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MESH GONE ROGUE: A RARE COMPLICATION OF LAPAROSCOPIC HERNIA REPAIR

General Surgery

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KEYWORDS

INTRODUCTION

Laparoscopic repair of inguinal hernias has become widely accepted worldwide, with a growing number of surgeons employing minimally invasive techniques and patients increasingly preferring laparoscopic surgery. This approach offers several advantages, including faster recovery, reduced postoperative pain, minimal scarring, and improved patient comfort.[1]

The two most commonly performed laparoscopic techniques for inguinal hernia repair are **transabdominal preperitoneal (TAPP)** and **totally extraperitoneal (TEP)** repair. Although these procedures are generally safe and effective, they are associated with a spectrum of complications, such as hernia recurrence, hematoma and seroma formation, superficial and deep surgical-site infections, mesh infection, port-site hernia, and vascular or visceral injuries.

Superficial wound infections usually respond well to antibiotic therapy combined with local wound drainage and typically resolve within days to weeks.[1] In contrast, deep-seated mesh infections are rare but pose significant therapeutic challenges and may result in persistent groin sepsis and recurrent abscess formation.[2]

Several patient-related factors increase the risk of mesh infection, including chronic obstructive pulmonary disease, diabetes mellitus, obesity, smoking, advanced age, and an American Society of Anesthesiologists (ASA) score greater than 3. Mesh infections may present early (within 4 weeks of surgery) or late. Early infections are more common, with over half occurring within the first postoperative month, whereas late infections have been reported between 4 and 21 months after surgery.[2]

The most frequently implicated pathogens are skin commensals, particularly *Staphylococcus* species—most notably *Staphylococcus aureus* and coagulase-negative *Staphylococci*. Other causative organisms include *Enterococcus faecalis*, *Corynebacterium* species, and *Pseudomonas aeruginosa*.[3]

We present here a case of a mesh infection following bilateral inguinal hernia repair using a Transabdominal Preperitoneal approach (TAPP). A review of the literature of mesh infection following laparoscopic hernia repair will follow.

Objective

This poster aims to discuss a rare case of mesh infection following bilateral inguinal hernia repair using a Transabdominal Preperitoneal approach (TAPP), highlighting the diagnostic journey, clinical presentation, and surgical management.

Case Report

A 68-year-old male patient presented to the outpatient department with a history of undergoing Laparoscopic Hernia repair (TAPP) 4 months ago in view of bilateral inguinal hernia in a different setup. 1-month post-surgery patient developed pain in the lower abdomen, insidious in onset, dull aching type, gradually progressive in nature. No history of vomiting or altered bowel habits was present. He is a known hypertensive on regular medications. On examination, his vitals were stable. Abdomen was non distended. On palpation, abdomen was soft without any sign of guarding and rigidity. Tenderness was noted in the suprapubic region and right iliac fossa. Per rectal examination was normal.

USG abdomen and pelvis was done which revealed an ill-defined collection in RIF ~5-6cc (figure. 1)

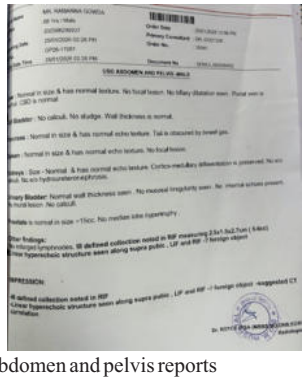

Figure 1. USG abdomen and pelvis reports

MRI abdomen and pelvis was done which showed a well defined hyperintense collection noted in anterior abdominal wall extra-peritoneal in location, not extending to the intraperitoneal cavity. Transverse diameter of 17-18 cm and thickness of 4.2cm. (figure 2)

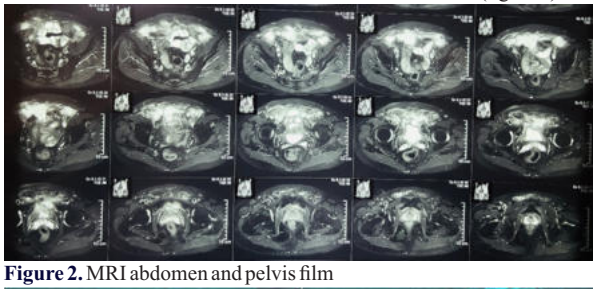

Figure 2. MRI abdomen and pelvis film

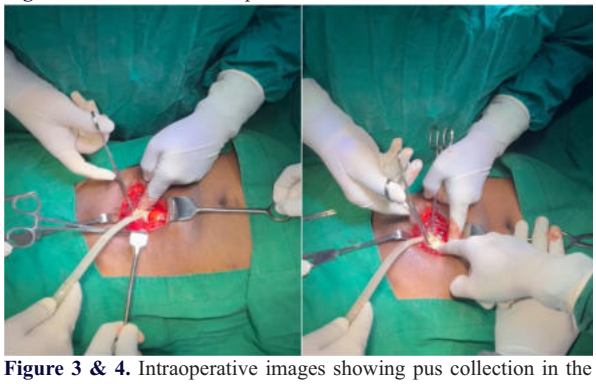

Figure 3 & 4. Intraoperative images showing pus collection in the preperitoneal space

Patient was taken up for Inguinal exploration. Pfannenstiel incision was put and abdomen opened in layers. Intraoperatively, collection

was noted in the preperitoneal space. Around 100c collection was drained. 2 meshes of size 15x15cm noted fixed with tackers. Drainage of preperitoneal space abscess was done along with mesh explantation. Thorough wash was given and abdomen closed in layers after placing a drain. Postoperatively, patient recovered well without any complications. On follow up, patient recovered well without any recurrence of hernia till now.

Figure 5. Image showing pus and 2 mesh removed

Figure 6. 2 15x15cm size mesh removed from preperitoneal space

DISCUSSION

Laparoscopic inguinal hernia repair has become the preferred approach in many centres because of its favourable postoperative outcomes and relatively low complication profile. Among these complications, mesh infection remains uncommon, with reported rates markedly lower than those seen after open repair (<0.16%). Despite this low incidence, when infection does occur, it poses considerable therapeutic challenges due to the presence of implanted prosthetic material.[4]

Unlike superficial surgical site infections, which typically respond to drainage and antimicrobial therapy, deep mesh-related infections tend to persist because bacteria adhere to the prosthesis and form biofilm. This protective matrix significantly limits antibiotic penetration and impairs host immune clearance, often making definitive eradication impossible without removal of the foreign body.[5]

Both TAPP and TEP techniques have demonstrated comparable safety profiles with respect to infectious complications. Current evidence suggests that patient comorbidities and perioperative factors play a more decisive role in the development of infection than the laparoscopic technique itself. Advanced age, diabetes mellitus, chronic pulmonary disease, obesity, smoking, and immunocompromised states have all been associated with increased susceptibility. In the present case, although the patient was hypertensive, no major immunosuppressive risk factors were identified, highlighting that infection may occasionally occur even in relatively low-risk individuals.[6,7]

The timing of presentation is variable. Most mesh infections become clinically apparent within the first month following surgery; however, delayed manifestations have been described. Our patient developed symptoms one month postoperatively, progressing gradually over the subsequent weeks before radiological evaluation identified a preperitoneal collection. Cross-sectional imaging was instrumental in defining the extra-peritoneal location of the abscess and guiding surgical planning.[8]

The microbiological spectrum of mesh infections is typically dominated by cutaneous flora, particularly Staphylococcal species, although Gram-negative organisms and atypical pathogens have also been reported. Once colonisation occurs, early intervention is crucial to prevent chronic sinus formation or recurrent abscess.[7,8]

Management strategies range from conservative measures to definitive surgical explantation. While percutaneous drainage combined with antibiotics may be attempted in selected early or superficial cases, evidence suggests that durable resolution is uncommon without complete mesh removal, particularly when there is established biofilm or deep-seated abscess formation. In our patient, given the sizeable preperitoneal collection and involvement of both meshes, definitive exploration and explantation were undertaken.[9]

The choice between laparoscopic and open removal remains debated. Although minimally invasive approaches offer enhanced visualisation and reduced tissue trauma, there is concern regarding potential intraperitoneal contamination when dealing with infected prosthetic material. In this case, a high open approach through a Pfannenstiel incision allowed controlled drainage of the preperitoneal abscess while preserving the native tissue planes of the inguinal canal. This strategy may facilitate safer future repair should recurrence occur.[10]

Hernia recurrence following mesh explantation is a recognised possibility, with reported rates varying in the literature. Dense fibrosis induced by the original mesh may provide partial reinforcement; however, long-term surveillance is essential.

Ultimately, prevention remains paramount. Optimisation of patient factors, meticulous operative technique, careful mesh handling, and adherence to strict aseptic protocols are critical in reducing the already low incidence of this complication. Prompt recognition and decisive management are equally important in minimising morbidity when infection does arise.[11]

CONCLUSION

We report a rare case of a mesh infection following bilateral inguinal hernia repair using a Transabdominal Preperitoneal approach (TAPP), subsequently requiring exploration with drainage of preperitoneal space abscess with mesh explantation. Based on this case, we recommend that mesh infection be managed by complete mesh explantation, meticulous debridement with thorough washout, and appropriate antibiotic therapy. Although an infected mesh placed during TAPP repair can be removed using either laparoscopic or open techniques, an open approach may reduce the risk of intraperitoneal contamination. Employing a high open approach that preserves the native tissue planes of the inguinal canal facilitates a safer and more comfortable subsequent open repair in the event of hernia recurrence, which has been reported to occur in approximately 20% of cases.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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