Case report

Fascia lata transabdominal pre-peritoneal repair in incarcerated inguinal hernia (FL TAPP) – A case report

C.D. Narayanan, Miloni More*, Sayak Chattopadhyay, Revathy Kubendran, Dharanipriya Ravichandran
Sri Ramachandra Institute of Higher Education and Research, No.1 Ramachandra Nagar, Porur, Chennai, Tamil Nadu 600116, India

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ABSTRACT

Introduction and importance: Fascia Lata is one of the oldest materials used in the repair of inguinal hernia. It lost its popularity following the advent of meshes, mainly Tantalum and Marlex. However, the use of synthetic meshes in infected scenario is controversial. Biological meshes though started off as a potential reinforcement in contaminated fields did not show much benefit. In our case, we describe a successful technique where fascia lata was harvested and laparoscopically placed as a free graft in the preperitoneal plane for inguinal hernia repair.

Case presentation: A 58-year-old man presented with right inguinal hernia associated with pain of two days duration and vomiting. On ultrasound, he had acute cholecystitis and incarcerated omentum in the right inguinal region. Patient underwent a Trans-Abdominal Pre-Peritoneal (TAPP) laparoscopic repair of the inguinal hernia.

Clinical discussion: Synthetic meshes have been associated with complications such as mesh erosion, migration and chronic inguinodynia which is often difficult to treat. The deployment of mesh in contaminated fields is even more controversial as infection of the mesh always needs to be explanted or can lead to chronic sinus formation. Fascia lata, on the other hand can withstand infection better compared to synthetic meshes as it is biological and an autologous material.

Conclusion: To our knowledge, it is the first described use of Fascia Lata in the pre-peritoneal space for Laparoscopic Inguinal Hernia repair. There have been reports of the use of Fascia Lata in Incisional hernias by a Japanese group. We describe the technique with favorable outcomes.

1. Introduction

Laparoscopy has gained acceptance in management of inguinal hernia, both elective and in emergency situation. The choice of mesh is controversial in infected situations. Biological mesh, which were initially promising have failed as the ideal material.

There are anecdotal reports of mesh usage in infected situations and in clean contaminated cases [1]. However there have been numerous reports of mesh migration, erosion, infection, sinus formation and of late, a tirade against the use of meshes in inguinal hernia repair. In our case, we describe a successful technique where fascia lata was harvested and laparoscopically placed as a free graft in the preperitoneal plane for inguinal hernia repair. Fascia lata has long been used in inguinal hernia repair in the early 60s, seems a good alternative in contaminated fields, given their ability to resist infection. This case report has been reported in line with the SCARE 2020 criteria [2].

2. Presentation of case

A 58-year-old man came with a swelling in the right inguinal region for two weeks, associated with pain in the right hypochondrium, radiating to the back and two episodes of vomiting. There was no significant drug or family history. On examination, the abdomen was soft, with tenderness in the right hypochondrium. Examination of the inguinal region revealed, a 3 × 4 cm incarcerated inguinal hernia, with possibly, omentum as its contents. Ultrasound showed features of acute cholecystitis and incarcerated omentum in the right inguinal region.

Inguinal hernia repair with laparoscopic cholecystectomy was planned by the surgical team. Patient was taken for surgery under general anesthesia and the decision on hernial approach and mesh placement was deferred till laparoscopic visualization. In supine position, arms tucked, 10 mm port was created at the level of the umbilicus and camera was inserted. Visual inspection revealed minimal
pericholecystic fluid and an incarcerated inguinal hernia. As no obvious contamination was noted, we proceeded with a trans-abdominal pre-peritoneal approach for hernia repair with mesh placement, followed by a laparoscopic cholecystectomy in the same sitting. A pre-peritoneal space was created by raising a flap, starting from above the anterior superior iliac spine to the medial umbilical ligament. The incarcerated omentum was reduced. A chronic fibrosed ring around the neck was observed. On further dissection of the peritoneal flap, a lymphatic ooze was encountered from the retroperitoneum. It was initially thought to be liquified fat but persisted in spite of repeated suction and appeared to be coming from external iliac lymph node group [Fig. 2]. The initial plan to place a prolene mesh was deferred in view of possible lymphatic ooze, which could be a contaminant and hence, a decision had to be made regarding the optimum reinforcement. Fascia lata was used extensively in the 1960s and is resistant to infections. Biological meshes are expensive, have shown a high incidence of recurrence and have not proven their credibility in infective settings. It was decided to take a fascia lata graft and place it in the pre-peritoneal space, to act as a barrier and prevent further herniation. The procedure was registered under Research Registry with UIN: researchregistry7828 [3].

A lateral thigh incision was made and a 15 \times 12 cm fascia lata graft was harvested [Fig. 3]. After a saline wash, the graft was introduced into the abdomen. A 10 mm port could not accommodate the large graft and the port was removed and the graft introduced into the peritoneal cavity by use of Langenbach retractors. Once inside the peritoneal cavity, the handling of the graft proved more difficult than a mesh. The two ends of the graft were held with stay sutures using a suture passer forceps onto the anterior abdominal wall. The fascia lata was spread evenly, ensuring an even adequate cover over the defect. Tackers were used to hold the fascia lata graft in position [Fig. 4]. At the completion of the fixation, it looked stretched, complete and covered all orifices of the Myopectineal Orifice of Fruchaud. There was a discussion on the placement of drains due to the novelty of the technique in a new space, but subsequently deferred. The peritoneal flap was approximated over the free fascia lata graft. Areas where the peritoneum was under tension were directly sutured onto the graft. After securing hemostasis, attention was diverted to the cholecystectomy. During the cholecystectomy, spillage of approximately 20 cc bile was noted. A drain was placed in the peritoneal cavity and patient extubated.

On post-operative day 2, the patient developed a temperature of 102°F, which speculated doubt regarding a reaction to the fascia lata or an infection in the collected fluid, as no drain was placed. Blood cultures were sent and patient was empirically started on higher-end antibiotics to which no response was seen for two days. Total counts were elevated, and a fever panel showed positivity for Scrub Typhus. The patient was started on Doxycycline and within 6 h the patient's temperature returned to baseline and showed a remarkable recovery. A CT scan performed 48 h later, showed graft in position with minimal collection and edema around the operated site. The wound on the lateral aspect of the thigh measured 8 cm and healed without any complications. There was no morbidity in relation to the wound except for cosmesis. Patient was discharged on the fifth post-operative day and was ambulant with no pain or restriction of movement. Follow up after 6 months showed no evidence of recurrence.

3. Discussion

Laparoscopy has been proven to be a safe and effective procedure in the management of incarcerated inguinal hernia. Trans-abdominal pre-peritoneal has become an acceptable approach in the management of inguinal hernia in acute setting, either obstruction or incarceration [4]. It allows inspection of the contents during spontaneous reduction as often occurs following anesthesia, negating a formal laparotomy. It also allows taxis under vision, inspection of loop in Maydl's hernia and permits inspection of contralateral hernial site. The main difficulty is the limited space in intestinal obstruction andiatrogenic injuries during dissection of contents and traction. The use of mesh in the treatment of acute hernias is controversial. Mesh implantation has a risk of development of infection [1]. Complications of mesh implantation include mesh infection, erosion into bladder [5] and bowel, sinus formation and inguinodynia are frequently reported following elective inguinal repair in clear fields. Most of these require explantation of the mesh. Mesh implantation is also contraindicated in the presence of bowel gangrene or enterotomy with the spillage of abdominal contents.

Contaminated inguinal hernias thus pose many challenges to the surgeon. Management options include two stage procedure or the use of biological mesh. The single stage repairs of contaminated abdominal

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Fig. 1. Incarcerated hernial sac with fibrosed ring around the neck.
wall defects utilizing biological meshes showed a high rate of wound morbidity and the long-term durability was low. The Ventral Hernia Working Group recommends biological materials more preferrable to synthetic meshes [6]. Studies have shown, use of lightweight meshes having large pores being more superior to multifilament meshes in terms of resistance to infection and have been used in the acute setting [7,8]. Under these circumstances with patients preferring a pure tissue repair and a mindset against the use of foreign material for hernia repair, we decided to use fascia lata, an autologous tissue more resistant to infection [9] with previous usage in inguinal hernias as an onlay graft.

Fascia Lata grafts have a better adaptability and low risk of infection compared to synthetic prosthetic materials. Joseph Hamilton in his 21-year experience had concluded that the recurrence rate has been acceptable with 3 recurrences in 47 patients, with minimal donor site morbidity and no patch had slough or required removal [10]. E. Peacock reported that none of the 17 patients who underwent the onlay technique suffered recurrence over the period of observation of 5 years [11]. Yuuki et al. who had performed relaparotomy on a patient using fascia lata autograft showed that the implanted fascia had survived well and become incorporated into the native fascia with no evidence of recurrence [12]. Disa et al. demonstrated that fascial grafts become revascularized and incorporated as living tissue and are more resistant to bacterial contamination than prosthetic patches in an experimental animal study [13].

In view of the acute incarcerated hernia with lymphatic ooze and the non-availability of biological meshes, we decided to use fascia lata as reinforcement in the preperitoneal plane. Patient had a turbulent postoperative period but the fever was linked to scrub typhus and not to...
the mesh. He also had no complaints at the donor site or wound related infection other than cosmesis. At 6 months follow up, he continues to do well with no evidence of recurrence.

4. Conclusion

In conclusion, use of fascia lata graft is a viable alternative in contaminated fields. Laparoscopic insertion of fascia lata is technically feasible with promising results. However, a larger number of cases with good outcomes need to be studied before it becomes standard of care. The donor site morbidity, cosmesis and two procedures seem to be a deterrent in elective hernia repair. Minimally invasive harvesting of fascia lata will definitely decrease donor-site related complications.

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Ethical approval

The case report is exempt from ethical approval in our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

C. D. Narayanan – Conceptualization, Methodology, Project Administration, Validation, Data curation, Writing – original draft, Writing – review and editing, Visualization, Supervision.

Miloni More – Methodology, Software, Formal analysis, Data curation, Writing – review and editing, Project administration.

Sayak Chattopadhyay – Software, Validation, Formal analysis, Data curation, Writing – review and editing, Visualization.

Revathy Kubendran – Validation, Data curation, Writing – review and editing, Data curation.

Dharanipriya Ravichandran – Validation, Data curation, Writing – review and editing.

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Guarantor

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Declaration of competing interest

The authors report no declaration of interest.

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Fig. 4. Full coverage of Myopectineal Orifice of Fruchaud with fascia lata graft.
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