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Retro-rectus (Rives–Stoppa) Mesh Repair for Recurrent Umbilical Hernia: A Case Report

Dr.Kamalakar V Gajare[1] Dr.Parikshit P Korke[2] Sumit D Gaikwad[3]

1.Assosiate Professor MS (Shalyatantra) PhD Sumatibhai Shah Ayurved Mahavidyalaya Hadapsar Pune-411028

2. MS (Shalyatantra) Scholar Sumatibhai Shah Ayurved Mahavidyalaya Hadapsar Pune-411028

3. MS (Shalyatantra) Scholar Sumatibhai Shah Ayurved Mahavidyalaya Hadapsar Pune-411028

Introduction

Umbilical hernia is a common ventral hernia in adults and is generally treated with mesh repair to reduce the risk of recurrence. However, in some cases, primary anatomical repair without mesh is still performed, which is associated with a higher recurrence rate. Recurrent umbilical hernias present a significant surgical challenge due to altered anatomy, fibrosis, and weakened fascial planes.[i]

Various surgical techniques have been described for the management of recurrent umbilical hernia, including onlay, inlay, intraperitoneal, and sublay mesh repairs. Among these, sublay mesh repair using the retro-rectus (Rives–Stoppa) technique has shown superior outcomes with lower recurrence and complication rates.[ii] Placement of the mesh in the retro-rectus plane provides a well-vascularized environment, allows wide mesh overlap, ensures tension-free repair, and avoids direct contact with intra-abdominal viscera.[iii]

In this report, we present a case of a 38-year-old female patient who developed recurrent umbilical hernia two years after laparoscopic primary anatomical repair without mesh, successfully managed with open sublay (retro-rectus) mesh repair, highlighting the effectiveness of this technique in recurrent umbilical hernia.

Case Report

A 38-year-old female presented with a complaint of swelling over the umbilical region for the past eight months. The swelling was gradually progressive and associated with mild discomfort on coughing and straining. There was no history of abdominal pain, vomiting, or features suggestive of intestinal obstruction.

The patient had a past history of laparoscopic umbilical hernia repair performed two years earlier, during which primary anatomical repair without mesh placement was done. There was no significant medical comorbidity.

Clinical Examination –

On clinical examination, a soft, reducible swelling was noted at the umbilicus measuring approximately 3*3 cm defect size , with a positive cough impulse.

The overlying skin was normal. There were no signs of inflammation or strangulation.

Radiological Investigations-

Ultrasonography of the abdomen revealed a recurrent umbilical hernia with a fascial defect measuring 2.6 cm, is seen in anterior abdominal wall on umbilical region which herniation of omentum and Bowel loops noted

Routine laboratory investigations, including complete blood count, renal function tests, and blood sugar levels, were within normal limits.

Based on the clinical and radiological findings, a diagnosis of recurrent umbilical hernia was made, and the patient was planned for open Sublay (retro-rectus) mesh repair after obtaining informed consent.

Surgical Intervention

After obtaining written informed consent, the patient was taken up for surgery under spinal Anaesthesia and placed in the supine position.

A midline incision was made Subcutaneous tissue was dissected, and careful adhesiolysis was performed to expose the hernial sac. The sac was identified, opened, and its contents were inspected. Omental contents were reduced into the peritoneal cavity, and the hernial sac was excised.

The anterior rectus sheath was exposed on both sides. A longitudinal incision was made over the posterior rectus sheath close to the midline, and the retro-rectus (sublay) plane was developed bilaterally using a combination of blunt and sharp dissection. The retro-rectus space was extended cranially and caudally beyond the defect and laterally up to the linea semilunaris, ensuring adequate space for mesh placement.

The posterior rectus sheath was then approximated in the midline using continuous absorbable sutures, thereby creating a well-defined pre-peritoneal pocket. A polypropylene mesh measuring 7 × 15 cm was placed in the retro-rectus plane with a minimum overlap of 5 cm beyond the margins of the defect in all directions. The mesh was laid flat without tension and fixed with a few interrupted absorbable sutures to prevent migration.

The anterior rectus sheath was closed with continuous non-absorbable sutures. A closed suction drain was placed in the subcutaneous plane. Subcutaneous tissue and skin were closed in layers.

The patient tolerated the procedure well, with minimal blood loss and no intra-operative complications.

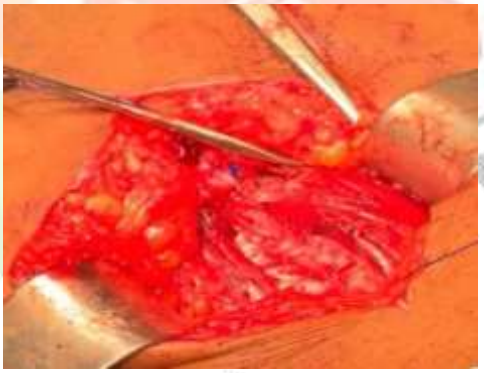

Table No.1 – Timeline of Events

Time	Event
2 years prior	Laparoscopic umbilical hernia repair performed (primary anatomical repair without mesh)
8 months prior	Patient noticed swelling over the umbilical region
Following months	Gradual increase in size of swelling with discomfort on straining
Presentation	Patient presented to surgical outpatient department
Evaluation	Clinical examination and ultrasonography confirmed recurrent umbilical hernia
Preoperative period	Routine laboratory investigations found to be within normal limits
Surgery	Open sublay (retro-rectus) mesh repair performed
Postoperative day 1	Early ambulation initiated
Postoperative day 3	Drain removed
Discharge	Patient discharged in stable condition
Follow-up	No complications or recurrence noted at 3 months.

Discussion

Umbilical hernia repair aims to achieve a durable, tension-free closure of the fascial defect while minimizing postoperative complications and recurrence. Although mesh-based repairs are currently recommended for most adult umbilical hernias, primary anatomical repair without mesh is still performed in selected cases. However, such repairs are associated with significantly higher recurrence rates, which may explain the recurrence observed in the present case two years after laparoscopic primary repair without mesh.[iv]

Recurrent umbilical hernias present unique challenges due to altered anatomy, fibrotic tissue planes, and weakened fascia from previous surgery. Re-entry into the peritoneal cavity, especially after prior laparoscopic repair, increases the risk of visceral injury and adhesions. Therefore, selection of an appropriate surgical plane and technique is critical to ensure long-term success.[v]

Various surgical options are available for recurrent umbilical hernia repair, including onlay, inlay, intraperitoneal onlay mesh (IPOM), and sublay repairs. Onlay mesh repair is technically simpler but is associated with higher rates of seroma formation and surgical site infection due to extensive subcutaneous dissection. IPOM repair, although minimally invasive, carries risks of mesh-related complications such as adhesions, erosion, and chronic pain, especially in recurrent cases.[vi]

The sublay (retro-rectus) mesh repair, also known as the Rives–Stoppa technique, has emerged as one of the most reliable methods for ventral hernia repair, particularly in recurrent cases. Placement of the mesh in the

retro-rectus plane provides several advantages. This plane is well vascularized, which promotes better mesh incorporation and reduces the risk of infection. Additionally, the mesh is positioned away from intra-abdominal viscera, thereby minimizing adhesion formation and mesh-related bowel complications.[vii]

Another important advantage of retro-rectus repair is the ability to achieve wide mesh overlap beyond the hernia defect, resulting in excellent biomechanical reinforcement of the abdominal wall. Closure of the posterior rectus sheath creates a secure pocket for mesh placement and restores the normal anatomy of the abdominal wall. These factors contribute to the low recurrence rates reported with this technique.[viii]

In the present case, open sublay (retro-rectus) mesh repair provided a safe and effective solution for recurrent umbilical hernia following failed primary repair. The patient had an uneventful postoperative course with no wound-related complications and no evidence of recurrence on follow-up. This supports existing evidence that retro-rectus repair is a durable option for recurrent umbilical hernia.

Conclusion

Recurrent umbilical hernia following primary anatomical repair without mesh requires a robust and durable surgical approach. Open sublay (retro-rectus) mesh repair provides effective anatomical restoration, wide mesh overlap, and reduced risk of recurrence and mesh-related complications. This case highlights that retro-rectus repair is a safe and reliable option for the management of recurrent umbilical hernia, even after failed laparoscopic repair, with favorable postoperative outcomes.

Acknowledgment

I would like to express my heartfelt gratitude to the patient for their consent and cooperation, which made this case report possible. I am also deeply thankful to my teachers for their constant encouragement and knowledge, which have greatly contributed to my understanding and approach. Lastly, I acknowledge the assistance and encouragement of my colleagues, whose support has been instrumental in preparing this article.

Declaration of patient consent

Authors certify that they have obtained a patient consent form, where the patient has given his consent for reporting the case along with the images and other clinical information in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflicts of Interest- No any.

Financial support and sponsorship- No any.

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