



OPEN AND LAPAROSCOPIC INGUINAL HERNIA REPAIR: OUR EXPERIENCE.

Surgery

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ABSTRACT

Hernia surgeries are among the most common surgical procedures performed by general surgeons worldwide, involving various techniques. Though laparoscopy has fascinated the surgical world, its use in any aspect should be cautiously weighted. Only being new and technically fascinating, laparoscopy should not be considered as first option in hernia repair, but its use should be individualized as per the patient's condition, available resources and the surgeon's experience.

KEYWORDS

Inguinal hernia, open repair, laparoscopic hernia repair.

Introduction

Inguinal hernia is a day to day surgical problem encounter by the surgical teams with reported lifetime risk for men is 27% and for women is 3%¹. The methods of inguinal hernia repair had changed from time to time with each method having its own advantages and disadvantages. Since the Bassini's technique of tissue repair in 1887², several modifications have been evolved and analysed for the management of inguinal hernias. The major milestone attained is the development of tension free repair with the use of mesh, which resulted in low recurrence rate.

The concept of tension free open mesh repair was first described by Lichtenstein in 1989 which involved placement of mesh over the floor of the inguinal canal³. With the adaptation of laparoscopic techniques in the surgical field, laparoscopic inguinal hernia repair has shown a great deal of promise as it is associated with less post-operative pain better cosmetic results and shorter recovery. They also provide an advantage of more accurate assessment and repair of bilateral grown hernias simultaneously; and in case of recurrent hernias avoidance of previously dissected and technically difficult scared areas⁴. However, requirement of general anaesthesia, need to transfer the abdominal cavity in the TAPP technique, and the increase in operating time and cost are the inferiorities associated with laparoscopic techniques⁵. The two most common techniques for laparoscopic inguinal hernia repair (TAPP and TEP) involve the insertion of mesh into the pre-peritoneal space. TAPP approach requires laparoscopic access into the peritoneal cavity and placement of mesh in the pre peritoneal space after reducing the hernia sac and raising peritoneal flaps. The TEP approach requires preperitoneal dissection and mesh placement without entering into the abdominal cavity.

AIMS

The aim of the study was to observe the outcomes of open mesh hernia repair (Lichtenstein) and laparoscopic hernia repair.

MATERIALS AND METHODS

This was a prospective observational study carried for a period of 1½ years in which 50 male patients of primary unilateral inguinal hernia were selected and studied in two groups. Twenty five patients who underwent open Lichtenstein mesh repair and twenty five cases who underwent laparoscopic repair (TAP or TEP).

Patients with complicated inguinal hernias (like obstruction, strangulation, irreducibility and patients with history of previous inguinal hernia repair were excluded from the study. Female patients and patients with bilateral hernias were also excluded. Laparoscopic repair had been offered to all patients and open mesh repair was performed in those who had refused laparoscopic repair or whom general anaesthesia was risky. Open mesh repair was done under spinal anaesthesia and laparoscopic repair was performed under general anaesthesia. Scrotal support was given to all patients.

Each chart was studied for patient characteristics (age, sex, side involved- right/left, history of previous repair attempted, and type of hernia-direct/indirect). The outcomes of two groups were studied for:

1. Duration of the procedure.
2. Intra operative complications.
3. Conversion to open in laparoscopic repair.
4. Post-operative analgesia requirement (in terms of no of times post-operative analgesic drugs were administered).
5. Post-operative complications (seroma / hematoma formation) / urinary retention/ wound infection.
6. Post-operative hospital stay (no of days).
7. Post-operative recurrence at six months follow-up.

The patients were started on oral liquids 4 to 6 hours after the surgery in open mesh repair group and after 8 to 12 hours in laparoscopic repair group. Soft diet was started thereafter. Good analgesic coverage was provided with injection diclofenac/injection tramadol in early post-operative period which helped in early ambulation and recovery. Patients were encouraged for sitting up in the bed and advised early movements and activity. Wound site and scrotum were examined closely in the post-operative period to rule out any complication. Patients were discharged on oral medication as soon as they were able to tolerate oral diet, ambulate unassisted and void properly. Follow up visits in the surgical clinics were scheduled for post-operative day 7 to 14.

RESULTS & OBSERVATIONS:

The study was performed on 50 male patients who had primary unilateral inguinal hernia with no previous history of repair attempted. Among these 50 cases, 28 cases were right sided hernia and 22 cases were left sided hernia, 35 cases were with indirect type and 15 cases

were with direct hernia. 25 patients were treated with open mesh repair (Lichtenstein) and 25 patients were treated with laparoscopic (18 with TAPP repair and 7 with TEP repair). Mean age in open mesh repair group was 64.4 years (range 30 to 82 years), whereas mean age in laparoscopic group was 58.4 years, range 28 to 76 years. (Table 1)

Table 1. Patient's characteristics

Characteristics	Open group(n=25)	Laparoscopic group(n=25)
Age(years)	Mean=64.4 Range(30-82)	Mean=58.4 Range(28-76)
Sex	All males	All males
Uni/Bilateral	All unilateral	All unilateral
Previous repair attempted	No	No
Side involved	R=16 L=9	R=12 L=13
Type of hernia	Indirect=16 Direct=9	Indirect=19 Direct=6

R=right side, L=left side.

Table 2.Short term outcomes

Parameters	Open repair group (n=25)	Laparoscopic repair group (n=25)
Duration of the procedure(min)	Mean =38.2 Range (28-50)	Mean=92 Range (68-126)
Intra operative complications		0
• Bowel injury		0
• Bladder injury		0
• Vascular injury		0
Conversion to open in laparoscopic repair	-	1
Post-operative analgesia requirement (in terms of no of times post-operative analgesic drugs were administered)	Mean=2.0 Range (1-4)	Mean=1.0 Range (0-3)
Post-operative complications	2(8%)	1(4%)
• Urinary retention	0	1(4%)
• Hydrocele	1(4%)	2(8%)
• Seroma	0	0
• Hematoma	1(4%)	0
• Superficial wound infection		
Post-operative hospital stay (no. of days)	Mean=2.5 Range (1-4)	Mean=2.5 Range (1-5)
Post-operative recurrence at six months follow-up	0	1(4%)

Mean duration of surgery in open mesh repair group was 38.2 minutes range 28 to 50 minutes, whereas in laparoscopic repair group was 92 minutes, range 68 to 126 minutes. Requirement of post-operative analgesia was lower in laparoscopic group than open group (mean of 1.0 in laparoscopic group with range of 0 to 3 whereas mean of 2.0 in open group with range of 1 to 4). There was no intraoperative complication seen in both the groups. Conversion from laparoscopic to open repair due to adhesion was needed in single patient who had previous history of open cholecystectomy. We observed a urinary retention in two patients; seroma and superficial wound infection in one patient each in the open repair group. In laparoscopic repair group we observed urinary retention and hydrocele in one patient each with seroma formation in two patients. The mean postoperative hospital stay was 2.5 days in each group (range 1 to 3 in open and 1 to 5 in laparoscopic group). Recurrence was seen in single patients treated with laparoscopic repair (TEP) at follow-up. But no recurrence was seen in open mesh repair group at 6 months follow-up. (Table 2)

DISCUSSION

With the introduction of laparoscopic techniques in surgical field, the management option for the repair of inguinal hernias has widened. However, concurrently with the innovative laparoscopic techniques, open anterior herniorrhaphy has evolved into a tension free mesh repair, i.e. easy to learn, without the need for general anaesthesia and is

associated with rapid recovery and low recurrence rates⁵. This has put a question mark about the superiority of laparoscopic inguinal hernia repair over the tension free open repair done in modern era. The two approaches of laparoscopic inguinal hernia repair (TAPP & TEP) though claimed to offer potential advantages (interms of reduced post-operative pain, reduced wound infection, shortened recover, better cosmesis and more accurate assessment and repair of bilateral inguinal hernias simultaneously) in practice, however, the advantages are not invariably realised. With disadvantages of requirement for general anaesthesia, need to transverse the abdominal cavity into TEPP technique, longer operative time, serious associated complications, prolonged learning curves and requirement of sophisticated equipment and technical staff makes laparoscopic hernia repair account for minority of cases performed worldwide. **Liane S. Fieldman et al⁶**, in their manuscript rightly said that the surgeons should not perform laparoscopic hernia procedure simply because it is relatively new or potentially economic; they should perform only when convinced that it is anatomically and physiologically correct and logical. Surgeons must be proficient in laparoscopic techniques and must have a precise knowledge of anatomic relations in the region of the groin as seen from the peritoneal surface. Laparoscopic approach provides potential benefits to patients with recurrent hernias and bilateral hernias and in obese patients^{4,6,7,8}.

Recurrence rates, the single most important variable of ultimate outcome after hernia repair surgery) after open mesh repair has been reported to be 1% or less, even when not performed by hernia specialist^{4,9,10}. If the laparoscopic approach is to be viable alternative to open repair, it should have comparable results¹. Prospective, randomised trials suggest that hernia recurrence rates are comparable in laparoscopic repair and open mesh repair group¹¹.

Heikkinein TJ et al¹² in 2004 in five year study reported no significant differences in a recurrence rate after laparoscopic mesh repair and open mesh repair. A large **randomized multicentre veterans affairs (VA) study¹³** published in 2004 compared open mesh repair with laparoscopic mesh repair in 2164 patients and reported the hernia recurrence rate at 2 years was higher in laparoscopic group 10% than in the open mesh repair group 4% for primary, unilateral hernias. These rates were found to be affected by the surgeon's level of experience; those who had performed more than 250 laparoscopic repairs reported a recurrence rate of 5%⁴.

Thus, from above discussion it is to **conclude** that both the approaches; open and laparoscopic, have their own advantages and disadvantages therefore the selection for repair should be individualised as per the patients conditions, available resources and the surgeons experience.

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