Original Research Article

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A study of outcome and complications of emergency inguinal hernias repair

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ABSTRACT

Background: Mesh hernioplasty in patients undergoing emergency inguinal hernia repair is considered practically, irrespective of complications. The main aim of this study was to assess the morbidity of Lichtenstein mesh hernioplasty in treating obstructed inguinal hernias. Primary outcome measures were post-operative wound site infection, seroma formation, length of hospital stay, hanging testis, testicular infarct, inguinodynia and recurrence.

Methods: This study was undertaken in the department of General Surgery, SMIMER, Surat, Gujarat, India from August 2016 to July 2019. Fifteen patients were operated and included in the study. All patients underwent standard Lichtenstein mesh hernioplasty for obstracted inguinal hernia repair in emergency operating room.

Results: 5 patients (33%) developed wound site infection, 4 patients (27%) developed inguinodynia, 2 patient (13%) developed seroma formation, 1 patient (6%) developed hanging testis. 1 patient (6%) developed testicular infarct. Average postoperative hospital stay was 5.6 days (range =2-18 days).

Conclusions: Mesh repairs can be safely performed in emergency inguinal hernia repair with acceptable morbidity.

Keywords: Obstructed inguinal hernia, Lichtenstein mesh hernioplasty, Morbidity

INTRODUCTION

Hernias are among the oldest recorded afflictions of humans, and inguinal hernia repair is one of the most common general surgical procedures.1 Inguinal hernias comprise 70% to 75% of all abdominal wall hernias and are more common in men.² In 1984 Lichtenstein addressed the issue of tension by popularizing the routine use of mesh, coining the term 'tension free hernioplasty'. Many suture-based hernia repairs have been described (e.g. Bassini and Shouldice) and in expert hands the Shouldice repair has equivalence to a mesh repair, but in a more general surgical practice it is associated with recurrence rates of up to 15%. A meta-analysis from the EU Hernia Trialists Collaboration compared mesh repair with sutured techniques.3 Recurrence was less common after a mesh repair. Mesh implantation works by inducing progressive ingrowth of fibrous tissue that begins within two weeks and continues up to twelve weeks, giving strength to the weakened tissue. A repair using mesh is therefore always indicated unless there is a significant risk of mesh infection, such as the requirement for a bowel resection during a strangulated hernia repair. In recent years, Lichtenstein tension-free mesh-based repair has become the criterion standard for elective hernia repair.⁴ Numerous permanent meshes are available, with no convincing data establishing the superiority of any particular brand/mesh type. Most meshes, in particular modern large-pore designs with minimal inflammatory stimulus are well tolerated in the tissues of majority of the patients, a few problems may still arise,

these usually involve bacterial infection in contaminated areas or mesh migration with erosion of adjacent organs.⁵

Among patients with inguinal hernia, about 5% - 15% undergo emergency surgery because of complications.⁶ The most frequently encountered complications are incarceration and strangulation. Incarcerated inguinal hernia (IIH) is one of the most frequent acute abdomen disorders, and most patients with IIH need emergency operation. The results from several meta-analyses have shown that the use of mesh is better to the non-mesh repairs in inguinal hernia surgery. In complicated hernias with obstruction, the use of mesh is presumed to further increase the risk of infections, but recent publications show that the mesh is safe and it does not increase infection risk.⁴ In the setting of bowel incarceration, if there is no ischemia and no need for resection, use of permanent mesh is still relatively safe.^{7,8}

The main aim of this study was to assess the morbidity of Lichtenstein mesh hernioplasty in treating obstructed inguinal hernias. Primary outcome measures were post-operative wound site infection, seroma formation, length of hospital stay, hanging testis, inguinodynia, testicular infarct and recurrence.

METHODS

It is a retrospective randomized controlled trial study (CONSORT). This study was undertaken in the Department of General Surgery, SMIMER Hospital, Surat, Gujarat, India from August 2016 to July 2019.

We selected all obstructed inguinal hernia patients which was presented with acute symptoms and operated in emergency. Fifteen patients were operated & included in the study.

All these patients underwent standard Lichtenstein mesh hernioplasty for obstructed inguinal hernia in emergency operating room under spinal anaesthesia. Post-operative wound site infection, seroma formation, hanging testis, inguinodynia, testicular infarct and recurrence within 3 year was observed. $15 \times 7.5 \text{ cm}^2$ poly-propelene mesh was used in all cases. Patients received injection ceftriaxone antibiotic preoperatively and (amoxicillin + clavulanic acid) continued for 5-6 days post-operatively.

RESULTS

Our study population was predominantly males (15 cases). Average age of patients was 50.7 years. Average time of acute symptoms developed was 4.95 days (range 2-10 days) and most common acute symptom was inguino-scrotal pain (66%) and others symptoms are vomiting (13%) and abdominal pain (27%). Locally tenderness was present in 2 cases. History of inguinoscrotal swelling was present averagely since 7.2 month (range 4 - 10 months). Drain (romovac drain) was put in 5 patients (33%). Standard lichtenstein Meshplasty was

done in all patients. Average postoperative hospital stay was 5.6 days (range = 2-18 days). 5 patients (33%) had wound site infection but responded well to local drainage and antibiotics. 2 patients (13%) developed seroma formation, 4 patients (27%) developed inguinodynia and 1 patient (6%) developed hanging testis, 1 patient (6%) developed testicular infarct and treated by orchidectomy.

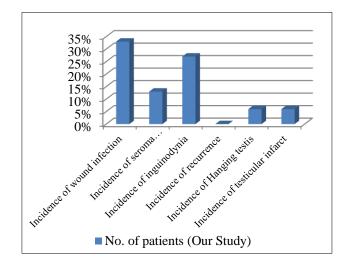


Figure 1: Complications in the study population.

DISCUSSION

Inguinal hernias comprise 70% to 75% of all abdominal wall hernias and are more common in men, whereas femoral hernias account for less than 5% and are more common in women.^{2,9} Overall, 96% of groin hernias are inguinal and 4% are femoral. These hernias are more common in men. The lifetime risk of developing a groin hernia is 25% in men, but less than 5% in women. Men are also 20-fold more likely to need a hernia repair. Our findings are in concordance with the same in terms of male predominance. 10-13 The mean age of those patients is usually above 60 years of age. 13 In our study, we found that mean age is 50.7 years. The lower mean age can be due to early presentation and prompt intervention in our set up. Average time of acute symptoms developed was 4.95 days (range 2-10 days) and most common acute symptom was inguino-scrotal pain (66%) and others symptoms are vomiting (13%) and abdominal pain (27%). Among patients with inguinal hernia, about 5% undergo emergency surgery because complications. The most frequently encountered complications are incarceration/obstruction strangulation and present as inguino-scrotal swelling, inguinal pain, abdominal pain, fever, vomiting, redness over inguinoscrotal region, obstipation, etc. Average postoperative hospital stay was 5.6 days (range = 2-18 days) in our study and 5.17 days in study of Faridi et al.¹⁴

Complications related to open inguinal hernia repair are related to underlying diseases, operating techniques and the effects of anaesthesia. These vary by patient population, operating surgeon's experience and risk. In addition, there are technical complications that are directly related to the repair. Although the overall complication rate for hernia repair has been estimated to be approximately 10%, many of these complications are transient and can be easily addressed. In our study, 5 patients (33%) had wound site infection but responded well to local drainage and antibiotics. Rather et al reported 10% incidence of wound infection, while Faridi et al reported 5.3% incidence of wound infection. 14,20 The risk for infection can be decreased by using proper operative technique, preoperative antiseptic skin preparation, and appropriate hair removal. There is an increased risk for infection for patients who have had prior hernia incision infections, chronic skin infections, or infection at a distant site. These infections are treated before elective surgery. Two patients (13%) developed seroma formation in our study Rather et al reported 15.38% incidence of seroma formation, while Faridi et al reported 12.7% incidence of seroma formation. 14-20

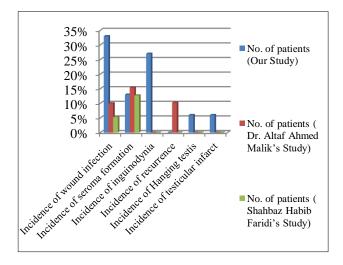


Figure 2: Comparison of complications reported in various studies.

Inguinodynia or post herniorrhaphy pain syndrome is pain or discomfort lasting greater than 3 months after surgery of inguinal hernia. Nerve injuries are an infrequent and under recognized complication of inguinal hernia repair. Injury can occur from traction, electrocautery, transection, and entrapment. Transient neuralgias involving sensory nerves can occur and are usually self-limited and resolve within a few weeks after surgery. Persistent neuralgias usually result in pain and hyperesthesia in the area of distribution. Four patients (27%) developed inguinodynia in our study. One patient (6%) developed hanging testis in our study. One patient (6%) developed testicular infarct and was treated by orchidectomy. Ischemic orchitis usually occurs from thrombosis of the small veins of the pampiniform plexus within the spermatic cord. This results in venous congestion of the testis, which becomes swollen and tender 2 to 5 days after surgery. The process may continue for an additional 6 to 12 weeks and usually results in testicular atrophy. Ischemic orchitis also can be caused by ligation of the testicular artery. It is treated with anti-inflammatory agents and analgesics. Orchiectomy is rarely necessary.

CONCLUSION

Standard lichtenstein mesh hernioplasty for obstracted inguinal hernia is a safe operation with acceptable risks of complications. However, patient selection and surgeon experience are important factors for the outcome.

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