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Our Experience Inlichtensteintension Free Hernioplasty

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ABSTRACT *INTRODUCTION:Inguinal Hernias are one of the most common conditions a general surgeon comes across in daily practice. The present gold standard in treatment, the Lichtenstein tension-free mesh repair is associated with fewer complications and low recurrence rates. This study aims to evaluate the Lichtenstein tension free mesh repair with regard to the operating time, postoperative pain, duration of hospital stay, and complications associated including recurrence.MATERIALS AND METHODS: 407 patients with inguinal hernia admitted under a single surgical unit and having undergone the open Lichtenstein tension-free hernioplasty from 2006 to 2014 were included in this prospective study. RESULTS: A total of 456 mesh repairs were performed. Of these, indirect hernias accounted for 66.2% of cases (302 cases), direct in 25.0% (114 cases), sliding hernias in 2.4% (11 cases) and the pantaloon variety in 6.4% (29 cases). Significant postoperative complications included acute retention of urine (20.4%), transient testicular swelling (9.8%) and superficial surgical site infection (7.6%). Recurrence was noted in 3 patients at the end of the 1 year follow up period (0.7%).CONCLUSION: Lichtenstein Tension-free hernioplasty is a simple, cost-effective treatment modality for inguinal hernias with a low incidence of complications and recurrence and early return to daily activity.*

INTRODUCTION

Hernias are one of the most common conditions a general surgeon comes across in daily practice. Of these, inguinal hernias account for the vast majority.Defect in the metabolism of collagen causes weakness in the transversalis fascia which is involved in the pathogenesis of inguinal hernia.[1] Over the years, the optimal treatment modality for this condition has seen a shift from open suture repair / herniorraphy which involves some degree of tension to the present gold standard in treatment, the Lichtenstein tension-free mesh repair which is associated with fewer complications and low recurrence rates.[2,3] This study aims to evaluate the Lichtenstein tension free mesh repair with regard to the operating time, postoperative pain, duration of hospital stay, and complications associated including recurrence.

MATERIALS AND METHODS

A total of 407 patients with inguinal hernia admitted under unit 1 of the department of surgery in Bowring and Lady Curzon hospital[BANGALORE MEDICAL COLLEGE AND RESEARCH INSTITUTE]from 2006 to 2014 were included in this prospective study. Inclusion criteria were patients aged 18 years or older with uncomplicated inguinal hernia. Those aged less than 18 years with inguinal hernias complicated by irreducibility, obstruction or strangulation were excluded from the study. Recurrent hernias were also excluded as were patients with uncontrolled diabetes mellitus. All patients were investigated for complete haemogram, liver and renal function test, coagulation profile, blood glucose and chest radiograph. Electrocardiogram was done in all patients. 2D ECHO was done for patients aged more than 40 years and cardiology fitness obtained. Permission to conduct the study was obtained from Institutional Ethics Committee. Lichtenstein tension free mesh repair using a polypropylene mesh was performed in all cases.

RESULTS:

Out of the 407 patients with inguinal hernia included in the study, 405 patients were male (99.5%). Hernia was unilateral in 358 cases (88.0%) and bilateral in the remaining 49 (12.0%) (Figure: 1).

FIGURE 1: Laterality of inguinal hernia as encountered in the study.

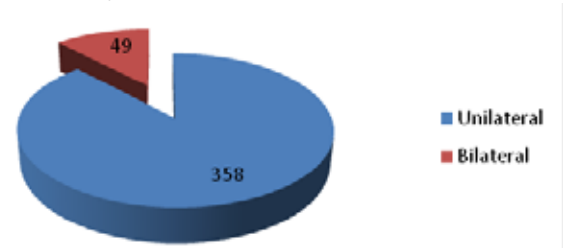

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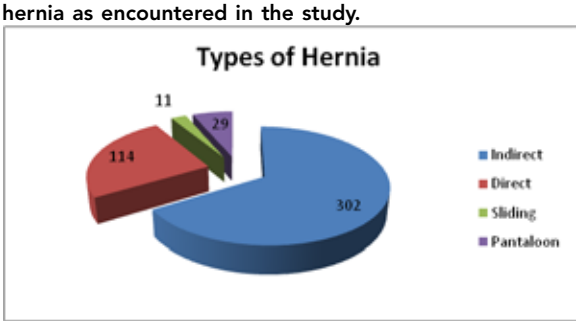
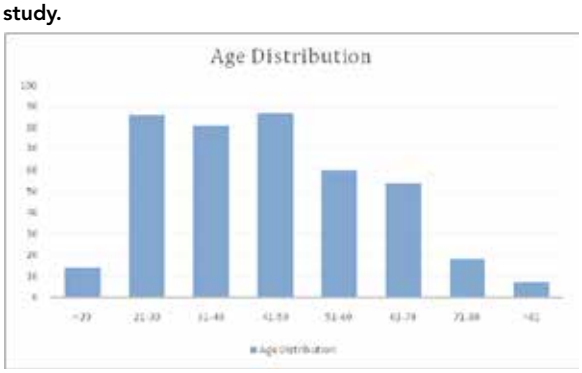
FIGURE 2: Prevalence of the different types of inguinal hernia as encountered in the study.



The age-wise distribution of inguinal hernia is as shown below. The ages of the patients included in the study ranged from 17 years to 88 years (Figure: 3).

FIGURE 3: Age distribution of patients selected for the study.



Over the first 4 years of the study period, antibiotics(injection ceftriaxone and amikacin if renal function tests are normal) were given postoperatively for a duration of 5 days. Over the next 4 years, antibiotic (injection ceftriaxone) cover was given for a period of only 2 days.All patients were preoperatively given a single dose of antibiotic (injection ceftriaxone 1g IV stat).

MEAN OPERATING TIME	32 minutes (range 24-54 minute)
MEAN POSTOPERATIVE STAY	48 hours (range 48-72 hours)
MEAN FOLLOW-UP PERIOD	1 year
ACUTE RETENTION OF URINE	83 (20.4%)
SEROMA FORMATION	10 (2.5%)
HEMATOMA	5 (1.2%)
SURGICAL SITE INFECTION	
SUPERFICIAL	31 (7.6%)
DEEP	1 (0.3%)
RESIDUAL NEURALGIA	1 (0.3%)
TRANSIENT TESTICULAR SWELLING	40 (9.8%)
ABDOMINAL DISTENSION	1 (0.3%)
ISCHEMIC ORCHITIS	0
TESTICULAR ATROPHY	0
MESH REJECTION	0
MORTALITY	0
DEEP VENOUS THROMBOSIS	0
RECURRENCE	3 (0.7%)

DISCUSSION:

A hernia is the bulging of part of the contents of the abdominal cavity through a weakness in the abdominal wall. In adult surgery, 80 per cent of all hernia repairs are for inguinal hernia. An inguinal hernia (indirect) also occurs through the developmental failure of the processusvaginalis to close. As the testis descends, it pulls a tube of peritoneum along with it. This tube should naturally fibrose and become obliterated but often it fails to fibrose and allows a hernia to form. Recent studies have shown that calcitonin gene-related peptide and hepatocyte growth factor influence the closure of the processus raising the possibility of a hormonal cause of hernia development.A direct inguinal hernia occurs dueto weakness in posterior wall of inguinal canal.

Hippocrates referred to hernia as "etrurhexis", which means"rupture of abdominal wall".In 1559, Stromayer described the two types of hernia that is direct and indirect inguinal hernia. In 1890, Eduardo Bassini described suture repair for inguinal hernia which has been the basis of open repair for over 100 years.[4] Subsequently, over 150 modifications ofthe Bassini operation have been described.Earl Shouldice in 1953 modified Bassini's repair and proposed a 4-layer closure through double breasting of the fascia transversalis. [5] However, it was a technically demanding operation which, in general hands, gave results similar to the Bassini repair. Nyhus described the posterior iliopubic tract technique in which the arch of the transverses abdominis aponeurosis was sutured to the iliopubic tract. [6]Mersilene was the first nonmetallic fabric mesh made from Dacron in 1939. The polypropylene mesh was introduced by Usher in 1950.[7]In the 1980s, Irving Lichenstein popularized tension free techniques for hernia repair and performed it as outpatient procedure under local anaesthesia. Presently, Lichtenstein repair is the most commonly performed operation for inguinal hernia in the developed world.Stoppa described a technique to repair large inguinal hernias by using a mesh placed preperitoneally through a midline incision.[8] Gilbert introduced a polypropylene device Prolene Hernia System (PHS).[9]Desarda described an operation wherein a 1–2-cm strip of external oblique aponeurosis lying over the inguinal canal was isolated from the main muscle and then sutured to the conjoint tendon and inguinal ligament, reinforcing the posterior wall of the inguinal canal.[4]Laparoscopic inguinal hernia repair was started in 1990 such as TAPP (transabdominalpreperitoneal) approach and TEP (total extra peritoneal approach).[10] The principle of the laparoscopic repair is to cover all the three potential sites of inguinal hernia by using a large piece of mesh.[11] Laparoscopic hernia repairs are less painful, with less hospital stay and early resumption of activities but at higher cost.

The incidence of surgical site infection (7.6%) was comparable to other studies conducted. In 2001, Yerdel et al conducted a prospective, double-blind, randomised trial to assess the value of a single dose of preoperative antibiotic.Patients undergoing unilateral primary inguinal hernia repair using a Lichtenstein technique were randomised to receive either 1.5 grams of ampicillin plus sulbactam or an equal volume of placebo. Wound infection occurred in 9% of the control group but only 0.7% of the treatment group.[4]In another study conducted by Taylor EW et al, 5.3% of the patients who underwent hernia repair surgery developed a surgical site infection.[5]

Tension-free repair, as popularized by Lichtenstein, has been associated with a lower recurrence rate than suture

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repair. Recurrent hernia was noted in 3 patients (0.7%) at the end of the 1 year follow up period in our study. Vrijland WW et al in their comparative study on the clinical outcome, recurrence and cost effectiveness of mesh versus non-mesh repair of primary inguinal hernias reported recurrence rates of 1% for mesh repairs (and 7% for non-mesh repairs) at the end of a 3 year follow up period. It was concluded that mesh repair of primary inguinal hernias is superior to non-mesh repair with regard to hernia recurrence and cost effectiveness.[6]

The Lichtenstein Tension-free mesh hernioplasty described by Irving Lichenstein, was the start of new era in the repair of inguinal hernia. The tension free technique has benefit of being simple, effective, postoperative pain is minimal, very low chance of recurrence and can be performed under local or regional anaesthesia. [12, 13]Currently, Lichtenstein Tension-free mesh hernioplasty is the preferred method for the plastic reconstruction of inguinal hernias for the majority of surgeons around the world.

CONCLUSION:

We have observed thatLichtenstein Tension-free hernioplasty is a simple, cost-effective treatment modality for inguinal hernias with a low incidence of complications and recurrence and early return to daily activity

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