

Assessment of Results of Sutureless Mesh Repair of Inguinal Hernia: An Institutional Based Study

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ABSTRACT

Background: Hernia is generally defined as the protrusion of a viscus from the cavity in which it is normally contained or more precisely, as the protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. Hence; the present study was undertaken for assessing results of sutureless mesh repair of inguinal hernia.

Materials & Methods: A total of 20 patients with inguinal hernia were enrolled in the present study. Patients who fulfilled the inclusion criteria were included into the study after taking detailed consent for the procedure. Inguinal hernia repair was performed by placing mesh on posterior inguinal wall and without applying fixation suture or glue. Postoperative follow-up was done and Visual analogue scale (VAS) was used for assessment of postoperative pain on follow-up. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software.

Results: Majority of the patients i.e. 45 percent of the patients belonged to the age group of 41 to 50 years, followed by 35 percent of the patients who belonged to the age group of 20 to 30 years. Punched out/diverticular defect in transversalis fascia was present in 10 percent of the cases while normal posterior wall was present in 90 percent of the cases. Mean duration of

operative procedure was 41.25 minutes. Mean postoperative pain score at 12 hour and 24 hours was 2.95 and 1.84 respectively.

Conclusion: Sutureless tension free mesh repair in the treatment of inguinal hernia cases is an effective technique. However; further studies are recommended.

Key words: Hernia, Mesh Repair, Pain Score, Sutureless.

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INTRODUCTION

Hernia is generally defined as the protrusion of a viscus from the cavity in which it is normally contained or more precisely, as the protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. Hernias are among the oldest known affliction of humankind.¹ Improvement in surgical techniques, together with the development of new prosthetic materials and a better understanding of how to use them, have significantly improved the outcome for many patients. The technique of sutureless repair of hernia has attracted attention to evaluate its morbidity and recurrence rate.²⁻⁴

Conventional hernia surgery demands meticulous and arduous dissection of all the structures in the inguinal canal, excision of the cremaster, skeletonisation of the cord structures, dissection of the transversalis fascia and the deep ring, plication of the deep ring etc. to various extent. These manoeuvres involve increased

operating time and blood loss and higher incidence of post-operative haematomas, seromas, hydroceles and wound infection.⁵

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.^{5,6}

Hence; the present study was undertaken for assessing results of sutureless mesh repair of inguinal hernia.

MATERIALS & METHODS

The present study was conducted in the Department of General Surgery, Saraswathi Institute of Medical Sciences, Hapur Road, Anwarpur, Uttar Pradesh (India) and it included assessment of results of sutureless mesh repair of inguinal hernia. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 20 patients with inguinal hernia were enrolled in the present study.

Inclusion Criteria

Male patients between 20-50 years of age and having uncomplicated inguinal hernia and fit for spinal anaesthesia were included in the study.

Exclusion Criteria

- Female Patients
- Patients below the age of 20 years and above the age of 50 years were excluded.
- Patients having complicated inguinal hernia, recurrent inguinal hernia, and bilateral inguinal hernia were excluded from the study.
- Patients with h/o collagen vascular disease and who have underlying predisposing factors or comorbid diseases were excluded from the study.

Patients who fulfilled the inclusion criteria were included into the study after taking detailed consent for the procedure. Inguinal hernia repair was performed by placing mesh on posterior inguinal wall and without applying fixation suture or glue. Postoperative follow-up was done and Visual analogue scale (VAS) was used for assessment of postoperative pain on follow-up. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software.

Table 1: Distribution of subjects according to age group

Age-group (years)	n	%
20- 30	7	35
31- 40	4	20
41- 50	9	45
Total	20	100
Mean age (years) = 34.8		

Table 2: Distribution of patients according to the site of inguinal hernia

Type of hernia	n	%
Right	12	60
Left	8	40

Table 3: Distribution of patients according to content

Content	n	%
Gut	7	35
Omentum	13	65

Table 4: Distribution of patients according to state of posterior wall

State of posterior wall	n	%
Punched out/diverticular defect in transversalis fascia	2	10
Normal	18	90

Table 5: Duration of operative procedure

Duration of operative procedure (minutes)	Value
Mean	41.25
SD	3.85

Table 6: Postoperative pain score at different time intervals

Time interval	Mean Postoperative pain score	SD
12 hours	2.95	0.86
24 hours	1.84	0.96

RESULTS

Majority of the patients i.e. 45 percent of the patients belonged to the age group of 41 to 50 years, followed by 35 percent of the patients who belonged to the age group of 20 to 30 years. Mean age of the patients of the present study was 34.8 years. Majority of the cases of the present study i.e. 60 percent of the patients, had right inguinal hernia, whereas the remaining 40 percent of the patients had left inguinal hernia. Gut was present in 35 percent of the cases while omentum was present in 65 percent of the cases. Punched out/diverticular defect in transversalis fascia was present in 10 percent of the cases while normal posterior wall was present in 90 percent of the cases. Mean duration of operative procedure was 41.25 minutes. Mean postoperative pain score at 12 hour and 24 hours was 2.95 and 1.84 respectively.

DISCUSSION

Despite the fact that inguinal hernia repair is one of the most frequent procedures in surgical practice and different types of repair have been described but the efforts to find new techniques are still going on. The main factor underlying these searches is to decrease the recurrence rates. Applicability, complication rates, hospital stay, labour loss and overall cost-effectiveness of the techniques have also been questioned in the recent years.^{5- 8} Hence; the present study was undertaken for assessing results of sutureless mesh repair of inguinal hernia.

In the present study, majority of the patients i.e. 45 percent of the patients belonged to the age group of 41 to 50 years, followed by 35 percent of the patients who belonged to the age group of 20 to 30 years. Mean age of the patients of the present study was 34.8 years. Majority of the cases of the present study i.e. 60 percent of the patients, had right inguinal hernia, whereas the remaining 40 percent of the patients had left inguinal hernia. Gondal SH et al. compared the outcome of Lichtenstein vs. suture less inguinal hernioplasty in patients with inguinal hernia. Total 300 patients were included in the study. Patients were randomly divided into 2 groups. Each group consists of 150 patients. Those patients undergoing Lichtenstein repair was grouped as A and those undergoing suture less repair was grouped as B. Hematoma formation in both treatment groups at 7th day was statistically different. In Group-B rate of hematoma formation was less as compared to Group-A. Sutureless hernia repair is a promising and superior approach as compared to Lichtenstein technique for inguinal hernia surgery in terms of postop pain and hematoma formation.⁹

In the present study, Gut was present in 35 percent of the cases while omentum was present in 65 percent of the cases. Punched

out/diverticular defect in transversalis fascia was present in 10 percent of the cases while normal posterior wall was present in 90 percent of the cases. Mean duration of operative procedure was 41.25 minutes. Mean postoperative pain score at 12 hour and 24 hours was 2.95 and 1.84 respectively. Cunha-e-Silva JA et al. (2016) evaluate the early postoperative results of inguinal hernia repair by the conventional technique with self-fixating mesh versus laparoscopic totally extraperitoneal repair with polypropylene mesh. We compared pain, surgical time and early complications. 80 consecutive patients treated in the surgical clinic of the Gaffrée e Guinle University Hospital (HUGG) were assessed. They included patients with unilateral inguinal hernia, not relapsed and operated only on an elective basis. They divided patients into two groups of 40 patients each, SF group (conventional technique using self-fixating mesh) and LP group (laparoscopic technique with polypropylene mesh). They followed patients upto 45th postoperative day. Out of 80 patients, 98.7% were male and the majority had indirect right inguinal hernias (Nyhus II). There was no difference between the groups studied in respect to pain and operative time. However, more complications occurred (seroma and hematoma) in the open surgery group. Both operations have proved feasible, safe and with minimal postoperative pain and a low operating time.¹⁰

Canonico S et al. evaluated the efficacy of mesh fixation with human fibrin glue (Tissucol) in open, tension-free inguinal repair, in the treatment of soccer players with groin hernia. A sutureless Lichtenstein technique was employed in 16 consecutive soccer players with primary groin hernia. Inguinal nerves were prepared and preserved. Human fibrin glue was used for mesh fixation, in place of conventional sutures. Results were rated as excellent in all cases, with no reported intra- or postoperative complications. All patients were discharged 4 - 5 h after the operation, and all returned to full pre-injury level sporting-activity, on average, 31 days (range 24 - 42 days) post-surgery. This study confirms the efficacy of sutureless tension-free hernia repair with human fibrin glue for the treatment of soccer players suffering from chronic groin pain due to impalpable groin hernia.¹¹ Lin H et al. conducted a study to clarify which mesh fixation method was more suitable in Lichtenstein inguinal hernia repair. Articles published up to July 2017 were searched using MEDLINE, the Cochrane Library, Embase and the Web of Science. Randomized controlled trials (RCTs) comparing glue versus suture mesh fixation in Lichtenstein inguinal hernia repair were included in the review. The quality assessment and data extraction of included studies were applied by 2 independent authors. Thirteen RCTs with 2375 patients were eligible for inclusion. Eight trials compared synthetic glue with suture fixation and five 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 repair is faster and less painful, without an increasing in terms of recurrence rates in the long term.¹²

CONCLUSION

From the above results, the authors conclude that sutureless tension free mesh repair in the treatment of inguinal hernia cases is an effective technique. However; further studies are recommended.

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