ORIGINAL RESEARCH ARTICLE

A Prospective Study of Open Preperitoneal Versus Anterior Approach for Recurrent Inguinal Hernia

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ABSTRACT

Introduction: Recurrent inguinal hernia presents a significant clinical problem with high re-recurrence and complication rates, particularly when an anterior approach is used. This study evaluated the open preperitoneal approach for repair of recurrent inguinal hernia. Aim: To compare the efficacy of open preperitoneal approach with the traditional anterior approach in the treatment of recurrent inguinal hernia.

Material and Methods: This prospective comparative study was conducted in the Department of General Surgery at a tertiary care hospital. A total of 40 cases of recurrent inguinal hernia were allotted for either anterior approach (Group A) or preperitoneal approach(Group B) of surgery randomly and their efficacy was compared.

Results: Recurrent inguinal hernia is more common in old age and the mean operative time was less in group B when compared to group A. Acute postoperative pain was seen in both the groups and chronic pain was noted in more patients of group A than in group B. Seroma and haematoma were the postoperative complications observed. Group A patients required a longer hospital stay than group B patients.

Conclusion: This study concludes that the preperitoneal approach is better than the anterior approach in aspects like duration of surgery, acute and chronic postoperative pain, duration of hospital stay and postoperative complications.

Keywords: Inguinal Hernia, Recurrent, Preperitoneal Approach, Anterior Approach, Mesh Repair.

INTRODUCTION

An inguinal hernia is one of the cornerstones of a general surgery practice and accounts for approximately 8-17% recurrence.[1,2] The management of inguinal hernia remains integral to the history and current status of general surgery. Even though the procedure is performed more frequently, no surgeon has achieved ideal results and complications such as post-operative pain, nerve injury, infection, and recurrence are bound to occur and continue to challenge surgeons. This lead to an evolution in the treatment approaches for hernia.[3] Operating on recurrent hernias is technically challenging and re-recurrence rates of over 30% have been reported.[4,5]

The most recent advances that impacted inguinal hernia repair is the addition of prosthetic materials and mesh to conventional repairs and the introduction of laparoscopy.[6,7] Lichtenstein tension-free mesh repair (or anterior approach) is the most widely done hernia repair surgery in India.[8] However, the anterior approach is difficult in case of recurrent inguinal hernias, due to the presence of fibrous tissue, distorted tissue plains, and anatomy.[9] The advantage in the preperitoneal approach is that the approach is made through a virgin tissue plane that has no fibrous tissue and allows easy access for the prosthesis to be placed between hernia contents and hernia defect. By adding the prosthesis deep to the transversalis fascia, its strength is reinforced.[10]

Laparoscopic hernia repair through a preperitoneal approach is increasingly becoming popular, but its disadvantages are a long learning curve, where dissection becomes demanding in case of large hernias and the high cost of the procedure. All the above disadvantages could be avoided by transinguinal open preperitoneal approach while still retaining the advantages of preperitoneal mesh repair.

The preferences of treatment approach however are dependent on the local expertise of the surgeon, economic considerations and patient preference. The aim of this study was to compare the open posterior preperitoneal versus anterior tension-free approach for repair of recurrent inguinal hernia.

Aim

To compare the efficacy of the open preperitoneal and anterior approach in recurrent inguinal hernia.

MATERIAL AND METHODS

This prospective comparative study was conducted in the Department of General Surgery at a tertiary care hospital. Patients admitted for the management of recurrent inguinal hernia were included. A total of 40 cases of

recurrent inguinal hernia were allotted for either anterior approach or preperitoneal approach of surgery randomly. Inclusion criteria: diagnosis of uncomplicated Recurrent inguinal hernia, recurrent inguinal hernia with the previous hernioplasty, age >18 years, Nondiabetic patients. Exclusion criteria: Cases or recurrent inguinal hernia with, primary inguinal hernia, recurrent inguinal hernia with previous herniorrhaphy, Other hernias of anterior abdominal wall, previous preperitoneal / laparoscopic hernia repair, unfit for anesthesia, (cardiac disease and COPD), complicated hernia. (Non-reducible, incarcerated inguinal hernia, Strangulated hernia), diabetic and immunosuppressed patients, patients who have undergone prior pelvic lymph node resection or groin irradiation or open prostatectomy were excluded from the study. The data were collected by clinical history and physical examination. All patients underwent routine laboratory investigations and special investigations (ultrasound).

RESULTS

The mean age of occurrence of inguinal hernia is 55 years (table 1). Out of the total of 40 cases, 20 cases underwent hernia repair by anterior approach (Group A) and 20 cases underwent a preperitoneal approach (Group B). Most of the patients in group A were in the 51-60 age group (13 cases) and is significant, while in group B a majority of the patients (9 cases) were in the 61-70 age group. This shows that recurrent inguinal hernia occurs more commonly with advancing age. The mean operative time in group A was 51 to 60 mins while in group B it was 40 to 50 mins(fig1). Acute postoperative pain on day 2 was present in all the patients in both groups. The detailed acute pain descriptions in both groups are tabulated in table 2. Chronic pain(>30 days) was observed in 5 patients in group A and 3 patients in group B(fig2). Regarding the early postoperative complications, the hematoma was observed in 1 patient each in both the groups.

Age Distribution	Anterior approach	Preperitoneal approach
< 40	1	2
41 - 50	4	5
51 - 60	13	3
61 - 70	1	9
> 70	1	1

Table-1:

Acute Post op Pain (mm) (2nd post operative day)	Anterior	Preperitoneal
< 30	3	9
31 - 40	7	8
41 - 50	11	3

Table-2: Acute post operative pain score

Duration of stay	Anterior	Preperitoneal
< 5 days	9	17
> 5 days	11	3

Table-3: Duration of hospital stay

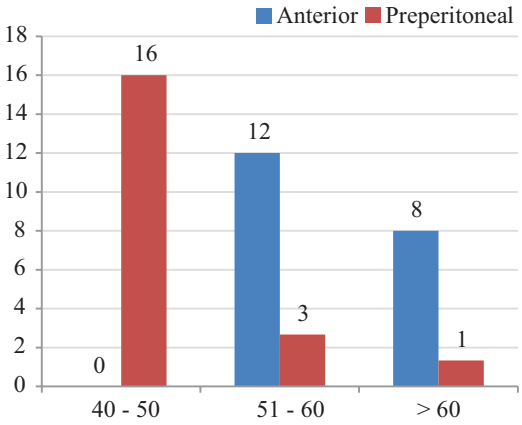

Figure-1: Duration of procedure (in minutes)

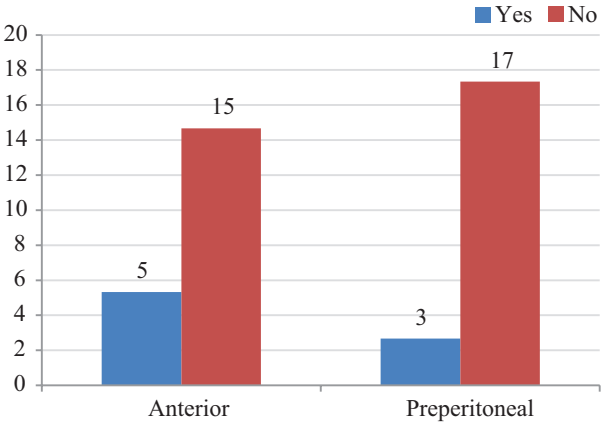

Figure-2: Chronic pain (>30 days)

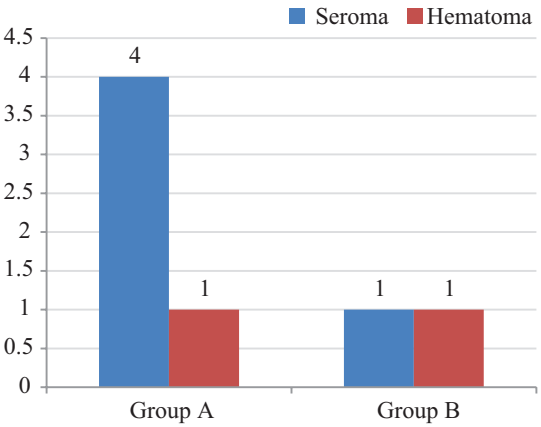

Figure-3: Post operative coomplications

Postoperative seroma was seen in 4 patients in group A and one patient in group B(fig3). About 9 patients in group A required a hospital stay of less than 5 days and 11 patients needed a hospitalization of >5 days. 17 patients in group B required a hospital stay of <5 days while the remaining 3 were admitted for over 5 days. This shows that the preperitoneal approach requires lesser hospital stay(table3).

DISCUSSION

Cough and benign prostatic hyperplasia, defective collagen biology, poor surgical technique, and post-operative wound infection are some of the common causes of recurrent inguinal hernia. Surgical technique and methodology play

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an important role in the management of recurrent inguinal hernia (Schumpelick et al).[10] In this study, the anterior approach and open preperitoneal approach for recurrent inguinal hernia were compared and the results were compared with the previous studies. A recurrent inguinal hernia is common with advancing age and this study is also concordant with this finding. The mean duration of surgery for the preperitoneal approach was 40-50 minutes in our study. Karatepe et al demonstrated a mean operative time of 44.56 minutes in his study.[11] The mean duration of the anterior approach in our study was 51- 60 minutes. Saber et al showed the preperitoneal approach to have less operative duration when compared to the anterior approach (71.6 vs. 94.7 min).[12] These findings state that the preperitoneal approach is better than the anterior approach in terms of surgical duration.

The pain was recorded on the second postoperative day by the visual analog scale and was considered as acute pain in our study. Acute pain was lower in the preperitoneal group when compared to the anterior approach group. Most of the patients in group A had 41-50 mm acute postoperative pain while group B patients demonstrated a POP of 31- 40 mm. Willaert and his team have reported a similar conclusion in their meta-analysis.[13] Pain recorded after the 30th POD was considered as chronic pain in this study. Five patients in the anterior approach group and three patients in the preperitoneal group showed chronic pain in our study but this observation is statistically insignificant. Li et al also showed a similar conclusion in their study.[14]

No statistically significant difference was seen in both groups in terms of postoperative complications. The incidence of seroma observed was 4:1. Ray et al, Li et al and Karatepe et al came to similar conclusions in their studies.[15] Farooq et al and Kurzer et al demonstrated the preperitoneal approach to be safe in terms of post-operative complications.[16,17] The duration of hospital stay was also less in group B patients when compared to group A. A significant number of patients in group B needed a hospital stay of less than 5 days while a significant number in group A needed more than 5 days of hospital stay. Hence the preperitoneal open method is better in terms of hospital stay.

Our study findings demonstrate that open preperitoneal approach is better than the anterior approach in many aspects. The most effective method of repairing an inguinal hernia is not yet clearly defined. Reoperating a recurrent inguinal hernia is usually difficult due to the risk of reoperating through a dense fibrotic scar tissue around the mesh and the risk of testicular damage.[18,19] The open preperitoneal approach is a good alternative for recurrent inguinal hernia and was popularized by Nyhus.[20] The main advantage of the preperitoneal approach is mesh placement in the preperitoneal space where there is a hernia and avoiding reoperating through the scar tissue.

It also has other advantages like lesser hospital stay and quick return of normal physical activity. The disadvantage of this study is the small sample size which could lead to bias. Factors like preoperative complications were not considered in this study. More studies in the future should be hosted including this aspect and a large sample population.

CONCLUSION

The open preperitoneal hernia repair has many advantages in that it is inexpensive, has a low recurrence rate, and allows the surgeon to cover all potential defects with one piece of mesh. The postoperative recovery period is short and postoperative chronic pain is minimal. The duration of hospital stay is also less with this method and gives results far superior to those of the commonly used anterior approach. Hence open preperitoneal approach should be considered as a valid procedure in the treatment of recurrent inguinal hernia.

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