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ORIGINAL RESEARCH

Comparison of treatment outcomes of surgical repair in inguinal hernia with classic versus preperitoneal methods on reduction of postoperative complications

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ABSTRACT

Background: The aim of the study is to compare the treatment outcomes of surgical repair in inguinal hernia with classic versus preperitoneal methods on reduction of postoperative complications.

Methods: The present study included 100 patients out of which 60 were males and 40 were females. Both the techniques were explained to the patients.

Results: The rate of recurrence was 4 in the classic group and 3 in the preperitoneal group. The frequency of postoperative pain was 12 in the classic group and 7 in the preperitoneal group. This difference was significant according to Chi-Squared test

Conclusion: It can be concluded that the preperitoneal method is a more suitable method for inguinal herniorrhaphy than the classic one because of fewer complications, according to the findings of this study.

Keywords: Inguinal hernia, classic method, preperitoneal method

INTRODUCTION

Inguinal hernia is a common surgical disease that manifests as protrusion of abdominal cavity contents through the inguinal canal because of an abdominal wall defect. It is more common in men than in women; with an overall incidence of 5%–10%.[1] Methods for surgical repair of abdominal wall defects in the inguinal region are classified as either ‘tension’ repairs or ‘tension-free’ repairs. Inguinal hernia is divided into two categories, direct and indirect, which include 24 and 50 percent of all types of hernia, respectively.[2] Moreover, ventral hernia and femoral hernia covered approximately 10and3%of cases, respectively. A small percentage of hernia relates to uncommon hernias.[3]

Surgical treatment is the choice treatment of this disorder. There are various methods of surgery and the chief goal of treatment is to heal patients and reduce the recurrence of disease.As understanding of the anatomic location and patho-physical characteristics of inguinal hernia developed, the American surgeon Lichtenstein proposed a new concept of tension-free herniorrhaphy.[4]This technique had advantages including minimal invasion, technical ease, effectiveness, low complication rate, low recurrence rate and allowance of resumption of unrestricted physical activity.

There are various methods to repair the herniation site, two of which are more applicable: classical and preperitoneal methods. The classical method is an easier method than other methods of repairperformed by most surgeons and it is the gold standard ofherniorrhaphy.[5-

[7]The mesh is located on the floor of the inguinal canal, below which the thin transverse abdominis fascia is placed. So, it causes a relapsepronearea. The recurrence rates reduce in the preperitoneal method because the mesh is laid under the fascia and on the peritoneum.[8,9] The aim of the study is to compare the treatment outcomes of surgical repair in inguinal hernia with classic versus preperitoneal methods on reduction of postoperative complications.

MATERIAL AND METHODS

The present study included 100 patients out of which 60 were males and 40 were females. Both the techniques were explained to the patients.

INCLUSION CRITERIA

Diagnosed with inguinal hernia, Aged 25–70 years, American Society of Anesthesiologists (ASA) classification I–II, Provision of informed consent

EXCLUSION CRITERIA

Patients with any one or more of the following will be excluded from the study:
Severe organ dysfunction or inability to tolerate surgery, Hernia recurrence, Giant hernia (inner size of the hernia >4 cm), Scrotal hernia, Incarcerated inguinal hernia

SURGICAL PROCEDURE

Patients were randomly assigned to two treatment groups. The patients underwent a surgical repair in inguinal hernia with classic versus preperitoneal methods under spinal anesthesia. In both groups, the surgeon incised the skin and subcutaneous tissue of the lower part of the abdomen and then the fascia of Scarpa and the roof of the inguinal canal. The first group was assigned to the classic method; after reinforcement of the posterior wall of the inguinal canal, the Mersilene mesh (7.5 × 10 cm) was placed and fixed using Round nylon stitch 3/0 to the edges of the defect or weakness in the posterior wall. The secondgroup was assigned to the preperitoneal method; briefly, after acquiring the posterior wall of the inguinal canal, the Mersilene mesh (7.5 × 10 cm) was placed and fixed using Round nylon stitch 3/0 under the posterior wall and then was rehabilitated based on modified Bassini repair method. All patients were followed up for 6–12 months after surgery.

STATISTICAL ANALYSIS

The data were analyzed by IBM SPSS Statistics 23.The differences in the variables were determined by the Chi-Squared test and Fisher's exact test between classic and preperitoneal methods. Overall, $p< 0.05$ was proposed to represent statistical significance after correction.

RESULTS

Table 1: Gender distribution

Groups	Male	Female	P value
Classic	30 (60%)	20 (40%)	
Preperitoneal	30 (60%)	20 (40%)	0.350

Table 2: Recurrence distribution

Groups	Yes	No	P value
Classic	4 (8%)	43 (92%)	
Preperitoneal	3 (6%)	45 (94%)	0.020

Table 3: Post-operative pain

Groups	Yes	No	P value
Classic	12 (24%)	38 (76%)	
Preperitoneal	07 (14%)	43 (86%)	0.018

Table 4: Post-operative complications

Groups	Yes	No	P value
Classic	8 (16%)	42 (84%)	
Preperitoneal	6 (12%)	44 (88%)	0.014

In the classic and preperitoneal group, 30 were male and 20 were female. The difference was not significant according to Chi-Squared test ($p = 0.350$) (Table 1).
The rate of recurrence was 4 in the classic group and 3 in the preperitoneal group. This difference was significant according to Chi-Squared test ($p = 0.020$) (Table 2).
The frequency of postoperative pain was 12 in the classic group and 7 in the preperitoneal group. This difference was significant according to Chi-Squared test ($p = 0.018$) (Table 3).
The post-operative complications like hematoma and seroma in the classic group was 8 and 6 in the preperitoneal group. This difference was significant according to Chi-Squared test ($p = 0.014$) (Table 4).

DISCUSSION

Hernia generally means weakness or defect of the body wall muscle fibers that provide a space for protrusion of internal organs.[10]The aim of the study is to compare the treatment outcomes of surgical repair in inguinal hernia with classic versus preperitoneal methods on reduction of postoperative complications.
Sinha et al.[11] conducted study to figure out clinical outcome and expenses effectiveness of open pre-peritoneal mesh insertion in contrast with Lichtenstein interlock maintenance in the primary two-sided hernia that is inguinal. They determined that the preperitoneal a safer, best and economical replacement for Lichtenstein mesh repair.
The present study found out 8% and 6% recurrence rate in the classical and preperitoneal group respectively. Muldoon RL[12]conducted study and found out that recurrence rate had no significant difference in the classic and preperitoneal methods which is in contrast with the present study.
The present study found out 16% and 12% recurrence rate in the classical and preperitoneal group respectively and the study concucted by Akhavan Moghaddam J[13]elucidated more post-operative pain in the classical group than preperitoneal group. These results are similar with the present study.
Therate of recurrence, postoperative pain, and hematoma was significantly lower in the preperitoneal group compared with the classic one in this study due to the insertion of mesh under the transverse fascia and on the peritoneum in the preperitoneal method. The preperitoneal method makes less weak areas in the wall of the repaired site than the classic one inwhichmesh is placed on the fascia. Also, the pain is higher in the classic method, which may be due to direct contact of the mesh with the spermatic cord.

CONCLUSION

It can be concluded that the preperitoneal method is a more suitable method for inguinal herniorrhaphy than the classic one because of fewer complications, according to the findings of this study. Still, further studies are required with large sample size to differentiate between the techniques that which one is better.

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