

Original article

Study of Efficacy of Sutureless Mesh Repair of Inguinal Hernia: A Prospective Evaluation

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Abstract

Background: The term "hernia" frequently refers to the protrusion of a viscus from the cavity in which it is ordinarily contained, or, more specifically, the protrusion of a loop or knuckle of an organ or tissue through an aberrant aperture. This research was targeted at evaluating the effectiveness of the new sutureless mesh repair technology.

Materials & Methods: The investigation involved one hundred successive inguinal hernia individuals who had been admitted for elective surgery. For the treatment of an inguinal hernia, mesh was applied to the posterior inguinal wall without the use of glue or fixation sutures. Every individual had to fast for 8 hours prior to surgery, and the operative site was cleaned as well as groomed the day before. A lightweight Prolene mesh was employed. All operations had been performed under spinal anesthesia. Postoperative treatment and IV fluids were provided to patients for the first 12 hours following surgery. On the first postoperative day, patients' pain levels were assessed with a visual analogue scale (VAS). The sutures were removed on the seventh postoperative day, and each individual had been examined.

Results: The current study involved the evaluation of 100 individuals ranging in age from 20 to 50 years. The subjects' average age was 27.4 years. When patients were classified based on their content, it was discovered that the gut was present in 20% of the instances, while the omentum was present in 80% of the cases. 33 percent of the cases had a punched-out defect in the transversalis fascia. Mean duration of operative procedure was found to be 39.12 minutes. Mean postoperative pain at 1 hour postoperatively, 6 hour postoperatively and 12 postoperatively was found to be 7.29, 6.41 and 5.02, respectively.

Conclusion: Sutureless tension-free mesh repair is an effective way for managing inguinal hernias.

Key words: Inguinal hernia, Sutureless.

INTRODUCTION

Inguinal hernia repair is one of the most common surgical procedures performed worldwide. Improved surgical techniques and a better understanding of the anatomy and physiology of the inguinal canal have significantly improved outcomes for many patients. These improvements have occurred most notably in centres specializing in hernia surgery, with some institutions reporting failure rates of <1%.^{1,2} In contrast, failure rates for general surgeons without expertise in hernia surgery, who perform most hernia repairs in secondary or tertiary level general hospitals, remain significantly higher (up to 10% for primary hernias and 5-35% for recurrent hernias).³ This has important socioeconomic implications, adding an enormous cost of treating the condition, which runs into billions of dollars. The recurrence rate of the operation, complications including chronic groin pain, cost,

and time taken to return to normal activities are the benchmarks against which the success of any hernia surgery is evaluated. The search for a method that accomplishes all the above goals perfectly, preferably without the insertion of any foreign body such as mesh, continues. So, this study was planned to evaluate the efficacy of new technique of sutureless mesh repair.

MATERIALS & METHODS

The investigation involved one hundred successive inguinal hernia individuals who had been admitted for elective surgery in the Department of General Surgery, Rama Medical College Hospital and Research Centre, Hapur, Uttar Pradesh, India. For the treatment of an inguinal hernia, mesh was applied to the posterior inguinal wall without the use of glue or fixation sutures. Every individual had to fast for 8 hours prior to surgery, and the operative site was cleaned as well as groomed the day before. A lightweight Prolene mesh was employed. All operations had been performed under spinal anesthesia. Postoperative treatment and IV fluids were provided to patients for the first 12 hours following surgery. On the first postoperative day, patients' pain levels were assessed with a visual analogue scale (VAS). The sutures were removed on the seventh postoperative day, and each individual had been examined.

RESULTS

The current study involved the evaluation of 100 individuals ranging in age from 20 to 50 years. The subjects' average age was 27.4 years. 51 percent of the patients were between the ages of 20 and 30. 19 percent of the patients were between the ages of 41 and 50. 30 subjects were between the age of 31-40 years. In 59 percent of the cases, the right side was involved, while the left side was involved in 41 percent of the cases. When patients were classified based on their content, it was discovered that the gut was present in 20% of the instances, while the omentum was present in 80% of the cases. 33 percent of the cases had a punched-out defect in the transversalis fascia. Mean duration of operative procedure was found to be 39.12 minutes. Mean postoperative pain at 1 hour postoperatively, 6 hour postoperatively and 12 postoperatively was found to be 7.29, 6.41 and 5.02, respectively.

Table 1: Distribution of patients according to the site of inguinal hernia

Type of hernia	Frequency	Percentage
Right	59	59%
Left	41	41%

Table 2: Distribution of patients according to content

Content	Frequency	Percentage
Gut	20	20%
Omentum	80	80%

Table 3: Distribution of patients according to state of posterior wall

State of posterior wall	Frequency	Percentage
Punched out defect in transversalis fascia	33	33%
Normal	67	67%

Table 4: Duration of operative procedure

Duration of operative procedure (minutes)	Value
Mean	39.12
SD	06.47

Table 5: Postoperative pain score at different time intervals

Time interval	Mean Postoperative pain score
1 hour	7.29
6 hours	6.41
12 hours	5.02

DISCUSSION

Mesh repairs for primary inguinal hernias have reduced the recurrence rate from greater than 10% in tissue-to-tissue herniorrhaphy to approximately 1%.⁴ The question in today's surgical environment is not how to attain a tension-free repair with a 1% recurrence rate, but which mesh hernioplasty (Lichtenstein, Stoppa, laparoscopic, Kugel, or mesh-plug) is the simplest technique to master, has the lowest complication rate, has the shortest recovery or rehabilitation time, and is overall most cost-effective. Starting with reports in the early 1990s, Rutkow and Robbins⁵ have shown that the mesh-plug hernioplasty has less than a 1% recurrence rate, is technically simple, and can be performed in less than 30 minutes under epidural anesthesia as an ambulatory procedure, with more than 95% of patients fully recovered in 3 days.

Laparoscopic hernia repairs increase the cost,⁶ are technically complex and have a long-learning curve.⁷ Open no-mesh techniques also have their own limitations. The Shouldice technique, which is considered the gold standard in open no-mesh techniques, has recurrence rates of 1-4% in specialized centers.^{8,9} However, the long-learning curve, the risky dissection of the inguinal floor and a lack of experience make these figures unattainable for the general surgeon practicing outside these specialized centers.¹⁰ Hence; the present study was planned to evaluate the efficacy of new technique of sutureless mesh repair.

The current study involved the evaluation of 100 individuals ranging in age from 20 to 50 years. The subjects' average age was 27.4 years. 51 percent of the patients were between the ages of 20 and 30. 19 percent of the patients were between the ages of 41 and 50. 30 subjects were between the age of 31-40 years. In 59 percent of the cases, the right side was involved, while the left side was involved in 41 percent of the cases. When patients were classified based on their content, it was discovered that the gut was present in 20% of the instances, while the omentum was present in 80% of the cases. 33 percent of the cases had a punched-out defect in the transversalis fascia. Mean duration of operative procedure was found to be 39.12 minutes.

Mean postoperative pain at 1 hour postoperatively, 6 hours postoperatively and 12 postoperatively was found to be 7.29, 6.41 and 5.02, respectively. Desarda MP et al¹¹ conducted a prospective study of 229 patients having 256 hernias operated from December 2003 to December 2006. An undetached strip of the external oblique aponeurosis was sutured between the inguinal ligament and the muscle arch to form the new posterior wall. Continuous sutures were taken with absorbable suture material (Monofilament Polydioxanone Violet). Data of hospital stay, complications, ambulation, recurrences, and pain were recorded. Follow-up was done until June

2007. 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 this study correlated well with the author's previous publications. Continuous suturing saves operative time and one packet of suture material. The dream of every surgeon to give recurrence-free inguinal hernia repair without leaving any foreign body inside the patient may well become a reality in future.

CONCLUSION

Depending upon the results mentioned above, it can be concluded that sutureless tension-free mesh repair is an effective way for managing inguinal hernias.

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