International Surgery Journal
Rojas S et al. Int Surg J. 2026 Jun;13(6):1043-1046
https://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20261581

Case Report

Combined Rives–Albanese technique in the management of a complex incisional hernia: a case report

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Received: 03 April 2026
Accepted: 06 May 2026

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ABSTRACT

Incisional hernias of the abdominal wall affect up to 20% of patients undergoing laparotomy and may evolve into a complex condition associated with significant physical and psychological morbidity. Several surgical techniques have been developed for their repair. The Rives technique enables midline reconstruction through retromuscular dissection and medial advancement, achieving low recurrence rates. In contrast, the Albanese technique employs lateral releasing incisions in the abdominal wall musculature to facilitate tension-free closure. We report the case of a 58-year-old female with a complex incisional hernia following a prior midline laparotomy for appendicular peritonitis. The patient presented with progressive abdominal bulging and pain. Preoperative evaluation revealed a 12 cm defect without loss of domain. Surgical repair was performed using a combined Rives–Albanese technique, including retromuscular mesh placement and lateral releasing incisions to facilitate tension-free closure. Repair of complex incisional hernias using this combined approach is feasible in experienced hands. Postoperative outcomes were favorable, with no significant complications observed, demonstrating the functional effectiveness of the technique. Management of complex abdominal wall defects with muscle retraction remains challenging and requires advanced surgical expertise. The combination of retromuscular repair (Rives) and lateral releasing incisions (Albanese) represents a valuable option for achieving primary closure with acceptable morbidity. Long-term success depends on comprehensive multidisciplinary management beyond the surgical procedure.

Keywords: Incisional hernia, Abdominal wall reconstruction, Rives technique, Albanese technique, Prosthetic mesh

INTRODUCTION

Incisional hernias of the anterior abdominal wall represent a common complication following laparotomy, with an estimated incidence ranging from 11% to 20%.[1] In cases associated with loss of domain, this condition may evolve into a complex syndrome involving significant physical, physiological, and psychological impairment. Therefore, it should be considered a multidimensional clinical entity rather than a simple anatomical defect.[2] Management requires a multidisciplinary approach involving surgeons specialized in abdominal wall reconstruction, with a thorough understanding of anatomy, pathophysiology, and advanced surgical techniques.

In 1929, C. F. Dixon modified the Gibson technique by introducing a relaxing incision along the medial border of the rectus abdominis muscle; bilaterally, these flaps were advanced toward the midline in a manner later described by Jean Rives.[3] This approach is currently considered one of the most effective techniques for complex midline incisional hernia repair due to its low recurrence rates. However, limitations remain, particularly in large defects where closure of the anterior rectus sheath is not feasible.[4]

Conversely, the Argentine surgical school introduced an alternative strategy through the work of Alfonso Albanese, consisting of lateral releasing incisions in the abdominal

wall musculature, allowing tension-free closure of the midline.[5]

The aim of this study is to describe a combined surgical technique that integrates the advantages of both approaches, achieving tension-free midline reconstruction, restoration of abdominal wall biomechanics, and low recurrence rates.

CASE REPORT

A 58-year-old female patient with a history of well-controlled hypertension presented with a progressively enlarging abdominal wall bulge associated with pain and discomfort. She denied other relevant medical conditions.

Her surgical history was significant for a prior midline infraumbilical laparotomy performed five years earlier due to appendicular peritonitis, likely secondary to stump leakage. The patient reported that the incisional hernia developed shortly after the initial surgery, with an evolution time of approximately four years.

On physical examination, a midline infraumbilical scar was observed, associated with a large incisional hernia. The defect was palpable, with increased abdominal volume and associated tenderness, but without signs of incarceration or strangulation.

The patient had a body mass index (BMI) of 30 kg/m². Preoperative evaluation determined a hernia defect of approximately 12 cm, without loss of domain. Preoperative optimization included the administration of botulinum toxin (150 IU on each side) into the lateral abdominal wall muscles to facilitate medial advancement and tension-free closure.

The patient was scheduled for elective surgical repair under general anesthesia. An incision was made along the previous laparotomy scar, which was excised (Figure 1).

Figure 1: Preoperative images: incision along the previous laparotomy scar.

Subcutaneous tissue was dissected, allowing complete exploration of the surgical field and proper identification of the hernia sac and defect (Figure 2).

Figure 2: Dissection of subcutaneous tissue and exploration of the laparotomy scar.

Intraoperatively, a multiloculated hernia sac was identified. Careful dissection was performed from the periphery toward the center, and the sac was opened at its neck, allowing entry into the abdominal cavity and clear delineation of the hernia defect margins (Figure 3). Loose adhesions between the small bowel and the anterior parietal peritoneum of the sac were identified and safely released.

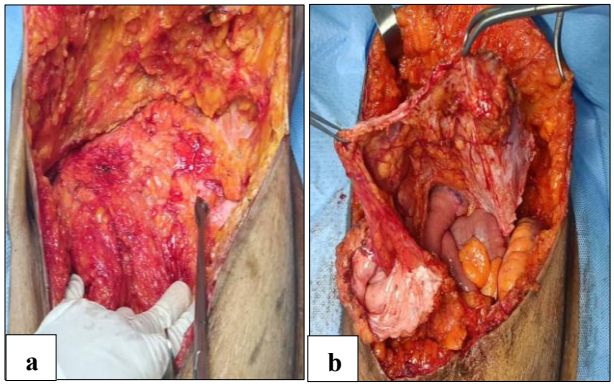

Figure 3: (a) Exposure of the hernia sac at the neck with entry into the abdominal cavity, and (b) delineation of the hernia defect margins.

A retromuscular dissection was then performed according to the Rives technique, with incision of the anterior rectus sheath in its anteromedial aspect (Figure 4). Dissection was extended laterally, allowing visualization of the intercostal nerves and inferior epigastric vessels (Figure 5).

The posterior rectus sheath was subsequently closed using continuous long-acting absorbable 2-0 sutures (Figure 6). A low-density macroporous mesh was placed in the retromuscular space and fixed to the aponeurosis (Figure 7). To achieve tension-free closure of the anterior layer, lateral releasing incisions were performed in the external oblique aponeurosis following the Albanese technique. The anterior rectus sheath was then closed using continuous long-lasting absorbable sutures (Figure 8).

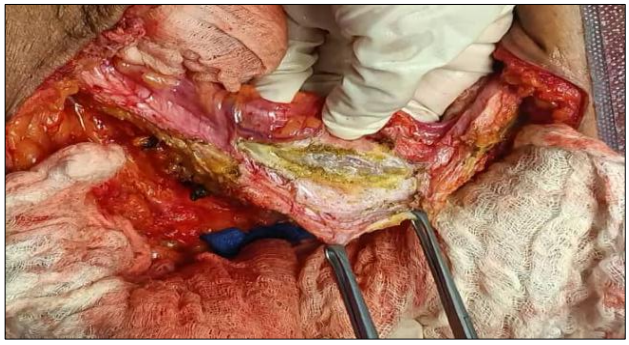

Figure 4: Opening of the rectus sheath on its anteromedial aspect.

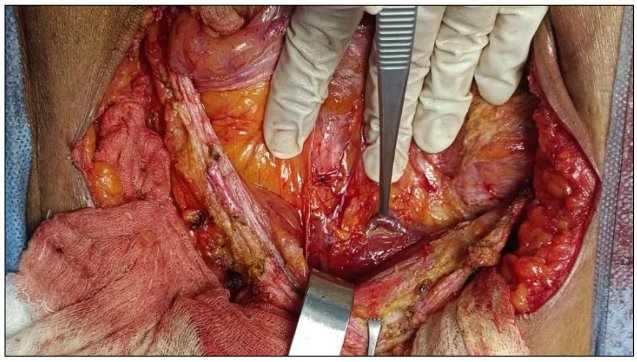

Figure 5: Complete dissection showing intercostal nerves and inferior epigastric vessels.

Figure 6: Closure of the posterior layer using continuous long-lasting absorbable 2-0 suture.

Figure 7: Placement of low-density macroporous mesh in the retromuscular space.

An additional onlay mesh was placed to reinforce the repair and fixed to the aponeurosis (Figure 9). Finally, silicone drains were placed in the subcutaneous tissue, and closure of the surgical wound was completed (Figure 10).

Figure 8: Concave incision and closure of the anterior rectus sheath.

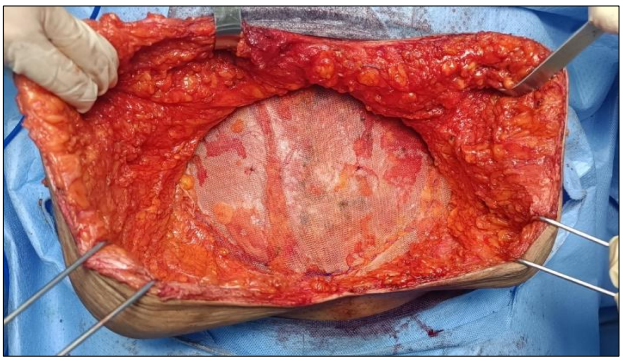

Figure 9: Placement of onlay mesh fixed to the aponeurosis.

The procedure was completed without intraoperative complications. The postoperative course was uneventful. The patient demonstrated adequate pain control, early mobilization, and no evidence of surgical site infection, seroma, or other complications. Follow-up evaluations showed satisfactory functional and aesthetic outcomes, with no evidence of recurrence.

Figure 10: Placement of silicone drains and intradermal skin closure.

DISCUSSION

The surgical technique presented here represents a synergistic combination of the Rives and Albanese approaches, based on the fundamental objectives of complex ventral hernia repair: reintegration of abdominal contents into the abdominal cavity and restoration of abdominal wall anatomy and function, primarily through midline reconstruction.[6]

The retromuscular space is considered the optimal location for mesh placement due to its superior integration properties. In this position, the prosthesis is separated from the subcutaneous tissue, reducing the risk of surgical site infection, and avoids direct contact with intra-abdominal contents, thereby minimizing related complications.[7]

Restoration of the midline through approximation of the rectus abdominis muscles has regained importance in recent years, given its critical role in abdominal wall dynamics and function.

When direct approximation is not feasible, the principles described by Albanese and later refined by Ramírez provide an effective alternative.[8] This technique involves an incision in the external oblique aponeurosis approximately 2 cm lateral to the rectus abdominis muscles, allowing medial advancement either partially or completely, depending on the defect size.

This approach is consistent with the fundamental principles of incisional hernia repair described by Shell et al, which include prevention of recurrence, functional incorporation of the abdominal wall, provision of dynamic muscular support, and tension-free closure.[9]

CONCLUSION

The combined Rives–Albanese technique represents a valuable surgical option for the management of complex incisional hernias, allowing tension-free midline closure while preserving abdominal wall function. This approach may be particularly useful in patients with large defects in whom standard retromuscular repair alone is insufficient. In this case, the technique demonstrated favorable functional and aesthetic outcomes without postoperative complications or recurrence. Further studies are required to evaluate long-term outcomes and broader applicability.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Rojas S, Ramírez A, Bracho M, Terán G. Combined Rives–Albanese technique in the management of a complex incisional hernia: a case report. Int Surg J 2026;13:1043-6.