Lichtenstein 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 Lichtenstein 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 anesthesia. 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 Lichtenstein 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 annually. 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 frequent. 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 extra-peritoneal 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 defects. It has also been mentioned that the outcome after the repair of the recurrent hernias has been worse than after primary repair. 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 anesthesia is used and the patient is discharged after a few hours and subsequently early resumption of their routine work.\textsuperscript{10,11}

Material and methods:
This study was carried out in the East Surgical Ward of Mayo Hospital and Surgical -1 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 dornican 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,6.00x1.100 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 prolene 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 | %
|-----------------------------|---|---
| Direct inguinal hernia      | 137 | 55 |
| Indirect inguinal hernia    | 70  | 30 |
| Mixed direct and indirect inguinal hernia | 38  | 15 |

Table 2

| Complication               | n   | %
|-----------------------------|-----|---
| Retention urine             | 05  | 2.0 |
| Seroma                      | 03  | 0.5 |
| Hematoma                    | 05  | 2.0 |
| Ischaemic orchitis          | Nil | 0.0 |
| Wound infection             | 02  | 0.5 |
| Neuralgia pain              | 02  | 0.8 |
| Recurrence                  | 03  | 1.2 |

Table 3

| Timing of return to work    | n   | %
|------------------------------|-----|---
| Within 1st week              | 120 | 48.0 |
| Within 2nd week              | 83  | 32.2 |
| Within 3rd 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 unknown. The use of prosthetic mesh for the
repair of inguinal hernia has become popular in America as
well as Europe. The Lichtenstein repair is the most
commonly used, 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 techniques.
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 repair.

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. 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 hernia. The ideal mesh
properties are its inertness, resistance to infection and
molecular permeability. The use of porous mesh allows a
large surface area for the ingrowth 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. The position of the mesh beneath the
anterioris of external oblique results in the intra-
abdominal pressure working in favor of the repair, since
the external oblique anterioris 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 Lichtenstein repair is tension free and associated with least recurrence rate. 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. 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 mesh. There is comparatively increased rate of infection in case of mesh repair of epigastric and parambilical hernias 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 hernia. This could be due to it being a relatively new technique and a 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 1 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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