

Transinguinal Preperitoneal (Tipp) Meshplasty in the Management of Inguinal Hernia: A Retrospective study of 50 cases at VSSIMSAR, Burla

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ABSTRACT

Inguinal Hernia is one of the most common types of surgical problem presenting to the surgery outpatient department. Lichtenstien tension free mesh hernioplasty is the most widely accepted management of inguinal hernia. But mesh seroma & chronic pain are the main draw backs of the procedure with a reported incidence of 15-90 %. Transinguinal preperitoneal mesh repair has less mesh related complications & can be safer alternative.

A Retrospective study of 50 cases with transinguinal pre peritoneal (TIPP) meshplasty was done in the department of general surgery, VSSIMSAR, Burla from October 2016 to October 2018.

Keywords: NIL.

INTRODUCTION

Lichtenstein mesh hernioplasty is the most common operations performed on general surgical patients. Approximately 20 million groin hernioplasty are performed worldwide. But, surgeons are facing increased incidence of chronic pain & mesh infections, recurrence. The etiological factors leading to post operative chronic groin pain include inguinal nerve imitation by suture or mesh or simply scarring in the inguinal region incorporating the inguinal nerve. It may also be due to local tissue inflammatory reactions from foreign material, bio-incompatibility & abdominal wall compliance reduction. Nerve injury ranging from 2-4 % during mesh fixation also result in chronic groin pain.

Transinguinal preperitoneal (TIPP) inguinal hernia repair with mesh has been reported as a safe anterior approach with a preperitoneal sutureless mesh position to the preperitoneal space. Tipp has a short learning curve & it is also cost effective compared to

laparoscopic total extraperitoneal/Preperitoneal technique. Sutureless mesh placement in this plane & non exposure of mesh to regional nerves results in reduced risk of developing chronic groin pain

The best technique for preperitoneal approach is laparoscopic TEPP or TEP, which have long steep learning curve, increased operating times, higher rates of complications (mainly nerve injury) as well as requiring special equipment, training & technical skills.

Inclusion Criteria:-

1. Age- 24 to 68 yrs
2. Uncomplicated Inguinal hernia

Exclusion Criteria:-

1. Recurrent Hernia
2. Irreducible 1st triangulated hernia

3. Pts. With previous H/o stroke, peripheral neuropathy, diabetics mellitus & neuromuscular disease
(As from such patients no definite conclusion about pain or parasthesia can be made. Pt. having preoperative inguinal neuralgia)

PATIENTS & METHODS:

The study was carried out in the department of General surgery, in V.S.S Medical College, Burla, Sambalpur, Odisha, from October 2016 to October 2018. This is a hospital based observational study including 50 patients who underwent Transinguinal Preperitoneal mesh repair for uncomplicated inguinal hernia by using a non absorbable polypropylene mesh, admitted through out-patient department or casualty in department of general surgery.

These cases were followed up in the immediate and postoperative periods. Postoperative pain, seroma, cord edema 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. Patients with age more than 70 years, Patients of Pediatrics age group (< 14 Years), Patients with complicated hernia like Obstructed or Strangulated hernia Sliding hernia, Recurrent hernia and patients other comorbid condition like diabetes mellitus, tuberculosis, COPD, sever bladder outlet obstruction (BHP) were not included in this study.

OPERATIVE PROCEDURE:

1. Under spinal anesthesia, with all aseptic precaution, parts painted and draped, Classical 2-5 cm inguinal incision made between the anterior superior iliac spine and the pubic tubercle. Scarpa's fascia and the external oblique aponeurosis were opened classically without any extended dissection. The inguinal nerves were not routinely identified, but if the ilioinguinal nerve is found, it will always be saved and gently placed internally behind the retractor. In cases of indirect hernia, the sac was separated from the cord by a bloodless dissection using peanut gauze up to the internal ring. In cases of direct hernia, we checked routinely for an associated indirect hernia. In cases of indirect hernia, the internal ring was dilated and offered easy access

to the preperitoneal space where the epigastric vessels can be found medially. These vessels were retracted medially and gauze was introduced into the preperitoneal space. For a direct hernia, the preperitoneal space was dissected through the dilated fascia transversalis.

2. We generally began gauze dissection above the pubis tubercle and pushed the peritoneum up and medially. 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.

At this time, an eventual undiagnosed femoral hernia can be identified and treated using the same procedure.

Dissection of the sac and cord must be performed up to the point where the spermatic cord and spermatic vessels separate, so that the cord can be easily parietalized.

3. If the peritoneum is accidentally opened, we suggest that is not closed immediately but that the dissection is continued until enough preperitoneal space is obtained, and then the peritoneum can be closed or respected if necessary. Closing the peritoneum at the end of the dissection can facilitate dissection by intra-abdominal palpation of the sac. If the sac was respected, it was closed under visual control using an absorbable stitch. The lateral digital dissection required to create the appropriate space for the mesh can be a little bit more difficult.
4. A synthetic polypropylene mesh of size 11*6 cm is prepared to cover Bogros's space and the Fruchaud's Myopectineal orifice. It is first placed medially behind Cooper's ligament and then laterally to the internal ring. The prosthesis must not be pushed too medially, where there is often more space due to an easier dissection. 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 Iliopectineal 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.
5. In indirect inguinal hernia we then recreated an internal ring. In direct inguinal hernia posterior

wall of the inguinal canal is closed with per-string suture.

External oblique fascia is sutured with delayed absorbable suture followed skin closure, compressive dressing to be done at the end of the procedure. Single dose of post operatively analgesic and antibiotics given.

Duration of the operation is noted:

Patient is observed for 7 days asked to come for follow up after 1 month, & 1 year.

RESULT:-

In our study 50 patients taken for the TIPP procedure. The mean age of the patients subjected to TIPP it was 51.36 years.

Sex Distribution	
Male	48
Female	02

(Range - 24 to 68 years) Out of 50 patients 12 patients (24 %) belong to 20 to 40 years, 31 patients (62%) belong to 40 to 60 years and 7 (14%) patients are beyond age 60 years. 48 patients among these 50 are male and 2 are females.

Age Distribution	
20 – 40 years	12 (24%)
40 – 60 years	31 (62%)
>60 years	07 (14%)

We have 41(84%) patients with indirect inguinal hernia and 9 (18%) are with direct inguinal hernia.

Type of Hernia	
Indirect Inguinal Hernia	41(82%)
Direct Inguinal Hernia	09 (18%)
Duration of operation	40 to 50 min Mean 41.4 min

Intraoperative complication encountered during Transinguinal Preperitoneal Mesh Repair is:

peritoneal injury	2 (4%)
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vascular injury	1 (2%)
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The post operative patients are evaluated first after 7 days for the following complications. Early Postoperative pain is measured with respect to amount of pain killer consumption.

EARLY POSTOPERATIVE COMPLICATION (WITHIN 7 DAYS)	
Surgical Site Infection (SSI)	3 (6%)
Seroma	1 (2%)
Cord Edema	0

After discharging from the hospital all patients are called for **follow up after 1 month**. During this follow up the patient is evaluated for following complication.

Follow up after 1 month	
SSI	1 (2%)
Seroma	1 (2%)
Chronic Pain	3 (6%)
Loss of sensation	(0%)
Recurrence	(0%)
Cord Edema	(0%)

Follow up after 1 year each patient are enquired about

1) Chronic pain, 2) Cord edema, 3) Sensory loss, 4) Recurrence

After 1 year of follow up it is found that only 2 patients (4%) had mild chronic inguinal pain, but they don't need any analgesic drugs and can able to do their normal day-today activity with all ease. Rest of the patients had no other significant complication.

POSTOPERATIVE COMPLICATION AFTER 1 YEAR	
Chronic pain	2 (4%)
Cord Edema	0

Recurrence	0
Loss of sensation	0

DISCUSSION

The TIPP technique is a good technique that has been studied intensively by Pelissier and colleagues [9, 17-19]. They described a recurrence rate between 1% and 2% and a rate of chronic pain of between 5 and 7%. More recently, Berrevoet and his team [10, 20] came to almost the same conclusions, with a recurrence rate of between 1 and 3% and a visual analog pain scale of 0.2, 1 year after surgery.

In the present study, we confirm the results of Pelissier and Berrevoet.

Our study included 50 patients with 100% follow up. We found there occurred no clinical recurrence (1-2% in Pelissier study) [9, 17-19]. Recurrence (1-2% in Pelissier study) [9, 17-19].

The TIPP technique is an anterior technique involving preperitoneal placement of the mesh, and has the following advantages.

The low recurrence rate is for several reasons.

First, there is less shrinkage of the mesh even in the long term as there is less fibrosis as compared to Lichtenstein method.

This fact was confirmed by the ultrasound control more than 6 months after surgery.

Secondly, the mesh covers the three weak points of the groin: direct, indirect and femoral areas. In a study of patients with femoral hernia, 50% had an associated inguinal hernia that was undiagnosed before surgery^[31]. Covering the femoral orifice will prevent the occurrence of a femoral hernia, which could be misdiagnosed as an inguinal recurrence.

The second major complication of groin hernia repair is postoperative pain. Evaluating pain is very difficult. Here we used duration of consumption of analgesics to evaluate pain in the early postoperative period, and VAS Scale latter during follow up. Reviewing the literature^[12, 13, 25] we found that the rate of postoperative pain 1 year after Lichtenstein's procedure ranges from 6% to 20%. Our evaluation of postoperative pain revealed that 4% of patients still experienced some pain more than 6 month after surgery, but this pain did not require systematic

analgesic consumption and did not limit patient activities.

We explain the low rate of postoperative pain with three facts.

First, there is minimal dissection around the ilioinguinal and iliohypogastric nerves and around the cord [19]. Second, there is no fibrosis of the mesh in contact with the inguinal nerves [17] third, there are no fixation stitches, particularly on Cooper's ligament, which could be painful and possibly cause bleeding with periprostheses hematoma and postoperative pain.

The anterior approach is well known by general surgeons. This technique is easy to learn and to teach, and there is still the possibility to switch to another anterior technique such as shouldice or Lichtenstein should there is any trouble.

CONCLUSION:

Based on the results from this study with respect to other standard studies, the TIPP procedure for inguinal hernia repair is safe, reproducible and has a low complication rate in terms of surgical site infection, recurrence and postoperative pain. This technique is achievable under spinal or even local anesthesia in all types of surgery hospitals. However, the results from this study based on clinical and ultrasonic reevaluation after, 1 year after the surgery show the feasibility of this technique with its low complication rate and easier learning curve.

Hence Transinguinal preperitoneal mesh repair (TIPP) can be taken as better alternative for both Laparoscopic Inguinal hernia repair and Lichtenstein Hernia repair in an expert hand.

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