distribute pressure along the wound edges, thereby reducing the risk of skin necrosis caused by excessive tension. The goal is to gradually approximate the wound edges, allowing for progressive closure while preserving tissue viability (2). This technique offers several advantages. It preserves tissues by preventing skin ischemia, adapts to complex wounds where immediate closure is not feasible, and provides a simple and effective solution compared to more complex methods like skin grafts or flaps. It is often integrated into a comprehensive strategy that includes surgical care, such as debridement to remove necrotic tissues, systemic antibiotics to control infection, and advanced local wound care, including modern dressings or negative pressure wound therapy (3).

We report a case of 54-year-old woman, diabetic on insulin therapy, was admitted for a strangulated ventral hernia, complicated by the passage of stool through a supra-umbilical cutaneous orifice and bowel obstruction syndrome.

Upon admission, the patient was conscious, tachycardic at 130 bpm, with a blood pressure of 100/60 mmHg and afebrile. Abdominal examination revealed a painful, irreducible umbilical mass associated with inflammation and an area of necrotic skin, with fecal discharge from the necrotic zone. Rectal examination found an empty rectal ampulla. Contrast-enhanced abdominal CT confirmed a linea alba hernia containing a loop of small bowel and omentum. The wall of the small bowel loop was not enhanced, with evidence of cutaneous fistulization.

After stabilization in the surgical intensive care unit, the patient was taken to the operating room.

Surgical exploration revealed a necrotic and perforated small bowel loop, fistulized to the skin, with necrotizing fasciitis in the abdominal wall at the hernia site.

The surgical procedure consisted of Resection of the necrotic small bowel loop, followed by a hand-sewn termino-terminal small bowel anastomosis. Extensive debridement of necrotic subcutaneous tissue, with partial resection of the affected skin. A challenging skin closure performed using the polystitch technique, with placement of two Delbet drains in the subcutaneous tissue.

Postoperatively, antibiotic therapy combining ceftriaxone, metronidazole, and gentamicin was initiated.

In the Postoperative Evolution The patient's general condition gradually improved, with a return of normal bowel transit and oral feeding introduced on day 4, after a decrease in CRP levels. Local wound care was performed twice daily.

However, the surgical wound was complicated by infected suture dehiscence, with abundant sero-hematic fluid discharge despite adequate drainage. Given this complication, the patient underwent reoperation, which included Reinforced cutanneous bridge sutures using sheathed threads (polyethèlene)

The postoperative course was remarkable, allowing discharge on the 8th postoperative day. The patient returned 15 days later for removal of the coated sutures, with a satisfactory local outcome.

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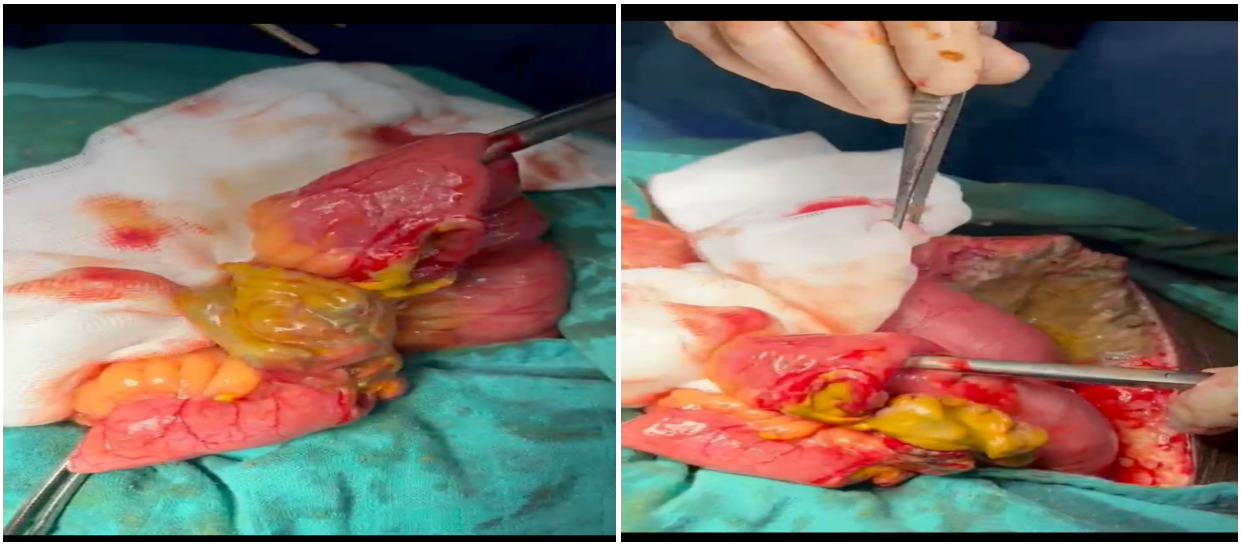

Figure 1. Intraoperative images showing a necrotic and perforated small bowel loop trapped in the hernia sac, with an adjacent area of subcutaneous necrosis.

A **B**

Figure 2. A : Dehiscence of the laparotomy wound sutures. **B** : Reinforcement bridge suture using sheathed threads.

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