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A case study- An effective comparative study between mesh repair and non-mesh repair in ventral strangulated hernia

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ABSTRACT
Introduction – A strangulated hernia is a life-threatening medical condition. Which is painful swelling with vascular compromise require urgent surgery [1]. Leading to formation of gangrene [2].Strangulation commonly occurs in the small bowel and also in large bowel. occasionally strangulated omantocele also can occur without any intestinal obstruction [3]. In this, fatty tissue or a section of the small intestines is pushed through a weakened area of the abdominal muscle. The surrounding muscle then clamps down around the tissue, cutting off the blood supply to the small intestine. This strangulation of the small intestine can lead to intestinal perforation, shockor gangrene (death) of the protruding tissue, which can lead to death. Irreducibility, obstruction and strangulation are the complications of the hernia. First irreducibility occurs which leads into obstruction and strangulation [4].Defects in para-umbilical hernias up to 2 cm in diameter could be primarily sutured. For defects larger than 2 cm in dimeters, mesh repair is recommended [5]. This case study reveals the comparison between operative of two patients having ventral strangulated hernia; one with mesh repair while one with non-mesh repair.
Keywords – Ventral Hernia, strangulated hernia, MeshRepair, Non-mesh repair

I. INTRODUCTION

Any protrusion through abdominal wall with the exception of hernia through the inguinofemoral region is defined as ventral hernia [6].Incisional hernia (80%) and primary defects in abdominal fascia which can cause umbilical hernia, epigastric hernia, paraumbilical hernia or Spigelian hernia are grouped under ventral hernia. Ventral hernia can bereducible, irreducible, obstructed, strangulated, single, multiple small defects (Swiss cheese hernia [7]. Para-umbilical hernia (PUH) results through a defect in the Linea alba. It is a common surgical problem consisting of 10% of all primary hernia. They are more common in parous, obese, middle aged and elderly women. Obesity and multiparity are important predisposing factors not only for primary, but also for recurrent cases. The content of the hernia sac might be preperitoneal fat tissue, omentum, and small intestine in the majority; sometimes a combination of those organs may be present. Elective surgery is a treatment of choice due to recognized risk of obstruction, incarceration and strangulation. The definitive treatment of all hernias is surgical repair. Mesh (hernioplasty) and the traditional non-mesh repairs (herniorrhaphy) are commonly used.

In the past, these hernias were treated by tension free suture which resulted in a high rate of recurrence and this led to the reduction in its popularity. The use of mesh to repair the hernia defect either open or laparoscopic is widely used now a days. A tension free mesh technique has drastically reduced the recurrence rates for all kinds of hernia compared to tissue repair. Several factors have been implicated for recurrence after hernia repair; large seroma and surgical site infection are classical complications that may result in recurrence. Obesity and excessive weight gain following repair are other factors. Size of the hernia defect interferes with the type of the operation and many surgeons still make their decisions on the basis of the size of the hernial defect, and it is still a matter of controversy.

The mesh can be placed via both the open and laparoscopic approaches, and some authors believe that laparoscopy is preferred in just a quarter of the cases. Mesh can be appliedon lay; on the anterior fascia, inlay; in the hernia defect, sub lay to retro-rectus or preperitoneal space or underlay; in the intra-peritoneal position.

It is always better and ideal with less chances of recurrence. Adequate size mesh is placed at different planes on lay/overlay or inlay or retro rectus or preperitoneal. Mesh on lay is placing mesh in front of the defect and muscle layer usually

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after doing simple repair. Inlay is bridging the defect using prosthetic mesh by suturing mesh to the surrounding Myo aponeurotic defect. placing mesh between posterior rectus sheath and rectus muscle. It is sub layretro rectus mesh placement [8]

OBJECTIVE-

This case study aimed to determine whether or not the mesh repair technique is associated with a higher risk or surgical site infection than non-mesh techniques for strangulated Ventral hernia.

CASE PRESENTATION

1st case

A 52-year female patient, with a complaint of pain and swelling at infra umbilical region for 15 days, fever and vomiting for 2 days.On clinical examination, a bulgewas noticed over infraumbilical region, irreducible in nature with severe tenderness, locally raised temperature with redness, guarding and rigidity present. On Examination- BP-110/70mmhg, Pulse – 110/min, temperature -100.1, CVS -S1S2 normal, RS -AEBE clear, Patient wasconscious and oriented.

Patient had surgical history of LSCS 15 Years ago withno history of any other major medical illness. In USG there was a defect of herniation of size 26 x 22mm seen in anterior abdominal wall in infraumbilical region in midline at the previous incisional site through which herniation of bowel loop was noted suggestive of incisional hernia with obstruction.

Patient was taken for laparotomy for obstructed infraumbilical incisional hernia. Layer wise opening was don.Hernial sac was seen and opened, obstructed hernia content wasseen.The hernial content (bowel loop) look partially ischemic but proper blood supply waspresent.The hernial content was reduced and mesh fixation was done. Layer wise suturing wasdone; skin was sutured with polyamide3-0. Procedure was uneventful.On post operative day 4, at the time of dressing there wasmild purulent discharge. On next day, purulent discharge was more and the wound was infected. All stiches were removed. Wound keptopened and daily dressing wasdone for a month. After one-month secondary suturingdone.

2nd case

A 47-year female patient presented with complaint of pain and swelling at supraumbilical regionfrom 10 days, fever and vomiting, motion not passed from 2 days. on clinical examination bulge over supraumbilical region, irreducible in nature, severe tenderness locally raised temperature, guarding and rigidity present. O/E BP – 100/60mmhg, pulse – 100/min, temp – 100, CVS-S1S2 Normal, RS– AEBE clear, patient is conscious and oriented.

Patient has no any surgical history or any major medical illness, In USG there was defect of 30 x 24 mm is seen in anterior abdominal wall in supraumbilical region in midline through which herniation of bowel loop s/o supraumbilical strangulated hernia.

Patient was taken for laparotomy for strangulated supraumbilical hernia. layer wise opening done, hernial sac seen and opened, obstructed hernia content visible, the hernial content (bowel loop) look partially ischemic but proper blood supply was present. Hernial content was reduced. wall repair was done with polypropylene 1-0.Layer wise suturing done. Skin sutured with polyamide 3-0 in simple interrupted manner. Procedure was uneventful. Wound is healthy. Alternate day dressing done. Stiches removed after 12 days. Patient's condition was good after 3 month follow up.

II. DISCUSSION

The optimal technique to cure Strangulated hernia iscontroversial. The use of mesh in case of strangulated hernia in adult may be a good option because of acceptable wound infection. But in case of old age patient, it may cause infection. In the setting of bowel resection, mesh repair might increase the incidence of surgical site infection.[9]

III. CONCLUSION

The non mesh repair technique is a good option for the treatment of strangulated umbilical hernias in old, giving an acceptable wound infection rate as there is least chance of infection and fewer recurrences. Mesh repair may give chance of infection of wound.My case presentation does not allow us to recommend the use of mesh in cases of bowel strangulation. We emphasize that, except the two, the results are predicated on patient selection bias by careful surgeons. Further RCTs are required to obtain more powerful evidence-based data.

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Case No. 1

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