Original Research Article

A Hospital Based Comparative Study the Post Operative Pain, Duration of Procedure & Incidence of Complications Between Open Transinguinal Preperitoneal Hernia Repair and Lichenstein's Hernia Repair

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Abstract

Background: Inguinal hernias are present in 1.7% of the world population. The Trans Inguinal Preperitoneal (TIPP) Hernia Repair (using prolene mesh) resulted in greater patient comfort with reduced post operative pain and also decreases the number of complications and recurrence rate and that it can be recommended for all primary unilateral Inguinal Hernias. The aim of this study to compare the post operative pain, duration of procedure & incidence of complications between transinguinal preperitoneal repair and lichtensteins repair procedures. **Materials & Methods:** A hospital based prospective study done 40 patients of inguinal hernias with ASA I or II, attending the district hospital Dholpur, in our surgical unit over a period 1 year. All cases were selected at random irrespective of the type of inguinal hernia, the age of the patient and the size of the defect. The material used for repair is monofilament polypropylene clear non absorbable synthetic knitted surgical mesh. About 20 cases of transinguinal pre peritoneal mesh repair & 20 cases of lichtensteins repair. Post operative pain, scrotal collection, seroma, cord oedema and wound infection were looked for they were asked to come for regular follow-up visit after discharge during each follow-up visit, the patients were assessed for pain, surgical site infection and recurrence.**Results:** The mean age of the patients subjected to lichenstein repair was 52.76 years and for TIPP it was 49.24yrs. The duration of operation was more in the TIIP group and was statistically significant ($p < 0.05$*). During the first follow up of patients at one month it was noticed that 20% of patients who underwent linchenstein repair had complications of SSI, cord edema, recurrence and pain. At second follow up it was noticed that only 2 patient who underwent LR had sensory loss. Occurrence of pain at 3 rd month between the lichenstein and TIPP repair is not statistically significant ($p>0.05$).**Conclusion:** We concluded that the transinguinal pre peritoneal mesh repair is an amazing simplistic technique which gives an approach to inguinal, femoral and obturator hernias and bears the same anatomical relationship in TEP and TAPP approaches which gives a better understanding of the TEP and TAPP procedures.

Keywords: TIIP, LR, Inguinal Hernia, Repair.

Introduction

Inguinal hernias are present in 1.7% of the world population. Males have a high predilection for inguinal hernia and in the age group above 50 years the risk of having a hernia increases by 22.8%. Surgery is the treatment of choice and is the only cure[1].The reconstruction of the posterior barrier of the groin represents one of the major objectives in groin hernia repair. There are 2 primary methods used to achieve this objective: "tissue repair technique" and "tension-free repair". Recently, tension-free repair has become the gold standard procedure for repairing inguinal hernias. Many techniques have been described by different authors. Tension-free repair involves the use of synthetic prosthetic materials for rebuilding the posterior inguinal wall. The prosthetic materials, now disposable, have a well tolerated bio-reactivity, allow efficient fibroplasia, diminish postoperative pain, and significantly reduce the recurrence rate and convalescence period.

More than 7 lakh inguinal hernia repairs were performed each year in US in 1980. More than 70,000 patients developed recurrent hernia due to excessive tension repair which was then replaced with Lichtenstein's tension free mesh repair. But due to chronic post operative pain, sensory loss, cord oedema, Trans Inguinal Pre Peritoneal repair was tried which proved to be useful[2].

The Trans Inguinal Preperitoneal (TIPP) Hernia Repair (using prolene mesh) resulted in greater patient comfort with reduced post operative pain and also decreases the number of complications and recurrence rate and that it can be recommended for all primary unilateral Inguinal Hernias[3].The aim of this study to compare the post operative pain, duration of procedure & incidence of complications between transinguinal preperitoneal repair and lichtensteins repair procedures.

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Materials & Methods

A hospital based prospective study done 40 patients of inguinal hernias with ASA I or II, attending the district hospital Dholpur, in our surgical unit over a period 1 year. All cases were selected at random irrespective of the type of inguinal hernia, the age of the patient and the size of the defect. The material used for repair is monofilament polypropylene clear non absorbable synthetic knitted surgical mesh. About 20 cases of transinguinal pre peritoneal mesh repair & 20 cases of lichtensteins repair.

Inclusion Criteria

- All patients presenting with unilateral hernia
- All patients aged 18 and above

Exclusion Criteria

- All the patients presenting with complicated hernias, undergoing emergency hernia surgeries.
- Patients who are unfit for surgery.

These cases were followed up in the immediate and post operative periods. Post operative pain, scrotal collection, seroma, cord oedema and wound infection were looked for they were asked to come for regular follow-up visit after discharge during each follow-up visit, the patients were assessed for pain, surgical site infection and recurrence.

Technique:

Transinguinal Pre Peritoneal Mesh Repair[3]

Under spinal anesthesia, aseptic precaution, parts painted and drapped, classical inguinal incision made between the anterior superior iliac spine and the pubic tubercle. Then external oblique fascia is divided, cord structure and sac identified, ilio inguinal nerve is isolated from the posterior inguinal wall. In a case of indirect hernia, sac is separated from the cord well beyond the deep ring, content reduced and then sac is transfixed and excised. In case of congenital hernia, firm adhesion with the tunica vaginalis, sac may be transected in the middle part, leaving open the distal sac. In case of direct hernia, is reduced into the peritoneal cavity, transvesalis fascia is opened from the deep ring to the pubic tubercle, safe-guarding the epigastric vessels.Pre peritoneal space is defined, dissection is extended laterally beyond the deep ring, inferiorly to the cooper's ligament and medially to the outer border of the rectus sheath.

A synthetic poly propylene mesh, rectangular in shape, 15x7cm in size, is prepared to cover Bogros's space and the Fruchaud's Myopectineal orifice.A slit is made at the lateral end of the mesh, to create a new deep ring and allow free passage of the cord. The mesh is anchored inferiorly to the ilio Pectineal ligament medially to the rectus sheath the two tails of the newly created deep ring are crossed behind the cord and laterally sutured to the internal oblique muscle.

External oblique fascia is sutured. Skin is closed and compressive dressing to be done at the end of the procedure. Post operatively analgesic and antibiotics given each patient discharged at 7th post operative days.

Lichtenstein[2]

Tension free, simple flap, polypropylene mesh repair for inguinal hernia. Skin is incised. Two layers of superficial fascia, outer Camper's and inner Scarpa's layer are incised.

External oblique aponeurosis is identified and incised. In the inguinal canal, cord is covered by Cremasteric muscle and internal spermatic fascia; external spermatic fascia covers the cord below the level of external ring. cremasteric muscle is opened. Medial dissection is done beyond the pubic tubercle. Hernial sac is identified which is white in colour. sac is anterolateral in position with respect to cord in case of indirect sac. Sac is transfixed above the inguinal ring with 3-0 vicryl after reducing contents. Redundant hernia sac is removed and Herniotomy completed. In case of direct hernia do not open the sac. Close the medial defect. 15X8 cm sized prolene mesh is placed over the posterior wall, behind the cord and tail made at the deep ring where it encircles the cord structures.

Mesh is placed beyond the pubic tubercle (beyond 2cm), superior margin (4cm), laterally beyond the deep ring (6cm). Mesh is sutured below to inguinal ligament, medially to the pubic tubercle and above to the conjoint tendon. Wound closed in layers and sterile dressing applied.

The postoperative complications and pain using VAS score was observed at preoperative, intraoperative, at 7 days, at 1 month and at 3 months in our study.

Results

Among the 40 patients taken for the study, 20 patients were subjected to lichenstein's hernia repair and 20 for the TIPP procedure. The mean age of the patients subjected to lichenstein repair was 52.76 years and for TIPP it was 49.24yrs. The duration of operation was more in the TIIP group and was statistically significant ($p < 0.05$*).

Among the patients who underwent TIPP procedure the early post operative complications seen were pain and surgical site infection with only 10% of the patients experiencing it and Lichenstein repair were seroma, surgical site infection, scrotal collection, cord edema and pain was seen in table no. 2.

During the first follow up of patients at one month it was noticed that 20% of patients who underwent linchenstein repair had complications of SSI, cord edema, recurrence and pain. At second follow up it was noticed that only 2 patient who underwent LR had sensory loss (table 3). Occurrence of pain at 3 rd month between the lichenstein and TIPP repair is not statiscally significant ($p>0.05$) (table 4).

Table 1: Baseline Characteristics

Baseline Characteristics	TIPP (N=20)	Lichenstein (N=20)
Sex		
Male	19	19
Female	1	1
Age		
20-40yrs	4	2
41-60yrs	10	12
>60yrs	6	6
Type of hernia		
Indirect	11	10
Direct	9	10
Duration of surgery	48mins-1hr	36-47mins

Table 2: Early post operative complications in TIPP & LR group

Complications	TIPP group	LR group
Seroma	0	6
Surgical site infection	1	4
Scrotal collection	0	2
Cord edema	0	6
Pain	1	7

Table 3: Post operative complication at 1 month and at 3rd month in TIPP & LR group

Complications	at 1 month		at 3 month	
	TIPP group	LR group	TIPP group	LR group
Surgical site infection	0	1	0	0
Recurrence	0	0	0	0
Cord edema	0	1	0	0
Pain	0	1	0	0
Loss of sensation	0	4	0	2

Table 4: Median Pain Score

Groups	Median pain score (using visual analog score)			
	On day 1	Day 7	At 1 month	At 3rd month
Lichenstein repair	5	3	1	0
TIPP	3	0	0	0

Discussion

Hernia repair surgeries are done all over the world. It is the most common surgery next to appendectomy. Lichtenstein repair has become procedure of choice for repair of inguinal hernia all over the world. It has decreased the recurrence rates to less than 0.3%. Though recurrence rates are less, the postoperative pain has become a world-wide problem. Inguinodynia has become one of the foremost complications of hernia repair after 6 months of surgery. Causative factors for Inguinodynia are many, most common of which are injury to nerves and mesh placement. Placing the mesh in the parietal compartment causes injury to the nerves which requires neurectomy or neurolysis. Approach to both causes morbidity to the patient as described by D.C. Chen et al[4].

G G Koning et al[5] found that a total of 302 patients were randomized to TIPP (143) or Lichtenstein (159) repair. Baseline characteristics were comparable in the two groups. Some 98.0 per cent of the patients were included in the analysis (141 in the TIPP group and 155 in the Lichtenstein group). Significantly fewer patients in the TIPP group had continuous chronic pain 1 year after surgery: five patients (3.5 per cent) versus 20 patients (12.9 per cent) in the Lichtenstein group (P = 0.004). An additional 12 patients (8.5 per cent) in the TIPP group and 60 (38.7 per cent) in the Lichtenstein group experienced pain during activity (P = 0.001). There were two patients with recurrence in the TIPP group and four in the Lichtenstein group, but no significant differences were found in other severe adverse events between the groups.

J.F. Maillartet et al.[6] in their studies on Preperitoneal mesh repair of inguinal hernia deduced that the surgery is associated with less wound seroma and post-operative complications. Rubik Ray et al[3] in his study of 71 patients found that 5.7% of the patients developed wound seroma and 17.14% of them developed wound induration when compared with Pre-peritoneal repair. In our study of 40 patients we observed that 30% of the patients from the Lichtenstein group developed wound seroma.

In our study of 40 patients we found that patients who underwent TIPP had less pain compared to Lichtenstein repair. Occurrence of pain at 3 rd month between the lichenstein and TIPP repair is not statistically significant (p>0.05).

Laparoscopic surgeries reduce the risk of postoperative pain and other complications but many patients are not able to afford the treatment. Open pre-peritoneal mesh repair will be useful for such patients[7,8].

Conflict of Interest: Nil

Source of support: Nil

Conclusion

Hence the transinguinal pre peritoneal mesh repair is an amazing simplistic technique which gives an approach to inguinal, femoral and obturator hernias and bears the same anatomical relationship in TEP and TAPP approaches which gives a better understanding of the TEP and TAPP procedures. It is an easy technique with short learning curve. The risk of vessel injury is less in the hands of an expert. The contact of mesh with the cord structures and nerve is minimal which reduces the postoperative cord oedema, pain (Inguinodynia), orchitis and sensory loss.

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