Novel Robotic Transabdominal Preperitoneal Reversed Falciform Ligament Flap for Repair of Recurrent Ventral Hernias

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Background

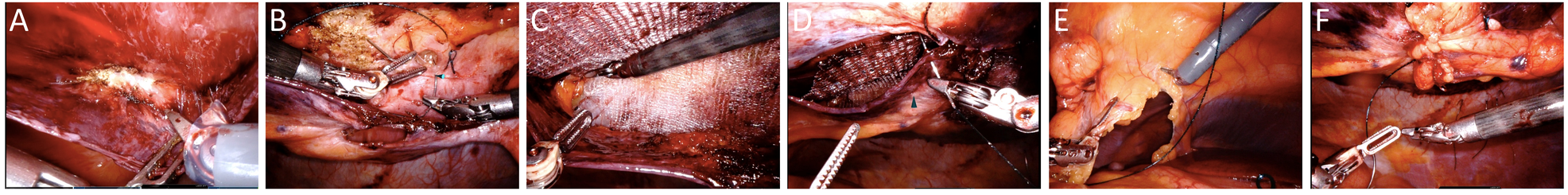
Transabdominal preperitoneal (TAPP) approach to hernia repair is considered anatomically favorable with reduced complications from bowel adhesions to the mesh. However, TAPP repair of a recurrent abdominal hernia done by intraperitoneal onlay mesh (IPOM) is challenging due to scarred peritoneum over the mesh, creating wide gaps in the peritoneum that are often difficult to close. We present our experience with a novel technique of robotic-assisted reversed falciform ligament flap (RFLP) during TAPP repair of recurrent incisional hernias, which enables bridging of large peritoneal gaps and isolates the mesh from the intraperitoneal contents.

Methods

- Patients presenting with a recurrent ventral or incisional hernia repaired initially by open or IPOM technique were eligible for inclusion.
- Included patients underwent robotic-assisted RFLP between August 2017 and September 2020.

Operative Technique

Three lateral robotic ports are placed. A peritoneal flap is created with 5 cm of overlap on all sides of the hernia defect (A). Fascial closure is performed (B) followed by placement of a self-fixating polyester mesh (C) and closure of the peritoneal flap over the mesh (D). A pedicled falciform ligament flap is created by isolating the falciform ligament, round ligament, and overlying preperitoneal fat from the liver towards the umbilicus (E). The falciform ligament is stretched and sutured to the edges of the central peritoneal defect, which underlays the prior IPOM mesh (F).



Results

Twenty-one patients with a ventral or incisional hernia were treated with a robotic-assisted RFLP technique. Eighteen patients had an incisional hernia (15 midline, 2 transverse) and 3 patients had a paraumbilical hernia. Defect sizes ranged from 30 to 100 cm^2 and mesh sizes ranged from 150 to 300 cm^2. Mean operating time was 110 minutes. There were no conversions requiring dissection into the retrorectus plane. Two patients developed abdominal wall seromas, which were managed conservatively. All other cases achieved excellent long-term outcomes with a high degree of patient satisfaction at a mean follow-up of 23 months (18-53 months) without clinical or radiological recurrence.

Conclusions

RFLP is an innovative and effective method for repairing large ventral and incisional hernias when primary peritoneal closure is not achievable during standard TAPP repair. This novel method utilizes a preperitoneal mesh repair with autologous tissue transposition to span the peritoneal gap. Most importantly, this technique does not violate the retrorectus plane, preserving this space for subsequent recurrent hernia repairs if needed.

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