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CASE REPORT

Open Anterior Component Separation (ACS) for Complicated Incisional Hernia

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Abstract

This study looks open anterior component separation (ACS) followed by placement of an onlay mesh for complicated incisional hernia surgery. Among surgical procedures incisional hernia surgery is most complex as it involves repairing of weakened abdominal muscle which can be due to preexisting conditions, sudden increase in intra abdominal pressure, straining during motion or while lifting heavy objects. In this case patient presented with an incisional hernia with a very bad scar after two major exploratory laparotomy. We have chosen anterior component separation over posterior component separation due to ease of operation, less surgical time and early recovery. Evidence from long-term studies suggest that the use of mesh helps to strengthen the muscular wall of the abdomen and organ deformation is prevented. In conclusion, anterior component separation with onlay mesh repair is established technique for hernia repair surgery.

Keywords: Mesh hernial repair, incisional hernia, onlay mesh, synthetic mesh

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Introduction

Incisional hernia is a weakness or bulge in the abdominal wall at the site of previous surgical incision. This is more common with midline incisions. Hernias can be of different types and sizes, either a small or a big bulge. Despite surgical techniques the incidence of the incisional hernia is still between 15% to 20% [1].

The European Hernia Society (EHS) has classified midline incisional hernias by dividing them into 5 zones, M1 to M5, based on their location:

- M1: Sub xiphoidal, from the xiphoid to 3 cm below
- M2: Epigastric, from 3 cm below the xiphoid to 3 cm above the umbilicus
- M3: Umbilical, from 3 cm above to 3 cm below the umbilicus
- M4: Infraumbilical, from 3 cm below the umbilicus to 3 cm above the pubis
- M5: Suprapubic, from the pubic bone to 3 cm above

In this case hernia involved 3 zones i.e. M2, M3 and M4. The repair of incisional hernias can be done surgically by various techniques from which we opted for onlay mesh repair with ACS. It involves covering the abdominal wall fascial defect with a mesh. When this method is compared to conventional methods such as suture repair, the mesh repair method stands out and also significantly reduces greatly the chance of recurrence by providing support and a scaffold for tissue healing [2].

Case report

A 24 year old male patient came with chief complaint of swelling around umbilicus since 1year which was gradually progressive and associated with pain. Patient had a history of two exploratory laparotomy in past 3year. On examination the swelling extended from the epigastric region to the infraumbilical region measuring approximately 16x8cm, while the scar approximately 18x9cm. No other history of medical comorbidity. Ultrasonography confirms the defect size through which omental fat and bowel are seen herniating. Rest of organs finding were normal.

An incision was made along the scar margin, and the scar was excised. Thorough and extensive bowel adhesiolysis was performed. The subcutaneous plane was created laterally up to the anterior axillary line on right side and upto linea semilunaris on left side. Then on left side external oblique aponeurosis was incised just laterally to linea semilunaris from the subcostal region superiorly to the anterior superior iliac spine inferiorly. Then a space was created between external and internal oblique muscles at the mid axillary line on left side. Mesh fixation was performed in the created plane, followed by a tension-free closure (Figure 1).

Figure 1. Measuring the hernia defect (Length and Breadth).

Discussion

Anterior Component Separation remains an operation plagued by high surgical morbidity. Separation of the abdominal wall components involves significant subcutaneous undermining from midline to the level of semilunar line in order to achieve exposure of the external oblique. The mesh was used to help in repairing the abdominal wall defect. The mesh was attached with the help of sutures along the tissue line of the defect [3]. In the present scenario, synthetic mesh i.e., polypropylene mesh was used. The prolene mesh is made up of a nonabsorbable polymer which has a higher tensile strength even when compared to the other mesh. It is light weight, non-polar and does not degrades making it one of the most commonly used mesh in hernioplasty [4].

Common complications are the logical sequelae of large myofascial and subcutaneous flap elevation and include seroma, hematoma, infection, skin edge necrosis, wound breakdown and hernia recurrence, Recurrence rate following anterior component separation range from 5 to 32% in major series and rate of wound complications range from 7.5 to 48% [5].

Separation of abdominal components has become an essential and powerful weapon among surgeons across specialities, gaining widespread popularity for the closure of abdominal wall defects resulting from trauma, infection and previous surgery. This has been applied to various problems, consistently yielding reproducible results (Figure 2).

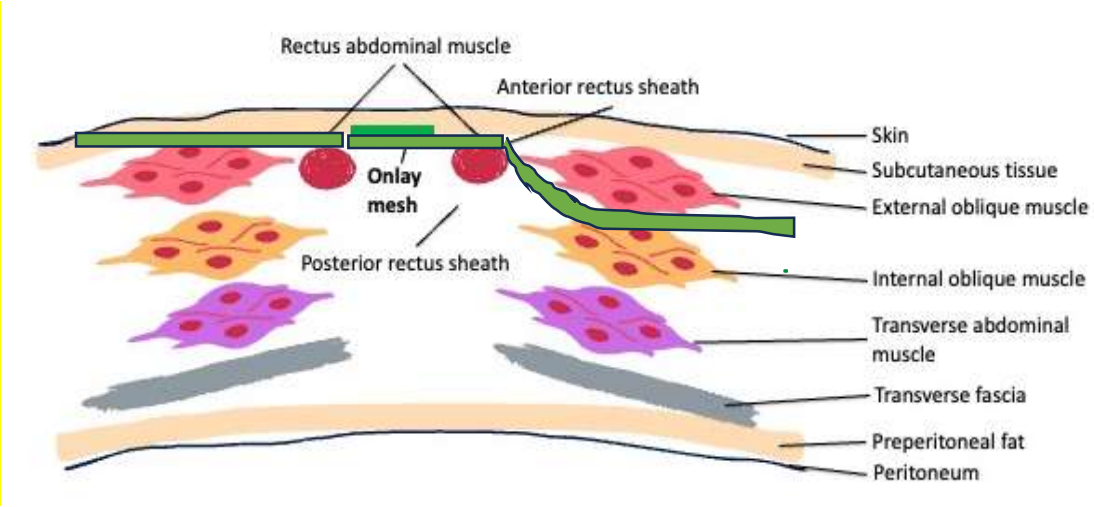

Figure 2. Placement of an onlay mesh.

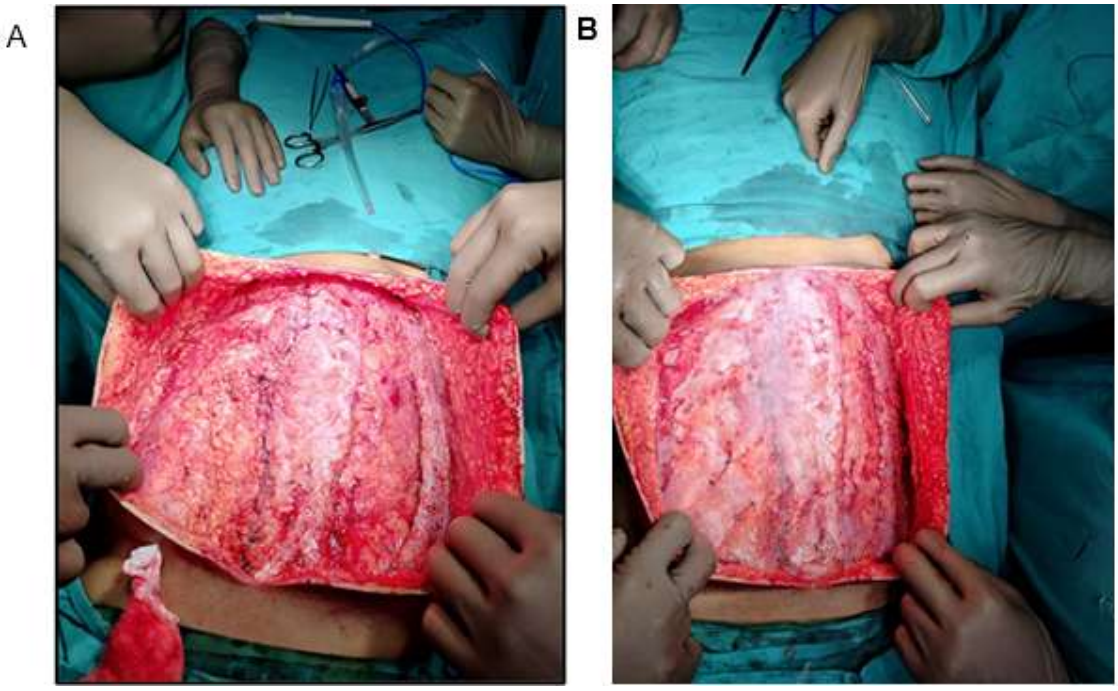

Figure 3. Incision made upto peritoneum (a) and image taken after placement of mesh (b).

This approach is straightforward, reliable, and preserves the midline structures. Following the procedure, the patient experienced an uneventful recovery and was discharged on POD 15th with noticeable improvement in pain and swelling.

Conclusion

One of the most effective ways to manage complex incisional hernia is using open anterior component separation (ACS) technique along with onlay mesh repair. This surgical technique provides a reliable option for addressing large and complex

hernias while significantly reducing the chances of recurrence and morbidity.

Conflict of Interest

All the authors state that they do not have any conflict of interest.

Ethics approval

Not required.

Consent for publication

For the publication of this case report, written and informed consent was obtained from the patient.

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