

Preperitoneal Repair of Inguinal Hernias

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Abstract

Surgical management of groin hernias continues to attract the interest of General surgeons as it is the most common surgery performed in surgical practice. Over 80 variants of techniques have been tried; the time tested ones being Ex Bassini's heriorrhaphy using tissue repair and the other by using prosthetic mesh (Lichtenstein's) are done by anterior approach through the inguinal canal. The posterior (preperitoneal) approach to the repair of groin hernias using synthetic mesh brought to light by Nyhus et al. have fascinated many surgeons. Though current trend is to use laparoscopic approach (which itself can be preperitoneal or intraperitoneal) we have taken up this study by open method as it is much less expensive and can be done at peripheral hospitals. The current study is to evaluate its efficacy in terms of post operative pain, duration of hospital stay, return to preoperative physical activity and early recurrence.

Keywords: Inguinal Hernia; Preperitoneal Repair; Opens Posterior Approach; Mesh Repair.

Introduction

Inguinal hernia repair is one of the most common surgical procedures undertaken by general surgeons. The treatment of inguinal hernias can truly be said to be following an orderly process of evolution. The three major landmarks in the history of inguinal hernia repair are, the tissue repair promoted by Eduardo Bassini in

1888, tension free repair with the prosthetic mesh promoted by Irving Lichtenstien in 1984, and laparoscopic hernia repair by Ger, Shultz and Corbit etc in 1990. Nyhus and Condon have revolutionized the hernia repair by posterior open mesh repair, based on the anatomical concepts of the myopectineal aperture of Fruchad. The present study conducted in the department of general surgery, Narayana Medical college hospital, Nellore is done to compare the effectiveness of the pre-peritoneal open mesh repair in terms of the post operative pain, duration of hospital stay, time taken to achieve preoperative physical activity level, and the early recurrence.

Materials and Methods

All adult patients - 21 in number, seeking the elective surgical treatment for Inguinal hernias at the concerned surgical unit were included in this prospective study. The age of the patients varied from 18 years to 80 years. Among these patients one was female and others were male. The types of hernias-Direct /Indirect, unilateral or bilateral are shown in the (Table 1). Clearance from the institutional ethics committee was obtained. All subjects were educated regarding the natural history of the inguinal hernia, the available surgical interventions and the risks and benefits of each. Those who preferred surgical procedures other than the open pre peritoneal mesh repair were excluded from the study. Sample size is calculated for the one sided study group design, for continuous primary end points. The incidence of hernia in general population is taken as 0.18%. The incidence of the outcomes of interest is presumed as 6%, Alpha error limits are chosen as 0.5, and the power of study is planned as 85%. The minimal sample size so calculated was 22. All the subjects were operated upon by a single surgeon who is the professor of surgery in the concerned

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surgical unit. The original technique as promoted by Nyhus et al. was followed. A 7.5 X 15 CMs size mesh was used and 2-0 prolene sutures were used to secure the mesh in the pre-peritoneal space. The duration of the surgery ranged from 45 minutes to 120 minutes (Table 2), Post operative pain was measured by Visual Analogue scale technique and recorded by the duty resident PG once on the day of surgery, once on the first post operative day and again on the seventh post operative day. Duration of Hospital stay was calculated in days, beginning from the day of surgery. Since most of our patients were not working, the time taken to attain the preoperative physical activity level was recorded in days beginning from the date of surgery. The maximum period of follow up for early recurrence was 2 years. The results were tabulated and analyzed.

Surgical Procedure

The technique of procedure is described briefly¹ All

Table 1: Types of Hernia

Types of Hernia	Number of Patients
Bilateral Direct Hernia	3
Bilateral Indirect Hernia	1
Unilateral Direct hernia	5
Unilateral indirect hernia	12

Table 2: Duration of Surgery

Duration of Surgery	Number of Patients
45-65mins	5
66-75mins	2
76-85mins	2
86-95mins	6
96-105mins	6

patients received pre-operative antibiotic before 20 minutes of incision. All procedures were performed either by spinal or epidural anesthesia. A transverse incision is placed cephalad to be above the internal ring. The incision must permit inspection, identification of the cord, ring and contents.

The layers of the abdomen are opened along the natural cleavage planes to expose the peritoneum. Now the rectus muscle is retracted medially to maximize exposure, periosteum of the Ilium is exposed by sweeping motion with sponge sticks. Now, Coopers ligament is visualized, if the ligament is not visualized then direct hernia is most likely present. The cord structures are retracted laterally and medial aspect of internal ring defect is then closed. Mesh of 7x15cms is placed and fixed infero-medially to coopers ligament, medially anchoring sutures are applied to rectus muscle, superiorly to conjoint tendon using intermittent 2-0 prolene sutures and lateralization of cord structures

done. External oblique aponeurosis closed with continuous 2-0 vicryl sutures and skin sutured with intermittent 2-0 ethilon sutures and dressing applied.

Results

A total of 21 inguinal hernia were operated by Nyhus preperitoneal mesh repair, Majority of patients (9 patients) were between 51 to 70 years of age (Figure 1). Three patients were more than 70 years of age. In 21 patients with 25 hernias we had 24 primary hernia and 1 recurrent hernia. All patients were operated by Nyhus Preperitoneal mesh repair and none were converted to other repairs. All patients were operated using Polypropelene mesh 6x3inches. The mean operating time was noted to be 52 minutes (range 45 to 100 min- Table 2). The duration of stay in the hospital (Figure 3) ranged from 3 days to 6 days. 4 cases of seroma were noted in our study which was aspirated and did not delay in recovery. Duration of stay is also minimal. No patient had neuropathies, testicular atrophy or chronic pain. Patients returning to their normal physical

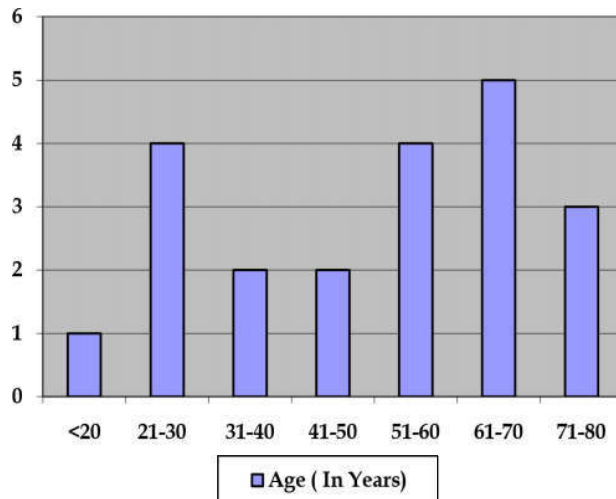


Fig. 1: Age distribution of Patients

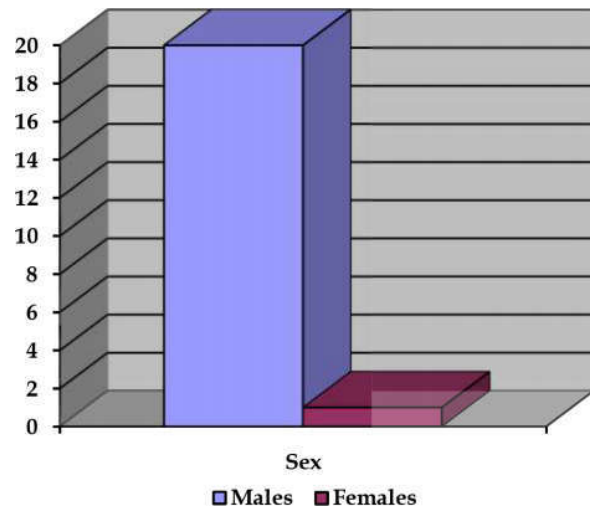


Fig. 2: Sex distribution of Patients

activity/work is also significantly lower (Figure 4). No patient had recurrence, in early period or at 1 year or 2 year follow up.

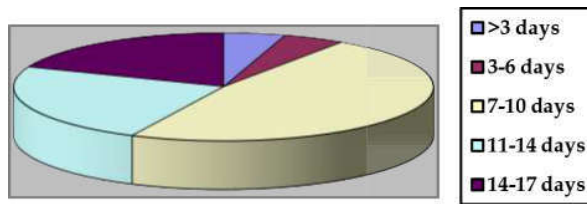


Fig. 3: Duration of Hospital Stay

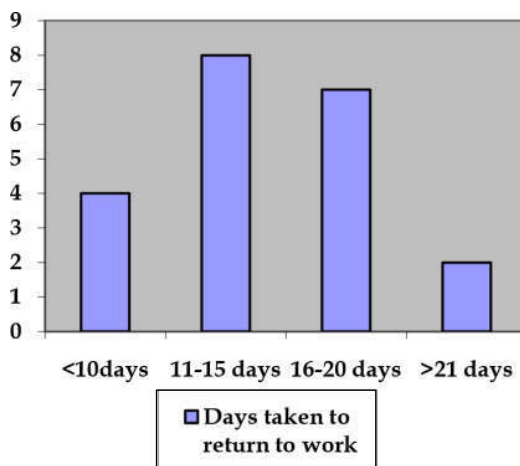


Fig. 4: Days taken to return to work

Discussion

Nyhus Preperitoneal hernioplasty procedure utilizes the many advantages of the preperitoneal approach in inguinal hernia repair. A best advantage of this procedure is the mesh placement that completely repairs the myopectineal orifice of fruchaud reducing the recurrence rates. The advantages are 1) Allows repair of all hernias (inguinal, femoral and obturator hernias) by covering all the hernia orifices via single incision 2) Avoids reoperation through defective, scarred and weakened tissues especially in recurrent hernias 3) Complications are minimal as plane of dissection

avoids major vascular structures, no dissection of cord structures or dissection or repair of defect 4) Duration of surgery is short even in complex recurrent hernias 6) Recurrence after mesh repair is low, is related to technical factors 7) Complications like testicular atrophy and chronic groin pain are less common.

Conclusion

Even in the recent era of laparoscopic management of inguinal hernia (which in fact it is also a pre / intraperitoneal approach), the open preperitoneal mesh repair of Nyhus still has a significant role as the procedure is simple, lesser learning curve, less recurrence rate, minimal complications.

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