

# EARLY POSTOPERATIVE COMPLICATIONS OF LICHTENSTEIN TENSION FREE REPAIR OF INGUINAL HERNIA

Hameed Khan, Muhammad Imran Khan, Muhammad Asghar Khan  
Department of Surgery, Khyber Teaching Hospital, Peshawar - Pakistan

## ABSTRACT

**Objectives:** To find out the early postoperative complications of mesh repair of inguinal hernia by Lichtenstein tension free method.

**Material and Methods:** This study was conducted in Surgical "D" Unit of Khyber Teaching Hospital, Peshawar from May 2012 to February 2013. Inguinal mesh repair by Lichtenstein tension free method was performed on 151 patients. They were followed up in the ward, at 2 weeks and 4 weeks interval for any complications.

**Results:** Wound hematoma occurred in 15(9.93%) cases, seroma in 14(9.31%), wound infection in 3(1.9%), the pain in 18(11.92%), and urinary retention in 9(5.92%), and scrotal swelling in 5(3.3%) cases in the immediate postoperative period. Seroma was found in 6(3.97%), wound infection in 2(1.3%), pain in 11(7.2%) at 4 weeks postoperative follow-up.

**Conclusion:** Pain and wound hematoma were the two most common complications in mesh repair in the immediate postoperative period.

**Key Words:** Inguinal, hernia, mesh hernioplasty, postoperative, pain, wound, infection, hematoma, seroma.

## INTRODUCTION

An inguinal hernia is an opening, weakness or bulge in the lining tissue (peritoneum) of the abdominal wall in the groin area between the abdomen and the thigh<sup>1</sup>. The Inguinal hernia repair is performed through an incision in the groin. Lichtenstein tension free repair of inguinal hernia is simple, easier to learn with no significant early and late morbidity.

Hernia constitutes 10-15% of all surgical procedures, 80% being inguinal and 92% in men<sup>2</sup>. Inguinal hernias are common throughout the world. These account for 75% of all hernias. These are more common in male than females (ratio 20:1)<sup>3</sup> owing to the passage of the spermatic cord through the abdominal wall in the inguinal region leaving a site of natural weakness prone to hernia formation<sup>4</sup>. Several factors account for the frequency of this disease: upright position, occupational factors and persistent cough or constipation that increases intra-abdominal pressure<sup>5</sup>. Different kinds of operations for the repair of inguinal hernia like prosthetic mesh repair (Lichtenstein tension free method) or simple repair such as darned repair; Bassini and Shouldice repair is performed these days. Since the introduction of modern technique, fascial repair has become obsolete<sup>6</sup>. In recent years, use of prosthetic material for repair of inguinal hernia has increased dramatically.

Tension free repair has gained popularity not only for recurrent hernia but also for primary hernia as well<sup>7</sup>. Inguinal hernia repair is the most common procedure in general surgery as it reduces recurrence, improve postoperative recovery and lowers the cost of surgery. It has become the gold standard procedure for repair of inguinal hernia<sup>8,9</sup>. The use of mesh in inguinal hernia repair is safe but every procedure has complications. Mesh associated complications are early and late complications<sup>10</sup>. Early complications are pain, urinary retention, hematoma, wound infection, seroma, and testicular edema<sup>11,12</sup>. The aim of our study is to find the frequency of early postoperative complications of hernia repair by Lichtenstein tension free method.

## MATERIAL AND METHODS

This descriptive study was performed in Surgical "D" Unit of Khyber Teaching Hospital, Peshawar from May 2012 to January 2013. A total of 151 patients were included all of whom were males. Detailed history of illness, thorough physical examination, recording the site, duration and type of hernia and routine investigations like blood urea, blood sugar, full blood count, urine routine examination, HBsAg, HCV Anti-bodies, X-ray chest and electrocardiogram were performed in all patients. Patients were kept empty stomach after 12:00 midnight and were operated on next day. Antibiotics (Amoxicillin/clavulanic acid) were given at the time of induction of anesthesia, 08 hours and 16 hours postoperatively. Postoperatively patients were kept nil per oral till full

### Address for Correspondence:

#### Dr. Hameed Khan

Flat No 2, Doctors Residential Colony,  
Khyber Teaching Hospital, Peshawar - Pakistan  
Cell: 0332 9254731  
Email: hameedwazir1976@gmail.com

recovery from anesthesia. Analgesics (tramadol) i.v. was given 12 hourly for the first 24 hours. Intravenous fluids were given till the patient was able to have oral intake. After the operation, all these patients were followed up in the ward for any postoperative complications such as wound infection, hematoma, seroma and pain. Patients were discharged on oral antibiotics (Amoxicillin/clavulanic acid 1.2 grams), analgesics and instructed on follow up at 02 and 4 weeks postoperatively. All female patients and all those male patients with strangulated and obstructed hernia were excluded from the study. Data was collected on preformed Proforma and analyzed by using SPSS 12.

## RESULTS

A total of 151 male patients were admitted through OPD with primary and recurrent inguinal hernias and were subjected to hernia repair with polypropylene mesh (Ethicon). The age of the patients ranged from 20-80 years with mean age of 50.11 years  $\pm$  16.47 S.D. Majority of patients, 68 (45.03%) were in the age range of 41-60 years. The majority of patients i.e. 146 (96.69%) presented with primary inguinal hernia while 5 (3.31%) cases presented with recurrent hernia. In the majority 82 (54.30%) of cases, indirect inguinal hernia was present while in 69 (45.70%) cases direct inguinal hernia was present. Right sided hernia was founded in majority 93 (61.59%) cases and in 58 (38.41%) cases left sided hernia was found.

In 141 (93.38%) cases general anesthesia was given, in 10 (6.62%) spinal anesthesia was given. Among the immediate postoperative complications upto 2 weeks follow up, wound hematoma was found in 15 (9.93%) cases, seroma in 14 (9.3%), wound infection in 3 (1.9%) cases, postoperative pain in 18 (11.92%), urinary retention in 9 (5.92%) and scrotal edema was recorded in 5 (3.3%) cases. Among the early postoperative complications at 4 weeks follow up, Seroma was found in 6 (3.97%), wound infection in 2 (1.3%) cases, early postoperative pain in 11 (7.2%), and hydrocele was recorded in 2 (1.3%) cases.

## DISCUSSION

The Lichtenstein anterior tension free mesh repair is widely regarded as the gold-standard hernia operation. It is easy to learn, reproducible and carries a low complication rate<sup>13,5</sup>. The repair of abdominal wall defects in potentially contaminated or grossly infected fields present a difficult clinical problem. Polypropylene mesh is relatively contraindicated in these settings because of potential for chronic infection<sup>14</sup>.

Inguinal hernia is more likely to occur in men than in women because the spermatic cord passes through the abdominal wall in the inguinal region leaving a site of natural weakness prone to hernia formation<sup>4</sup>. Old age cannot be considered as an absolute risk factor in the surgical treatment of inguinal

hernia. In our study mean age was 50.11 years  $\pm$  16.78 which is comparable to national studies<sup>9,11</sup>. In our study there were 45.03% patients in the age ranges of 41-60 years. There was no mortality in any age group in this series. Almost similar results were reported by a national study, which was conducted at Lady Reading Hospital, Peshawar, in which all patients were male with mean age of 49 years<sup>15</sup>. While few national and international studies reported mean age of > 60 years in their studies<sup>16,17</sup>, differences in mean ages is probably due to sample selection. We have included patients from 20 years to 80 years, whereas in other studies, they included older age patients from 40 to 90 years. Literature review shows that indirect inguinal hernia is common than the direct hernia (65.5% versus 34.5%). Similarly right sided hernia is more common than the left sided hernia (56.4% versus 43.6%)<sup>11,9,18</sup>.

Pain is common postoperative complication of inguinal hernia repair but there is no difference in pain associated with mesh repair by Lichtenstein method and other type of repair. In national studies pain was observed in 9-10% of patients while in international studies it was observed in 6% of the patients in the early postoperative period. The result of our study is in accordance to the national and international studies<sup>19,20,21</sup>. Wound infection was observed in 3 (1.9%) of the patients upto 2 weeks and 2 (1.3%) patients at 4 weeks. Wound infection was superficial and was managed with antiseptic dressings and antibiotics. Removal of mesh was not required in any patient. Our findings are comparable to studies of Koukorou A, Baluch GMK and Bhopal FG, in which wound infection has been reported from 1-7%<sup>21,22,24</sup>. Early discharge of patients from the hospital may be a risk factor for wound infection because the care of wound is deputed to local dispensers who frequently change the dressing with infected instruments. Another reason for wound infection may be unhygienic life style of our people who are mostly poor and the local taboos like taking bath or washing wound is considered highly dangerous by our people. The use of antibiotics has overcome this problem<sup>25</sup>.

Urinary retention is one of the important complications. It can create panic in the ward. The operating surgeon should be alert to this important complication. Old patients and patients with mildly enlarged prostate should either be catheterized or closely observed. In a study conducted at lady reading hospital Peshawar, 33.3% patients were reported with urinary retention<sup>26</sup> while in our study it was 9 (5.9%).

## CONCLUSION

Mesh repair is safe and effective procedure. Surgery by competent surgeon and proper postoperative wound care will reduce the infection rate.

## REFERENCES

1. Culvert LL. Inguinal hernia repair. In: Senagore AJ, editor, *Gale encyclopedia of surgery: a guide for patients and caregivers*. Vol. 2. Detroit: Thomson Gale, 2004: 752-57.
2. Ali M, Habiba U, Hussain A, Hadi G. The outcome of darnning method of inguinal hernia repair using polypropylene in a district general hospital. *J Postgrad Med Inst* 2003; 17: 42-45.
3. Khan M, Khan SM, Sharafat S, Khan Z. Inguinal herniorrhaphy with Vicryl darn: experience with 1150 cases. *J Postgrad Med Inst* 2006; 20: 44-47.
4. Majeed S, Mehmood K. Repair of inguinal hernia with Lichtenstein technique. *Pak Armed Forces Med J* 2005; 55: 95-98.
5. Iqbal P, Sheikh NA. Postoperative complications of inguinal hernia repair. *Med Channel* 2006; 12: 33-35.
6. Go PM. What is next in inguinal hernia surgery. *Surg Technol Int*. 2006; 15: 116-19.
7. Farooq O, Batool Z, Bashir-ur-rehman. Prolene Darn: safe and effective method for primary inguinal hernia repair. *J coll Physicians Surg Pak* 2005; 15: 358-61.
8. Terzi C. Antimicrobial prophylaxis in clean surgery with special focus on inguinal hernia repair with mesh. *J Hosp Infect* 2006; 62: 427-36.
9. Ansaloni L, Catena F, D'Alessandro L. Prospective randomized, double-blind, controlled trial comparing Lichtenstein's repair of inguinal hernia with polypropylene mesh versus Surgisis gold soft tissue graft: preliminary results. *Acta Biomed Ateneo Parmense* 2003; 74(Suppl 2): 10-14.
10. Bringman S, Wollert S, Osterberg j, Smedberg S, Granlund H, Heikkinen TJ. Three-year results of a randomized clinical trial of lightweight or standard polypropylene mesh in Lichtenstein repair of primary inguinal hernia. *Br J surg* 2006; 93: 1056-59.
11. Holzheimer RG. Low recurrence rate in hernia repair- results in 300 patients with open mesh repair of primary inguinal hernia. *Eur J Med Res* 2007; 12: 1-5.
12. Farooq O, Bashir-ur-Rehman. Recurrent inguinal hernia repair by open preperitoneal approach. *J Coll Physicians Surg Pak* 2005; 15: 261-65.
13. Kendall C, Murray S. Is watchful waiting a reasonable approach for men with minimally symptomatic inguinal hernia? *Can Med Assoc J* 2006; 174: 1263-64.
14. Frazetta M, Di Gesu G. Inguinal hernia surgery performed on elderly cardiopath patients. *Acta Biomed Ateneo Parmense* 2005; 76(Suppl 1): 42-45.
15. Naeem M, Khan SM, Qayyum A, Jan WA, Jehanzeb M, Mehmood K. Recurrence of inguinal hernia mesh repair. *J Postgrad Med Inst* 2009; 23: 254-57.
16. Malik AM, Khan A, Talpur KAH, Laghari AA. Factors influencing morbidity and mortality in elderly population undergoing inguinal hernia surgery. *J Pak Med Assoc* 2010; 60: 45-47.
17. Sinha S, srinivas g, Montgomery j, DeFriend D. Outcome of day-case inguinal hernia in elderly patients: how safe is it? *Hernia* 2007; 11: 253-56.
18. Ueno T, Pickett LC, de la Fuente SG, Lawson DC, Pappas TN. Clinical application of porcine small intestinal submucosa in the management of infected or potentially contaminated abdominal defects. *J Gastrointest Surg* 2004; 8: 109-12.
19. Bay-Nielsen M, Nilsson E, Nordin P, Kehlet H, Swedish Hernia Data Base, the Dansih Hernai Data Base. Chronic pain after open mesh and sutured repair of indirect inguinal hernia in young males. *Br J Surg* 2004; 91: 1372-76.
20. Mirza MKN, Hameed F, Sheikh MS, Bashir M. Ilioinguinal neurectomy in open inguinal hernia mesh repair. *Ann KE Med Coll* 2005; 11: 404-46.
21. Koukorou A, Lyon W, Rice J, Wattchow DA. Prospective randomized trial of polypropylene mesh compared with nylon darn in inguinal hernia repair. *Br J Surg* 2001; 88: 931-34.
22. Baluch GMK. Inguinal hernia repair under local anaesthesia. *J Surg Pak* 2001; 6: 2-3.
23. Jan WA, Ghani A. synthetic mesh repair of inguinal hernia under local anaesthesia. *J Postgrad Med Inst* 2001; 15: 157-60.
24. Bhopal FG, Zafarullah I, Khan JS, Iqbal M. Shouldice versus Lichtenstein hernia repair: comparison of post-operative complications. *Pakistan J Surg* 2002; 18: 21-26.
25. Jilani SA, Khan SA, Oonwala ZG. Inguinal hernia using mesh at Abbasi Shaheed Hospital. *Pakistan J Surg* 2000; 16: 22-24.
26. Khan N, Bangash A, Sadiq M, UI Hadi A, Hamid H. Polyglactine/polypropylene mesh vs propylene mesh: is there a need for newer prosthesis in inguinal hernia? *Saudi J Gastroenterol*; 2010; 16: 8-13.