

Trauma and Reconstruction

Post Incisional Hernia Meshplasty Vesicocutaneous Fistula – A Rare Complication



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ABSTRACT

Laparoscopic meshplasty is gold standard in hernia surgery. Mesh migration into bowel/bladder has been documented after laparoscopic repair, though migration into bowel is more common than bladder. Only 12 cases of migration into bladder have been described post inguinal meshplasty. We report the 1st case of mesh migration into bladder post Incisional hernia meshplasty, presenting as vesicocutaneous fistula. The objectives of this report are highlighting important points enabling earlier diagnosis, treatment. We would also like to suggest important preventive measures during meshplasty which we believe will go a long way in avoiding this important complication, thus immensely benefiting patients.

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Introduction

Mesh migration into bowel/bladder can occur rarely after laparoscopic meshplasty. There have been 12 cases of mesh migration into bladder. All cases reported have been post inguinal meshplasty. We report a case of mesh migration into bladder post Incisional meshplasty, which we believe is the 1st of its kind following incisional hernia repair. Vesicocutaneous fistulas are morbid and cause extreme psychological and physical stress to the patient. It is extremely imperative to diagnose and treat this condition at the earliest. Vesicocutaneous fistulas have high recurrence rate. We would like to describe characteristic diagnostic points enabling earlier diagnosis and treatment, thus immensely benefiting patients. Also, we would like to stress on some surgical maneuvers to decrease the chances of recurrence. We propose some refinements to prevent this dreaded complication.

Case presentation

Fourty year female presented with discharging sinus from an abdominal wound and continuous fever post incisional hernia meshplasty, which was done about 6 months previously. Patient had these symptoms since the surgery for incisional hernia

repair. Incisional hernia had occurred through the Pfannenstiel incision done for hysterectomy. Patient had undergone Laparoscopic repair elsewhere and according to the operating notes, there was no intraoperative difficulty and the mesh was placed extra-peritoneally and fixed with tackers. On admission, a sinus was noted in the lower abdomen just above the pubic symphysis. It appeared superficial and hence no pre-operative imaging was done. She underwent thorough debridement of the abdominal sinus which appeared to be extending till the muscular layer by a general surgeon. Subsequently, she developed leakage of significant amount of fluid from abdominal wound. Suspecting urine leak from the abdominal wound, fluid creatinine was ordered and it was around 25 mg/dl. The patient's serum creatinine was 0.9 mg/dl. These results were consistent with the possibility of the fluid being urine. Subsequently, Volume rendering technique and the complementary coronal reconstructed images of CT Cystogram demonstrated Tacks (T), Bladder (B) and a clear fistulous tract extending from posterior bladder wall to anterior abdominal wall (Fig. 1). A diagnostic Cystoscopy was planned before Laparotomy and it confirmed the mesh distinctly eroding the bladder from posterior (Fig. 2). At Laparotomy, there were dense adhesions around the superior and posterior aspect of bladder. After thorough and gentle dissection, the eroded mesh with intact non-absorbable tackers was visualized and removed in entirety after separating it from the adjacent bladder wall (Fig. 3). Post-operatively she had a suprapubic and per urethral catheter which were removed as per protocol after 3 weeks. Patient had uneventful recovery with no recurrence of the fistula till 6 months follow-up.

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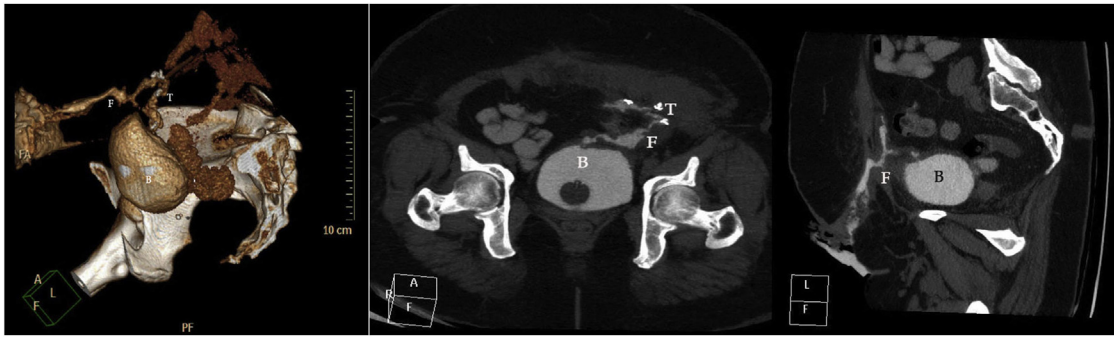


Figure 1. Sagittal view of volume rendering technique and the complementary coronal reconstructed images of CT Cystogram demonstrating Tacks (T), Bladder (B) and the fistulous tract from posterior bladder wall to anterior abdominal wall (F).

Discussion

As of date, twelve cases of mesh migration into bladder have been described post inguinal hernioplasty.¹ However, this is the 1st case of mesh migration into bladder described after Incisional hernioplasty. As this is the first case seen, the diagnostic criteria have not been described at all. Present case highlights the importance of fluid Creatinine in hinting at a diagnosis. CT scan is pre-operative diagnostic test of choice. Cystoscopy is confirmatory. Sandhu et al have described in their case that an initial Cystoscopy was non-diagnostic.¹ This was probably because the cystoscopic procedure was done without giving due interest. In the present case, a meticulous Cystoscopy done clearly revealed the mesh. Sandhu et al had to do a repeat surgery due to incomplete removal of eroded mesh in 1st attempt resulting in recurrent vesicocutaneous fistula and the patient had a morbid course.¹ The uneventful recovery seen in present patient emphasizes the need for meticulous dissection and complete removal of eroded mesh.

Khattar, Hamouda and Agarwal et al opined that main reasons for migration are nonfixation and preperitoneal placement.^{2–4} All of their cases were after inguinal hernia repair. They had described primary mechanical migration occurring in adjoining tissue spaces along paths of least resistance and secondary migration through transanatomical planes due to foreign body reaction. The primary

migration theory looked attractive as the inguinal region is very close to the bladder. The present case had tacks, placement was extraperitoneal and it was an incisional hernia repair. The role of tackers has been controversial. Some feel that the Tackers themselves may cause injury to adjacent structures. This can be overcome by three means. The first is to use stitches instead of Tackers. Intracorporeal suturing is technically difficult. Stitches have caused maximum pain among all methods of fixation. Hence, this technique is in disrepute now. The second is to avoid the use of non-absorbable tackers and use absorbable tackers instead. The third is to avoid completely the use of tackers and use adhesive material like fibrin glue. Use of fibrin glue can be possible in inguinal and small incisional hernia repair, but not in a large incisional hernia as seen in our case. So, we feel that the best way to avoid complications due to tackers is to use absorbable ones instead of the non-absorbable tackers.

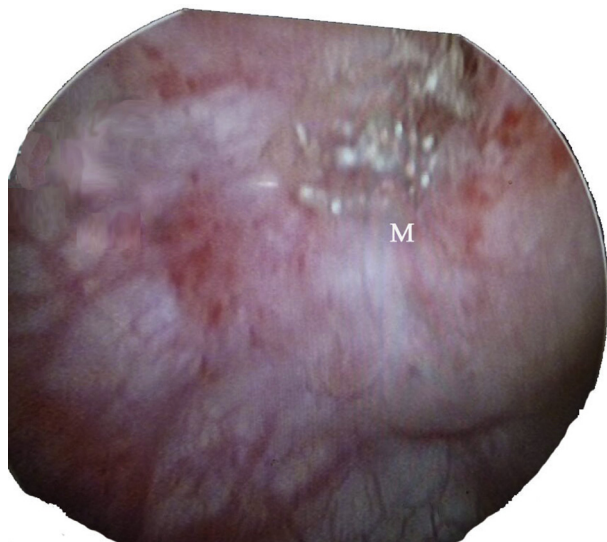


Figure 2. Cystoscopic view showing golden yellow color mesh (M) eroding the postero-superior aspect of bladder.



Figure 3. Intraoperative picture showing the mesh with Tacks (M) amidst dense adhesions posterior to bladder wall (B).

We feel that main reason for migration is a combination of both the primary and secondary factors. The direct contact of heavy polypropylene mesh with tissues could cause easy primary migration through the adjacent tissues. As the incisional hernia is far away from the bladder, the foreign body reaction allows the mesh to further migrate through transanatomical planes, thus causing fistulas through bladder and bowel. These two factors can be mitigated by using light weight, coated meshes which preclude direct mesh contact with tissues. The light weight will disallow primary migration and the biocompatible coating will minimize the foreign body reaction.

Conclusions

To conclude, vesicocutaneous fistula can occur even after incisional hernia repair. CT scan with reconstruction should be done immediately. Cystoscopy confirms the diagnosis. Surgery should be

meticulous and use of light weight coated meshes with absorbable tackers may help in avoiding this dreaded complication.

Conflict of interest

none.

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