

INGUINAL HERNIA; LICHTENSTEIN AND DARN REPAIR A COMPARATIVE STUDY

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ABSTRACT...Objectives: To compare the rate of wound infection, recurrence and haematoma formation following Darn & Lichtenstein repair. **Design:** Prospective, comparative study. **Place & Duration:** Surgical Unit-II, Allied Hospital, Faisalabad. **Period:** One year study from 15-01-2003 to 15-01-2004. **Patients & Methods:** Total of 50 male patients between 16-60 years of age having right sided, left sided and bilateral inguinal hernias were divided by odd and even numbers into two groups, each group consisting of 25 patients. In 1st group of patients, Lichtenstein repair was done. While in 2nd group, Darn repair of posterior inguinal wall was performed. Patients were examined postoperatively for wound infection, haematoma formation & recurrence. Most of them presented with reducible inguinal hernias (84%) while others with irreducible inguinal hernias (16%). **Results:** Wound infection and hematoma formation were not observed in any patient in case of Lichtenstein repair. Wound infection was not observed in any patient and hematoma formation in two patients in case of Darn repair. Recurrence occurred in one patient with Darn repair while non was observed in case of Lichtenstein repair. **Conclusion:** Lichtenstein repair (mesh repair) of inguinal hernia is safe & has less rate of recurrence and haematoma formation.

Key words: Lichtenstein repair, Darn repair, Inguinal hernia, Hematoma, Infection, Recurrence.

INTRODUCTION

Hernia is defined as the protrusion of a viscus or a part of viscus through the wall of the cavity which contains that viscus¹. About 10-15% of all the general surgical procedures consist of operations for hernias and out of these 80% of the operations are performed for inguinal hernias².

It is generally accepted that operation is the treatment of choice for inguinal hernia. In adults inguinal hernia repair comprises of excision of hernial sac (Herniotomy) and repair of fascia transversalis and deep inguinal ring³.

Fascia transversalis and internal ring are repaired by different methods which may include:

1. Lytle repair.
2. Bassini repair.
3. Shouldice repair.
4. Darn repair.
5. Lichtenstein repair (Mesh repair).
6. Stoppa's repair.
7. Laparoscopic extraperitoneal and intra peritoneal mesh hernioplasty.

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In the recent years the polypropylene mesh has been extensively used by Rives in 1967, Stoppa in 1984, Lichtenstein in 1986, Gilbert in 1987 and the results were encouraging. During 80s modern herniologist like Lichtenstein in 1986 and Gilbert in 1987 had simply laid a swatch of mesh without sutures deep to or in front of fascia transversalis with good results^{4,5,6}.

Lichtenstein repair is a tension free repair associated with negligible rate of recurrence^{7,8}. It has become a standard method of treatment for inguinal hernia⁹. It can solve any anatomical problem in recurrent inguinal hernias^{10,11}. The patient remains pain free and less analgesia is required in Lichtenstein repair as compared to Darn repair.

AIMS AND OBJECTIVES

The aim of study is to compare the rate of wound infection, recurrence and haematoma formation following Darn and Lichtenstein repair. To study percentage of wound infection necessitating removal of mesh.

MATERIAL AND METHODS

This is a comparative and prospective study. It comprises of two groups of patients, each group consists of twenty five patients making a total of fifty male patients. Patients on each operative list were divided into two groups by odd and even numbers assigned to them. First group of patients were given odd numbers while second group of patients were assigned even numbers.

INCLUSION CRITERIA

The male patients between 16-60years of age were included in this study.

EXCLUSION CRITERIA

Following groups of patients were not included in this study.

1. Patients under sixteen year of age.
2. Patients suffering from diabetes mellitus.
3. Immunocompromised patients.
4. Female patients.

In the first group of patients, Lichtenstein repair was done while in the second group of patients, Darn repair was

carried out. All patients were operated in surgical unit-II Allied Hospital, Faisalabad from 2003 to 2005 under general or spinal anaesthesia. History, physical examination and relevant investigations like CBC, blood urea, sugar, X-ray chest (PA view) and ECG were carried out in all patients. Polypropylene mesh of 11 x 6cm was used in patients undergoing Lichtenstein repair. Prolene No. 1 on round bodied needle was used for forming network in patients undergoing Darn repair.

In Lichtenstein repair, after herniotomy in case of indirect hernia and in case of direct hernia reduction of sac and plication of fascia transversalis with prolene no. 2/0, a polypropylene mesh of 11 x 6cm was applied to posterior wall of inguinal canal. After trimming the mesh its apex was sutured to the pubic tubercle with 2/0 prolene suture, lower margin of mesh was sutured to inguinal ligament in continuous fashion with same suture after making a slit in the lateral edge of mesh to accommodate the spermatic cord. Upper margin of mesh was anchored to

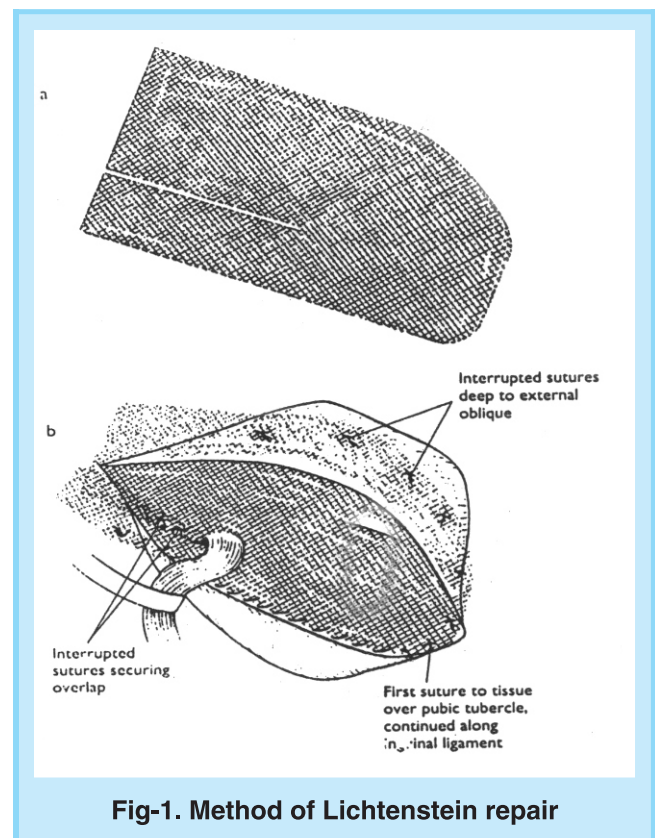


Fig-1. Method of Lichtenstein repair

conjoined tendon by applying interrupted sutures. Few sutures were applied to cut margins of mesh around the cord as seen in Fig-1. Haemostasis secured, suction drain was placed and wound was closed in layers. In Darn operation after herniotomy, repair of posterior inguinal wall was done. The 1st suture was applied to the pubic tubercle with prolene No 1. Then a network of prolene was made between inguinal ligament and conjoined tendon. After hemostasis, wound closed in layers. Patients were discharged on 2nd or 3rd postoperative day.

Four doses of 1st generation cephalosporin were used for surgical prophylaxis. Patients were examined for complications like wound infection, haematoma formation and recurrence during follow up of 1, 4, 8 & 16 weeks of interval.

RESULTS

In our study of fifty cases, one group of patients were operated by Darn repair while the other group by Lichtenstein repair. All were male patients between 16-60 years of age, with mean age of 37.5 (table I). Patients of group-I were operated by Lichtenstein repair and group-II by Darn repair.

Age	No. of patients			% age
	Group I	Group II	Total	
< 20 years	03	04	07	14%
20-30 years	03	03	06	12%
30-40 years	06	05	11	22%
40-50 years	06	08	14	28%
50-60 years	07	05	12	24%

Thirty-six (72%) patients had right sided inguinal hernia, thirteen (26%) patients had left sided inguinal hernia, and one (2%) patient had bilateral inguinal hernia (table II).

Forty-two patients (84%) presented with reducible inguinal hernia and 8 patients (16%) presented with irreducible hernia table III.

Site	No of Patients			% age
	Group I	Group II	Total	
Right	17	19	36	72%
Left	07	06	13	26%
Bilateral	01	-	1	2%
Total	25	25	50	100%

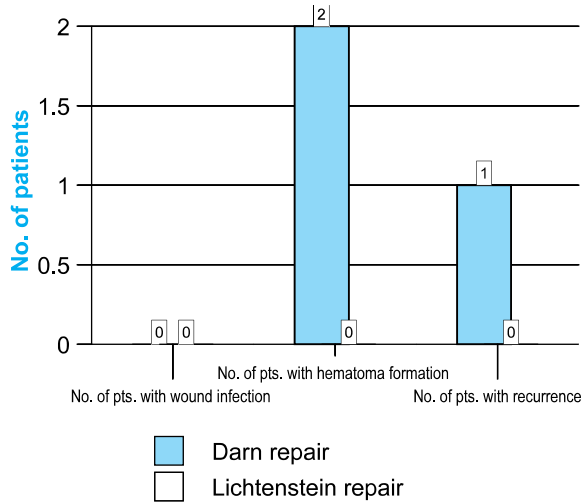
Mode of Presentation	No of Patients			% age
	Group I	Group II	Total	
Reducible	20	22	42	84%
Irreducible	05	03	08	16%
Total	25	25	50	100%

Wound infection was not observed in both Darn and Lichtenstein repair in our study.

Haematoma formation was observed in 2 out of 25 patients operated by Darn repair (8%) and none for Lichtenstein repair (0%) (p=0.15). In case of Lichtenstein repair no patient out of twenty five had recurrence during follow up while one patient developed recurrence after Darn repair on 2nd month of follow up which later on was repaired by Lichtenstein procedure (Table-IV, Fig-2.)

Complications	Darn repair (n=25)	Lichtenstein repair (n=25)
Wound infection	-	-
Hematoma formation	02 (8%)	-
Recurrence	01 (4%)	-

Fig-2. Comparison of wound infection, hematoma formation and recurrence in Darn and Lichtenstein repair



DISCUSSION

Inguinal hernia is the commonest surgical problem amongst all external hernias. All age groups are affected, our study shows peak incidence in third and fourth decades which is comparable to other studies. In our study, 72% patients had right sided inguinal hernias which is also comparable to other studies^{12,13}.

In our study early postoperative complications like wound infection, recurrence and haematoma formation in Darn & Lichtenstein repairs were compared. In our study infection did not occur in Darn and Lichtenstein repair. No infection was observed in case of Lichtenstein repair which is contrary to the studies conducted internationally mostly attributable to foreign body reaction against the mesh. We have shown better results in this regard as compared to other studies available^{14,15}. As no infection occurred during our study in case of Lichtenstein repair not necessitating removal of any mesh. In our study there was less rate of wound infection because we adopted strict aseptic measures, did minimal dissection during operation, strictly secured hemostasis and had better expertise.

Postoperative haematoma occurred in 02 (8%) patients of Darn repair while none occurred in case of Lichtenstein repair (0%). None of them required surgical drainage and were treated conservatively. It is comparable with other studies like Sattar A¹⁶ (1993) 9.855%. So in this regard it is still preferable to go for Lichtenstein repair, as no hematoma formation occurred by Lichtenstein repair during our study because of meticulous hemostasis performed during the operation.

If we have a critical look at the results of present comparative study, Lichtenstein repair for inguinal hernia is still to be preferred as it is a gold standard in the management of inguinal hernia if we keep in view the long term results of Lichtenstein repair i.e. a recurrence rate of less than 1% following Lichtenstein repair⁸, there was no recurrence on follow up after Lichtenstein repair while 01 patient had recurrent inguinal hernia out of 25 patients which is 4% in case of Darn repair but 0% with Lichtenstein repair which is comparable to the other studies^{17,18}.

As we have shown better results in terms of less wound infection, recurrence rate and hematoma formation in case of tension free Lichtenstein repair, this leads us to the conclusion that it is a gold standard of inguinal hernia treatment as also proved by other studies. Moreover, it is also cost effective if we keep in view the cost which may be incurred during repeat surgeries for managing complications¹⁹.

CONCLUSIONS

In conclusion, Lichtenstein repair (Mesh repair) of inguinal hernia is safe and has less rate of recurrence and hematoma formation. It is gold standard for treatment of inguinal hernia as proved by present study as well as other studies conducted all over the world. So all the inguinal hernias in adults can be safely and effectively treated by Lichtenstein repair. The long term cost effectiveness of Lichtenstein repair as compared to Darn repair is more as recurrence rate and other complications are negligible with it.

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