

Lichtenstien Repair of Inguinal Hernia Under Local Anaesthesia - Day Case Surgery

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This prospective study was carried on 250 patients to study the complication and recurrence rate associated with Lichtenstien repair of inguinal hernia in our clinical and socioeconomic settings. The cost effectiveness and return to work after surgery were the other outcome measures. Two hundred and fifty patients underwent mesh repair of inguinal hernia at two different centers over a period of two years. All the patients were operated under local anaesthesia. A bolus dose of preoperative antibiotic was given intravenously. The patients were followed up for two years and their post operative course was assessed according to a prescribed proforma. The rate of minor complications was in the range of 11.8%. The recurrence rate was 1.2%. There was minimal pain and the procedure was cost effective in terms of operative cost and less economic loss due to early return to work. It is concluded that Lichtenstien repair as a day case is safe and effective procedure to be performed by a trained general surgeon under local anaesthesia. The infection rate and the recurrence rate are low. The compliance and acceptability of the patient and ease of carrying out the procedure under local anaesthesia by surgeon is acceptable. In our view this type of hernial repair is an appropriate method in district hospital and tehsial headquarter hospitals where provision of anaesthesia facilities are yet to be fully developed and hospitals cater a major hernial load due to elderly patients with background of farming professions being admitted. The patient can be sent home on same day after surgery.

Key words: Inguinal, Hernia, Local anaesthesia, Mesh, Repair

The repair of inguinal hernia is a common surgical procedure performed in adult men all over the world. Only in the United States 730,000 hernia operations are completed annually¹. The repair of inguinal hernia has been considered by most of the surgeons as straight forward, simple and satisfactory. The patients may still complain of a slow post operative recovery with delayed return to work and the hernia has the tendency to recur. The recurrence rate generally reported is 15% or more while post operative pain and disability is frequent²⁻⁶. Unfortunately, in Pakistan the hernia surgery in most of the teaching hospitals is performed by the junior surgeons whose learning curve is still at the baseline. This has been the case in most of the traditional tissue based techniques (Bassini, Mcvay and Shouldice) which were carried out in 1970 and early 1980s. The hernia surgery has undergone a dramatic evolution over the past 18 years. The major advances include, the introduction of the concept of tension free repair by the use of prosthetic materials and also more recently TEPP (Laparoscopic extraoperative approach) repair for the hernia. The suture line tension seen in traditional repair resulted in pain, prolonged postoperative recovery and recurrence. The use of prosthetic material provides a remarkable advantage, in which a tension free repair can be performed even for the larger defects⁷. It has also been mentioned that the outcome after the repair of the recurrent hernias has been worse than after primary repair^{8,9}. After the introduction of tension free repair with use of prosthetic mesh, recurrence were reported to be less than 2% and the patient comfort was reported to be substantially improved over that obtained by traditional, tension producing techniques.

Local anaesthesia is used and the patient is discharged after a few hours and subsequently early resumption of their routine work^{10,11}.

Material and methods:

This study was carried out in the East Surgical Ward of Mayo Hospital and Surgical -I of Jinnah Hospital. All male patients presenting with non-complicated inguinal hernia were included in the study. Their clinical parameters were evaluated on out patient basis in hernia clinic designed for this study. All patient had to fill a study performa, one week prior to their surgery. These patients were operated as a day cases.

The patients were admitted at 8.00 am and discharged between 6.00 and 9.00 p.m. Preoperatively a bolus dose of first generation cephalosporin was given intravenously along with intramuscular diclofenac injection and during the procedure intramuscular dormican was also injected. A 15-20ml of 1% xylocain with adrenaline was used to achieve inguinal block in the groin on the side of hernia and on exposure of inguinal canal another 2-3ml was infiltrated around the neck of the sac and the exposed nerves in the canal. The whole procedure was performed under local anaesthesia. During the procedure the inguinal canal was exposed after incising the skin. The hernial sac is dealt with according to its type. The posterior wall was cleared of the fibro-fatty tissue. A polypropylene mesh, 6.00x11.00 cms was placed over the posterior wall. It was tailored according to the dimensions of the canal. Its apex was fixed to the pubic tubercle by 2/0 proline suture. The superior and the inferior edge of the mesh were stitched to the conjoint tendon and inguinal ligament

respectively with 2/0 prolene interrupted. The lateral end of the mesh was slit to make fish tail so as to accommodate the spermatic cord and the deep ring was reinforced. The cord was replaced and the canal was closed followed by the stitching of the skin. The use of drain was restricted to only the large hernias. The patient was examined in the evening and discharged if there was no immediate postoperative complication on paracetamol.

The patients were advised to visit the follow-up clinic after 3-days, one week and then monthly for first four months. Thereafter their follow-up was continued for two years on six monthly basis for the evidence of any recurrence.

Results:

There were a total of 250 patients included in the study. All were males. Mean age was 53.7 years (range, 18-85). Follow-up was completed in 207 patients. The rest were lost to follow-up. They were seen in the dedicated follow up clinics for two years, and also were contacted on phone. There were 137 patients (55%) who had indirect hernia. Direct inguinal hernia was seen in 70(30%). Combined direct and indirect hernia was seen in 38 patients (15%) Table.1. The complications seen in the early and immediate post operative period the complications seen are shown in Table 2. The timing of patients returning to work can be seen in Table 3. The patients requiring hospital admission due to immediate postoperative complications were 7(2.8%).

Table 1

Type	=n	%age
Direct inguinal hernia	137	55
Indirect inguinal hernia	70	30
Mixed direct and indirect inguinal hernia	38	15

Table 2:

Complication	=n	%age
Retention urine	05	2.0
Seroma	03	0.5
Hematoma	05	2.0
Ischaemic orchitis	Nil	00
Wound infection	02	0.5
Neuralgic pain	02	0.8
Recurrence	03	1.2

Table 3:

Timing of return to work	=n	%age
Within 1 st week	120	48.0
Within 2 nd week	83	32.2
Within 3 rd week	37	37.0
After 4 weeks	10	5.0

Discussion:

The repair of inguinal hernia in men is common surgical procedure, but till today, the most effective surgical technique is unknown¹². The use of prosthetic mesh for the repair of inguinal hernia has become popular in America as well as Europe. The Lichtenstien repair is the most

commonly used^{13,14}, mainly owing to the ease of operation and because it provides a tension-free reinforcement of the posterior wall of the inguinal canal. In addition, several randomized clinical trials have reported fewer recurrences with this repair than with conventional suture techniques¹⁵. For decades long-term analysis of the results of hernia repair concentrated on recurrence rates. More recently, however, several studies have focused on aspects of chronic pain and quality of life after hernia repair¹⁶.

The description of Lichtenstein tension free repair, about sixteen years ago, opened a new era in groin hernia repair. There is minimal post operative pain and the method is simple effective and is associated a very low recurrence rate (<2%). This procedure can easily be performed under local anesthesia.¹⁰ In our study a recurrence rate of 1.2% is observed. The post operative course of the patients has been quite satisfactory in terms of complications and early return to work. In view of these advantages, mesh repair of inguinal hernia is the most preferred method of treatment in our surgical practice.

A variety of prosthetic mesh is available to the surgeon. There are many types of mesh described in the literature but conventionally woven light weight polypropylene mesh was used in our study. Light weight VIPRO and antibacterial coated mesh were not available in the market during this study. The studies show that the light weight polypropylene mesh is preferable for Lichtenstein repair of inguinal hernia¹⁷. The ideal mesh properties are its inertness, resistance to infection and molecular permeability.¹⁸ The use of porous mesh allows a large surface area for the in growth of connective tissue leading to permanent fixation of the prosthesis within the abdominal wall. The fear of complication associated with mesh has proved to be baseless.

The technique of placement of mesh has to be considered in order to avoid recurrence. The mesh should extend 2-4 cm beyond the boundary of Hesselbach's triangle.¹⁹ The position of the mesh beneath the aponeurosis of external oblique results in the intra-abdominal pressure working in favor of the repair, since the external oblique aponeurosis keeps the mesh tightly in place by acting as an external support when intra-abdominal pressure rises. The mesh should be carefully fixed by prolene stitches to avoid folding, wrinkling or curling of the mesh around the cord. It has to be appreciated that the bulk of our out patients are of those of groin hernia, especially in the district and tehsil level hospitals. In view of this the technique of mesh repair of groin hernia under local anesthesia should be learnt by the young surgeons. The complications noted in our study are comparable to other series. This study obviously overcome the phobia of surgeons to infections using mesh for hernial repair. The authors recommend that these cases should be operated first on the list with an antibiotic prophylaxis and minimum use of diathermy to the tissue. At the end of

procedure the wound should be thoroughly washed with normal saline and rinsed with pyodine.

There is a universal agreement that Lichtenstien repair is tension free and associated with least recurrence rate²⁰. The underline cause of hernia is the weakness of the posterior wall of the inguinal canal. This restructuring of the posterior wall anterior to the transversalis fascia is the factor which prevents the recurrence. Infection in the prosthesis is a possibility but there is little proof to substantiate this possibility^{18,20}. There have been many studies in which no infection have been seen after this procedure. This has been seen that in the infection rate is same as seen in other tissue repairs without mesh²¹. There is comparatively increased rate of infection in case of mesh repair of epigastric and paraumbilical hernia as compared to inguinal hernia due to the reason that the mesh in case of these hernias is placed in a relatively avascular area as compared to inguinal hernia. The ease and comfort of carrying out this procedure under local anesthesia has to be practiced by the surgeons. Laparoscopic surgeons have also tried the repair of hernia. There are many studies which have proved that the overall recurrence rate are significantly higher after laparoscopic repair of primary hernia than after open repair of primary hernia¹². This could be due to it being a relatively new technique and a long learning curve associated with it. We still have to wait for further studies to evaluate the efficacy of this technique. We operated all the patients under local anesthesia. It avoids the systemic effects associated with general, spinal and regional anesthesia. It has a wide safety margin. The cost of mesh repair under local anesthesia is significantly low. The patient is fully awake and can move about. This cuts the cost of hospital stay and the patient can go home the same evening. Due to early mobility, the post operative convalescence period is reduced and most of the patient can resume their work within a week. In our study 48% of patients returned to work within 1st week of the surgery. This further decreases the economic load on the patient and the useful working hours of the patient and the country are not wasted. Our study had been done on a reasonably large number of patients and the results have been encouraging to make it a standard method of repair as a day case.

Conclusion:

Lichtenstein tension free mesh repair of inguinal hernia is a simple, comfortable, effective method with extremely low early and late morbidity and remarkably low recurrence rate. This should be the preferred method of repair of hernia. Open mesh repair of inguinal hernia is much preferred day case procedure particularly in the elderly and medically unfit patients. The economic benefits are enhanced by low morbidity, no hospital stay, early return to normal activities and low recurrence rate along with lesser demand to analgesics.

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