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Case Report

Incarcerated infraumbilical incisional hernia: a surgical challenge

Ketan Vagholkar*

Department of Surgery, D. Y. Patil University School of Medicine, Nerul, Navi Mumbai, Maharashtra, India

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***Correspondence:**
Dr. Ketan Vagholkar,
E-mail: kvagholkar@yahoo.com

ABSTRACT

Incisional hernia continues to be the most challenging type of hernia. Variability in the anatomy and supervening complications add to its complexity. Infraumbilical incisional hernias are usually due to gynecological operations. This may range from a scar of tubal ligation procedure to a Pfannenstiel incision or an infraumbilical scar of caesarian section. The sparse volume of strong anatomical structures in this region poses the biggest challenge during repair. A 54-year-old lady presented with a hernia arising from a scar of previous tubal ligation surgery. The hernia was irreducible with a large mass of omentum in the hernial sac. Laparoscopy was difficult to perform in view of the current state. Hence open surgery was performed. The technique used was creation of a preperitoneal space followed by creation of space between external oblique aponeurosis and underlying muscle. A mesh as placed between the muscular and aponeurotic layer. The post-operative course was uneventful with no recurrence. The anatomical basis of placing the mesh between the muscular and aponeurotic layer or intermediate placement technique is discussed. Creation of space below the aponeurotic level is pivotal in managing infraumbilical incisional hernia. Placing a mesh at this layer below the aponeurosis ensures least complications with excellent result.

Keywords: Infraumbilical incisional hernia, Gynecological operations, Pfannenstiel incision

INTRODUCTION

Infraumbilical incisional hernia in women is usually seen following gynecological operations. Since the aponeurotic structures become sparse as one proceeds below the umbilicus, placement of the mesh and its fixation becomes difficult.[1] A modified technique of dissection was performed to create a good space to place the mesh safely below the aponeurotic layer.

CASE REPORT

A 54-year-old lady presented with an infraumbilical swelling. She had undergone tubal ligation which left a scar in the midline in the infraumbilical region (Figure 1). 2 years back she developed swelling in the infraumbilical region which increased in size and became irreducible. She gave history of pain in this region. There were no other complaints. A contrast enhanced computed tomography (CECT) was done which revealed an incarcerated infraumbilical midline incisional hernia with protrusion of a large portion of the omentum (Figure 2). Patient underwent an open surgical procedure. A vertical elliptical incision was made with removal of previous surgical scar. The sac was identified measuring approximately 15cm in diameter containing omentum. Dissection was done up to the neck with clear delineation of the edges of the defect (Figure 3). Omentectomy was performed taking utmost care to ensure that the underlying small bowel loops were safeguarded. Subsequently, a space was created by dissecting the peritoneal repair from the overlying muscle layer (Figure 4).

Figure 1: Infraumbilical Incisional hernia.

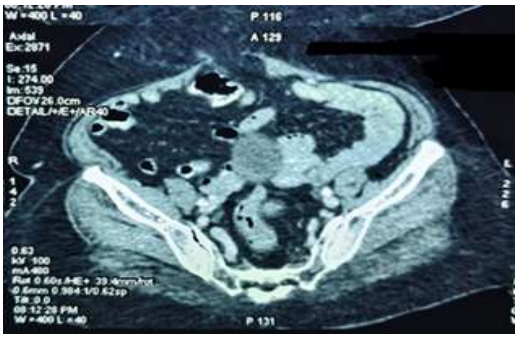

Figure 2: CECT showing an irreducible incisional hernia.

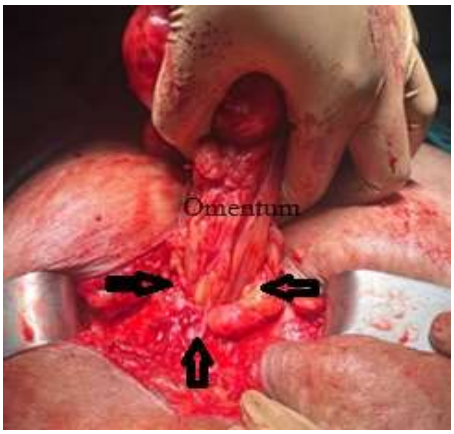

Figure 3: Sac dissected upto the neck.

The peritoneal layer was closed with 1-0 Vicryl. A space was created between the muscular layer and the overlying aponeurosis on either side of the midline. Rectus muscle was approximated to the midline with the help of interrupted 1-0 Vicryl sutures (Figure 5). A polypropylene mesh was placed over the muscular layer and fixed (Figure 6). The negative suction drain was placed over the surface of the mesh and was brought out through a separate incision. The aponeurotic layer was approximated by horizontal mattress sutures with no 1 polypropylene sutures (Figure 7). Skin staples were removed on the twelfth postoperative day. Post-operative course was uneventful. Patient has been following up for the last 3 months with no evidence of recurrence or associated symptoms.

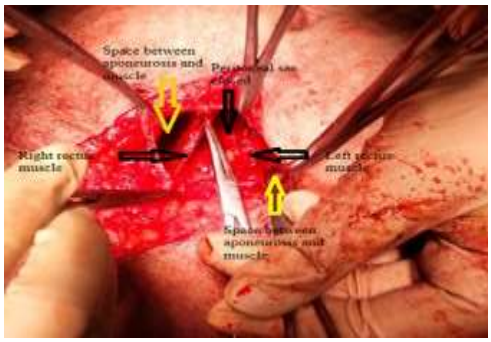

Figure 4: Space created between rectus abdominis muscle layer and overlying aponeurosis.

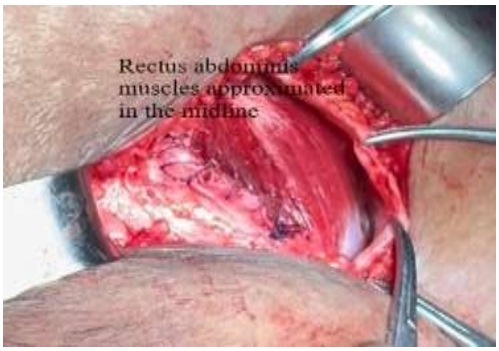

Figure 5: Rectus abdominis on both sides approximated in the midline.

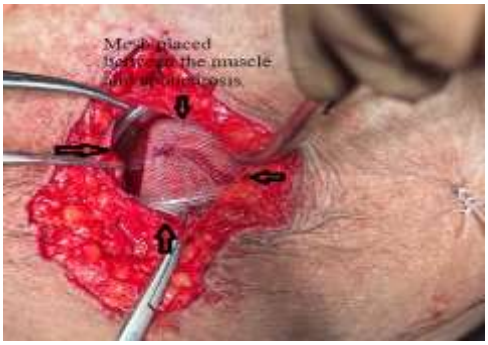

Figure 6: Mesh placed over the muscular layer.

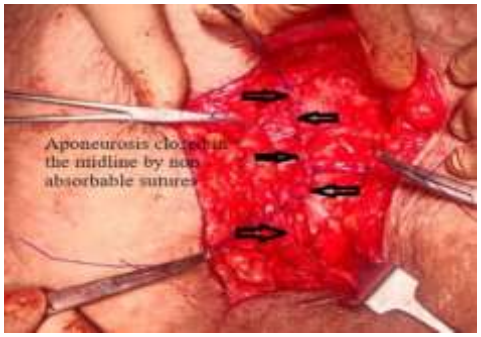

Figure 7: Aponeurosis approximated over the mesh.

DISCUSSION

The anatomy of the infraumbilical region poses the greatest challenge to the choice of procedure. Laparoscopic procedures are advisable for such hernias.[1,2] However, in the case presented since there was large mass of omentum incarcerated into the hernia, laparoscopic approach was deferred. An open procedure helped in management of sac and irreducible omentum. Peritoneal closure was achieved with ease. However, the level at which the mesh was to be placed was the biggest challenge. For a good fixation of the mesh the tissue below and above the mesh needs to be strong. In the case presented, there were two options for placing the mesh, either over the peritoneal layer or as a on lay over the closed aponeurosis. However, as an on lay approach is associated with a multitude of complications, it was deferred.[3,4] Hence an attempt was made to develop a plane between the aponeurosis and the external oblique muscle. Closure and approximation of the rectus muscle in the midline provided a firm foundation for placing a mesh over it. A polypropylene mesh was placed over the muscular layer and was fixed. Negative suction drain was placed over the plane of the mesh and brought out through a separate incision. A negative suction tube drain helps in obliterating the dead space around the mesh. The drain was removed on the third postoperative day. Skin staples were removed on the twelfth postoperative day with complete healing of the suture line. This technique ensures that the mesh is well protected between the layers and obviates the fear of the mesh penetration through the peritoneal layer. Since it is in the intermediate anatomical level, the complications usually associated with a on lay technique were not seen.[5-7] This is an excellent technique to manage complicated infraumbilical incisional hernias.

CONCLUSION

Infraumbilical incarcerated incisional hernias pose the biggest surgical challenge in view of the anatomical scarcity of strong musculo-aponeurotic structures in the region. Laparoscopic approach is deferrable due to incarceration of the hernia with absolute irreducibility. Open approach though technically challenging is the safest. This includes creation of spaces between the aponeurosis and the muscular layer for placement of a mesh. This avoids peritoneal penetration of an inlay technique as well as all the complications of the onlay technique.

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Ethical approval: Not required

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