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Original Research Article.

Efficacy Evaluation of Sutureless Mesh Repair in Patients of Inguinal Hernia At a Tertiary Care Centre

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ABSTRACT

Background: Inguinal hernias present with a lump in the groin that goes away with minimal pressure or when the patient is lying down. Medial hernias herniate through a presumably weakened transversalis fascia in the Hesselbach's triangle. Hence, the evaluation of efficacy of Sutureless mesh repair of inguinal hernia was conducted in present study.

Materials & Methods: A total of 100 patients were analyzed. Complete demographic and clinical details of all the patients were obtained. All the patients underwent inguinal hernia repairs using a modified Lichtenstein technique. Preoperative, perioperative, and postoperative data were prospectively collected. Follow-up was done and details were recorded. All the patients underwent sutureless mesh repair. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

Results: A total of 100 patients were analyzed. The mean age of the patients was 45.8 years. Only male subjects were enrolled in the present study. Postoperative pain was encountered only in 6 percent of the patients. Hematoma formation was seen in 2 percent of the patients. Recurrence was seen in 3 percent of the patients. While assessing the sanitization level, 92 percent of the patients expressed their satisfaction. Mean operative time was 62.9 minutes.

Conclusion: The use of the self-adhering sutureless mesh for inguinal hernia repair has been proving itself as effective as the traditional mesh.

Key words: Inguinal Hernia, Sutureless.

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INTRODUCTION

Inguinal hernias present with a lump in the groin that goes away with minimal pressure or when the patient is lying down. Most cause mild to moderate discomfort that increases with activity. A third of patients scheduled for surgery have no pain, and severe pain is uncommon (1.5% at rest and 10.2% on movement). Inguinal hernias are at risk of irreducibility or incarceration, which may result in strangulation and obstruction; however, unlike with femoral hernias, strangulation is rare. National statistics from England identified that 5% of repairs of primary inguinal hernia were emergency operations in 1998-9. Older age and longer duration of hernia and of irreducibility are risk factors for acute complications.[1-3]

The inguinal canal starts at the internal inguinal ring and ends at the superficial ring, containing the spermatic cord in men and the round ligament in women. The integrity of the abdominal wall depends on the orientation of the inguinal canal, the transversalis fascia, and the sphincter-like function of the internal ring. A hypothesis to the high incidence of inguinal hernias in humans is that the abdominal wall was well constructed when we walked on four extremities, but that the groin area did not have enough time to adopt when we rose to standing on two legs. Lateral hernias arise from the internal inguinal ring, presumably through a patent processus vaginalis, and runs in the inguinal canal with or without exit through the superficial ring. Medial hernias herniate through a presumably weakened transversalis fascia in the Hesselbach's triangle.[4-6]

Sutureless repair is successful for all but the largest of indirect inguinal hernias. After reduction of the peritoneal sac, the presenting indirect component of the hernia is immediately resolved by placement of a polypropylene mesh through the internal ring. The posterior wall is reinforced with a second swatch of Prolene mesh to prevent herniation, which often results from future degenerative changes. Both swatches of mesh are held in place in separate tissue planes by the body's internal hydrostatic

forces. Being sutureless, no tension is placed on any layer; there is no damage to tissues from an errant suturing technique.[7- 9] Hence; the evaluation of efficacy of Sutureless mesh repair of inguinal hernia was conducted in present study.

MATERIALS & METHODS

The present study was conducted in the Department of General Surgery, Malla Reddy Medical College for Women, Hyderabad, Telangana (India) for assessing the efficacy of sutureless mesh repair of inguinal hernia. A total of 100 patients were analyzed. complete demographic and clinical details of all the patients were obtained. All the patients underwent inguinal hernia repairs using a modified Lichtenstein technique. Preoperative, perioperative, and postoperative data were prospectively collected. Follow-up was done and details were recorded. All the patients underwent sutureless mesh repair. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

A total of 100 patients were analyzed. The mean age of the patients was 45.8 years. Only male subjects were enrolled in the present study. Postoperative pain was encountered only in 6 percent of the patients. Hematoma formation was seen in 2 percent of the patients. Recurrence was seen in 3 percent of the patients. While assessing the sanitization level, 92 percent of the patients expressed their satisfaction. Mean operative time was 62.9 minutes.

Table 1: Demographic and clinical data

Variable		Number	Percentage
Age group	**Less than 40**	38	38
	More than 40	62	62
Resident	**Rural**	43	43
	Urban	57	57
Mean duration of surgery (minutes)		62.9 minutes	

Table 2: Complications

Complications	Number	Percentage
Postoperative pain	6	6
Hematoma	2	2
Recurrence	2	2

DISCUSSION

Inguinal hernia repair is probably the most common procedure in general surgery. It is also one of the earliest operations in a junior surgical resident's postgraduate training period. Numerous repair techniques have been described to date, however tension-free mesh repairs are widely used methods today because of their low recurrence rates. Inguinal hernia repairs consume an important part of health care resources because of the high incidence of the problem. It is estimated that 20 million inguinal hernia repairs are performed globally every year. Every recurrence after a primary repair will add an extra cost to health care economics. Moreover, secondary or tertiary operations after previous repairs carry higher risk of re-recurrence and specific complications like testicular atrophy. Therefore, every surgeon should know and perform a current repair method successfully in his/her daily practice. Approximately 75% of all abdominal wall hernias are seen in the groin1. Inguinal hernia is much more common in men than women. Although femoral and umbilical hernias are more common in female population, indirect inguinal hernia is still the most common type of hernia in women. Age is a factor for incidence and type of inguinal hernia; incidence increases by age. Indirect hernia is more common in young and direct hernia in the elderly.[7- 10]

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Desarda MP et al assessed 229 patients having 256 hernias operated. A total of 224 (97.8%) patients were ambulatory within 6-8 h (mean: 6.42 h) and they attained free ambulation within 18-24 h (mean: 19.26 h). A total of 222 (96.4%) patients returned to work within 6-14 days (mean: 8.62 days) and 209 (91.26%) patients had one-night stays in the hospital. A total of 216 (94.3%) patients had mild pain for 2 days. There were four minor complications, but no recurrence or incidence of chronic groin pain. Patients were followed up for a mean period of 24.28 months (range: 6-42 months). The results of their study correlated well with the author's previous publications. Continuous suturing saves operative time and one packet of suture material.[10]

Lin H et al clarified which mesh fixation method was more suitable in Lichtenstein inguinal hernia repair. Thirteen RCTs with 2375

patients were eligible for inclusion. Eight trials compared synthetic glue with suture fixation and 5 compared biological glue with suture fixation. The results showed that there was a lower incidence of early chronic pain, and hematoma in the glue fixation group. Suture mesh fixation method cost more time in operation than glue. There was no evidence of an increase in chronic pain or recurrence rates with glue fixation method in the long-term follow-up. Mesh fixation with glue compared with sutures in Lichtenstein repair inguinal hernia is faster and less painful, without an increasing in terms of recurrence rates in the long term.[11]

Kukleta et al presented the in vitro and in vivo data necessary for the approval of n-butyl cyanoacrylate Histoacryl® glue. Standardized tests to detect sensitization, irritation, genotoxicity or systemic toxicity demonstrated the safety and biocompatibility of Histoacryl®, which met all requirements, including those of ISO 10993. Histological long-term studies in rabbits yielded results comparable to routine suture fixations, with full integration of the mesh into the abdominal wall. The clinical results showed the following advantages: fast application of the glue, reduced postoperative pain, 0.0% infection rate, continuously low recurrence rate and shorter hospital stay. No adverse effects and no complaints were recorded. The experimental and clinical data demonstrated the safe use and the excellent cost-benefit ratio of n-butyl cyanoacrylate compared with other techniques of mesh fixation.[12]

Tarchi P et al assess the early and long-term results after Lichtenstein tension-free repair using a self-adhesive mesh (Parietex ProgripTM - Covidien, Germany) in a single center. Mean operating time was 64.1 minutes (SD ± 21.14). There were no intraoperative complications. Early postoperative complications included hematoma-seroma (5.7% cases), superficial wound infection (1%), urinary retention (0.5%), and scrotal swelling (1%). The main follow-up period was 3 years, although patients operated between 2009 and 2011 underwent a shorter follow-up. At one-year follow-up, 17 patients reported groin discomfort, but did not require analgesics. Three patients reported moderate pain, requiring occasional use of oral analgesics, and 2 of these described a discontinuous pain mainly during movement. One patient reported severe pain requiring local injection of analgesics. At 2-year follow-up, 3 patients reported groin discomfort. Five of the 17 patients who reported discomfort at 1 year were lost to the 2-year follow-up. One patient kept reporting a high VAS score (6), though slightly reduced from the previously reported at 1-year follow-up. Recurrence was observed in 0.5% at 1 year and in 2.4% at 2 years. At 3 years only half of the patients (102) were still on follow-up. Of these, 1 reported mild discomfort and 3 developed hernia recurrence. Globally a decrease in pain and local discomfort was observed. No cases of seroma, testicular complications or mesh infection were reported at 1-, 2- and 3-year follow-up. Self-gripping mesh for inguinal hernia repair is a good and safe option, easy to handle and with a low incidence of chronic pain (<3%).[13]

CONCLUSION

The use of the self-adhering sutureless mesh for inguinal hernia repair has been proving itself as effective as the traditional mesh.

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