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TRANSVERSUS ABDOMINIS MUSCLE RELEASE (TAR) IN HUGE INCISIONAL HERNIA – A CASE REPORT

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ABSTRACT

An incisional hernia[1] is a type of ventral hernia[3] that occurs at the site of previous surgical incision. It develops when the abdominal wall fails to heal properly after surgery, leading to a weakness or defect through which abdominal contents may protrude. Huge incisional hernias and complex abdominal wall reconstructions are challenging in terms of primary closure with typical operating techniques due to extensive fascial defects, loss of domain and high recurrence rates. Component separation techniques (CST) allows the mobilization of large musculofascial flaps of the abdominal wall and was developed for the treatment of very large and incisional abdominal wall hernias. The posterior component separation (PCS)[4] with transversus abdominis muscle release (TAR)[4,5,6] is an evolution of the Rives-Stoppa-Wantz technique and presents major advances of complex abdominal wall reconstruction surgery.

KEYWORDS: Incisional Hernia, Posterior component separation, Transversus abdominis muscle release (TAR), retrorectus (sublay) mesh repair, Rives-Stoppa.

INTRODUCTION

Incisional hernias are a common complication following abdominal surgery, with reported incidence rates ranging from 15 to 20% of all abdominal wall hernias[3] and even higher in high risk populations. While small defects can be managed with conventional suture or mesh repair, huge or giant and complex incisional hernias are a challenging tasks even for the most experienced hernia surgeons specially with defects typically greater than 10cm or with significant loss of domain present formidable surgical challenges which includes difficulties

in achieving fascial closure, high tension across the repair site, and increased risk of recurrence. Rives-Stoppa-Wantz technique is a proven techniques for ventral hernia repairs but because of the limitation related to the rectus sheath, it is not a viable option for huge or complex incisional hernias and often fall short in such complex cases. Unfavourable outcomes with traditional sutures and mesh techniques have led to the development of numerous new techniques. The transversus abdominis release (TAR) technique, a component separation method introduced to address these challenges, allows for extensive medial mobilization of the abdominal wall and wide mesh placement in the retrorectus (Rives stoppa)[2] space all while maintaining the integrity of the external oblique and neurovascular structures.

OBJECTIVE

To evaluate the efficacy and safety of transversus abdominis muscle release (TAR) in the management of huge or complex incisional hernias and to highlight its advantages in achieving durable fascial closure and mesh placement in the retrorectus plane.

METHODS

This case report illustrates the use of the TAR technique in the successful management of a patient with huge incisional hernia (>10cm), emphasizing the procedural steps , perioperative considerations and early outcomes.

CASE PRESENTATION

A 50yrs/male patient came with complaints of swelling at paraumbilical region since 6-7months often increases with coughing, standing or straining and mildly reduces when lying down with dull aching pain at swelling sites. The pain was not associated with gastrointestinal disturbances such as nausea, vomiting or changes in bowel habits.

Fig. 1: Pre operative image of huge ventral incisional hernia with previously operated midline laparotomy scar.

Past history

S/H/O – Exploratory laparotomy (no details available) in 2010

M/H/O – No any major illness

K/C/O -No DM/ HTN/IHD/Bronchial asthma/Thyroid disorders

Family history: No any family history

Physical examination on admission

G.C- fair afebrile

P-74/min BP-120/70mmHg RS-AEBE Clear CVS-S1S2 normal

CNS- conscious & oriented P/A –soft B –passed M-clear

General examination: Pallor, icterus- not seen No regional lymphadenopathy.

The patient was in overall good health, with no significant systemic complaints aside from the abdominal swelling and mild aching pain.

Local examination: (Fig 1)

Inspection-a midline previous operated laparotomy scar noted approx. 20x1cm in size. Coughing impulse positive.

Swelling noted at paraumbilical region.

Palpation- reducible in nature, mild tenderness on deep palpation. Percussion and auscultation-normal bowel sounds were present. There was no evidence of bowel obstruction or distention.

Investigation

Patient was thoroughly investigated for surgery.

Hb-12.1gm% TLC-12,500/cmm PLT- 3.04lakhs/cmm RBC- 4.27mil/cmm BSL-140mg/dl BUL-43.4mg/dl Sr.creat-0.8mg/dl Serology- negative

CT-abdomen & pelvis (plain+ contrast): A large130 x 83mm sized defect is seen involving the anterior abdominal wall involving the mid line from L1-L5 vertebral bodies from which the small bowel loops, fat and omentum are seen protruding out suggestive of large anterior abdominal wall hernia. Rectus to defect ratio is 0.55.

Surgical management

Pre-operative- Bowel preparation was given day before the operation and pt was kept on a liquid diet. Patient was kept NBM 8hrs prior to surgery.

inj xylocaine sensitivity test, part prepare was done. Ryle's tube insertion and foley's catheterization done prior to surgery. IV antibiotics and IV fluids were administered.
Written surgery and anesthesia consent was taken.

Intraoperative procedure- Anesthesia- General
Under all aseptic precaution painting and draping was done in a supine position.

Midline elliptical incision taken approx. 30x2 cm (including previous laparotomy scar sparing umbilicus).

Layerwise dissection was done till the peritoneum, hernial sac visualized & adhesiolysis performed to free up hernial sac and the intra abdominal contents reduced to abdominal cavity.

A sterile moistened towel kept intraperitoneally and carefully positioned for safeguarding the bowel throughout the dissection process. An incision was made on linea alba and posterior rectus sheath (PRS) is separated from rectus muscle bilaterally, to enter retro rectus space (Rives-Stoppa) and dissection extended upto linea semilunaris.

Dissection continued carefully preserving neurovascular bundles and the PRS is incised as laterally as possible. The transversus abdominis muscle fibres visualized and cut with electrocautery cranially upto xiphoid process and caudally to retropubic space of Retzius and allow medialization of posterior rectus sheath for tension free midline closure.

The peritoneal layer/posterior rectus sheath approximated using absorbable suture material without tension (Fig 2). A polypropylene 30x30 cm mesh placed in retrorectus plane (sublay) and fixed with prolene 1.0(Fig 3). Closed suction drain no 16 was kept in retrorectus plane, fixed with ethilon and anterior rectus sheath closed with prolene 1.0.

Another closed suction drain no 14 kept at subcutaneous fat layer and fat closure done with absorbable suture material and then skin closure was done. Haemostasis achieved, dressing done. Procedure was uneventful.

Fig. 2: Tension free repair of peritoneum/PRS after TAR.

Fig. 3: Polypropylene mesh 30×30 cm placed in retrorectus (sublay) position.

Post-operative: Patient was kept in propped up position and Ryles tube removed on same day. Abdominal binder was given & clear liquid started on POD 2 and gradually shifted to full diet. Shifted to higher IV antibiotics post operatively and analgesics provided for pain management. Chest PT and spirometry advised post operatively.

1st dressing done on post operative day five and foley's catheter was removed. Subcutaneous drain removed on post operative day nine.

Patient had been discharged on post operative day eleven.

Fig. 4: Postop day sixteen after stitch removal.

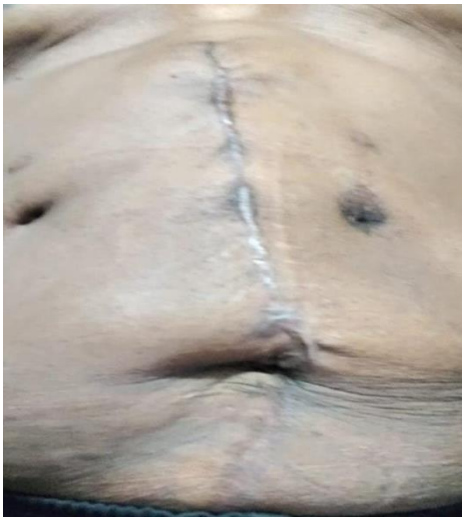

Fig. 5: Nine weeks after the operation

Closed suction drain at retro rectus site removed on post operative day thirteen on follow up. All stitches removed on post op day sixteen, healthy wound with no any discharge (Fig 4)

DISCUSSION

In this case the patient underwent TAR surgery with retrorectus (sublay) mesh reinforcement.

The procedure was successful with adequate midline re-approximation, no immediate complications and improved postop recovery with no recurrence after nine weeks (Fig 5)

CONCLUSION

TAR offers reliable and effective solution for abdominal reconstruction in patients with huge incisional hernias with low perioperative morbidity and reduced risk of skin necrosis and also less chances of surgical site infection. This case highlights the utility of TAR in achieving durable repair with favorable outcomes in complex abdominal wall defects.

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