

## Original Research Article

# A COMPARATIVE STUDY OF POST OPERATIVE OUTCOME IN LICHTENSTEIN'S OPEN MESH REPAIR VS DESARDA NO MESH TISSUE REPAIR IN INGUINAL HERNIAS

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### ABSTRACT

**Background:** The goal of this analysis is to evaluate the effectiveness of non-mesh tissue repair (Desarda) against mesh repair (Lichtenstein).

**Materials and Methods:** It is a prospective randomised controlled trial done Department of General Surgery, study included all patients with inguinal hernias diagnosed clinically and by radiologically examination, patients aged 21 to 60 years who were treated for inguinal hernia over a period of twenty months. Patients were randomly assigned to one of 2 groups. Group I (Control Group): Tension-free Lichtenstein Mesh Repair: Group II: Desarda No Mesh Tissue Repair.

**Results:** The Lichtenstein repair and Desarda procedures of primary inguinal Hernia repair do not differ in the means of procedure, complexity, local complications and pain intensity is higher in Lichtenstein repair compared to Desarda's repair. The time taken for return to normal nonstrenuous activity is significantly higher for Lichtenstein group compared to Desarda's repair. The mean hospital stay is low for Desarda's repair compared to Lichtenstein repair. The patients are satisfied with the Lichtenstein repair and Desarda's repair with surgery outcome. There is no recurrence of hernia seen in both groups during follow up period.

**Conclusion:** Desarda's operation is simple to perform, does not require foreign body like mesh or complicated dissection of the inguinal floor as in Bassini and Shouldice. Desarda's technique is cost effective when compared with Lichtenstein method, so early can do in rural areas.

**Keywords:** Desarda's repair, Lichtenstein repair, Inguinal hernia.

## INTRODUCTION

Inguinal hernias, because of their frequency, remain an important surgical problem. The estimated lifetime risk for inguinal hernia is 27% for males and 3% for females. The annual mortality ranges from 100-to 300 per 100,000 inguinal hernia patients.<sup>[1]</sup>

Inguinal hernia repair is a routine surgery performed by general surgeons. Groin hernias account for 70% of all "abdominal wall hernias". "Hernia in the inguinal region" occurs through the myofascial plane

of the oblique and transversalis muscles, allowing intra-abdominal organs to protrude. Desarda argued that since the aging process is minimal in tendons and aponeurosis, the use of a strip of external oblique aponeurosis (EOA) is the best alternative to either mesh or the Shouldice repair. The author demonstrated that his repair was dynamic in nature due to the contractions of the external and internal oblique muscles, thereby converting the strip of EOA into a 'shield' to prevent re-herniation. He also showed that the strip of EOA supported the

transversalis fascia and that chances of herniation behind the strip were also reduced.<sup>[2]</sup> Currently “Lichtenstein tension free mesh repair” is widely used. Desarda’s no mesh inguinal hernia repair includes a movable “EO aponeurotic strip” to create a physiologically dynamic posterior wall. The results of the “Lichtenstein tension-free mesh repair” and Desarda's inguinal hernia repair are compared in this study.

## MATERIALS AND METHODS

It is a prospective randomised controlled trial done Department of General Surgery, Siddhartha Medical College and Government Hospital, from November 2019 to June 2021. The study included all patients with inguinal hernias diagnosed clinically and by radiologically examination, patients aged 21 to 60 years who were treated for inguinal hernia over a period of twenty months. Patients were randomly assigned to one of 2 groups.

Group I (Control Group): Tension-free Lichtenstein Mesh Repair was used on Group I.

Group II: Desarda No Mesh Tissue Repair was done on the Study Group.

**Inclusion Criteria:** Age >21 years who had a clinically detectable inguinal hernia.

**Exclusion Criteria:** Age > 60yrs, recurrent hernias, irreducible and obstructed hernias

The patient's information, collected on a uniquely constructed proforma, is included.

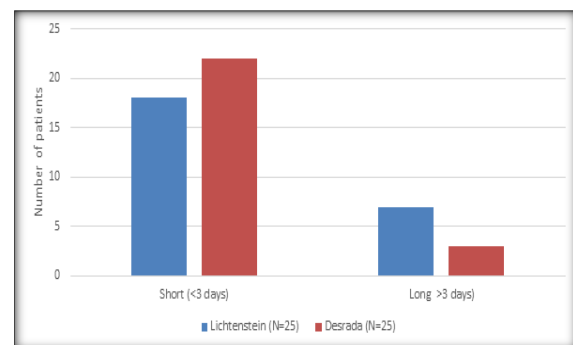
### Statistical Analysis

All data was subjected to descriptive statistics, as well as appropriate statistical comparison tests. The Unpaired t test was used to examine continuous data,

while the Fischer exact test test was used to examine categorical variables. The threshold for statistical significance was set as Significance was  $P < 0.05$  SPSS Version was used to analyse the data.

Microsoft Excel 2010 was used to create the graphs. The following ethical guidelines were put into place for the research period. The dignity and wellbeing of patients was protected at all times. The research data remained confidential throughout the study and the researcher obtained the patients permission to use their real names in the research report. Research protocol was presented in Institutional Ethical review Board and due permission was obtained to undertake the study. Study is self-sponsored with support from institution. There is no commercial or conflict of interest.

## RESULTS



**Figure 1: Mean hospital stay in both the groups**

Mean hospital stay desarda s group was less than 3 days for Lichtenstein group was more than 3 days ( $P$  value<0.0001).

**Table 1: Demographic distribution of patients in the present study**

Age in years	Lichtenstein (N=25)	Desrada (N=25)
21-40	10	9
41-60	15	16
<b>Sex</b>		
Males	25	25
Females	0	0
<b>Location</b>		
Right	14	13
Left	11	12
Bilateral	0	0

There is no difference regarding age, sex and location of hernia in both the groups, so comparable with each other with no significance.

**Table 2: Pain score in both groups after surgery**

Pain (mild to moderate)	Lichtenstein (N=25)	Desrada (N=25)
First POD	23	19
Third POD	24	16
Fifth POD	21	13

**Table 3: Complications in both groups in present study**

Complications	Lichtenstein (N=25)	Desrada (N=25)
Seroma	4	1
Wound infection	3	1
Orchitis	0	0
Testicular atrophy	0	0
Recurrence	0	0

There is no recurrence between both groups, complications are more for Lichtenstein group than Desarda group (p value < 0.0034). There were no case of chronic groin pain lasting more than 3 months in either of the group.

**Table 4: Return to normal non sternous work compared in both groups**

Return to normal non sternous work	Lichtenstein (N=25)	Desrada (N=25)
1-7 days	3	7
8-15 days	12	21
16-30 days	20	24

Return to normal nonsternous activity after 7-15 days in Desarda group was 84% while only 48% of patients in Lichtenstein repair (p value < 0.0001).

## DISCUSSIONS

In the present study 50 patients were included in this randomized, prospective type observational trial. In each study groups (mesh repair vs no mesh tissue repair) there were 25 patients. Lichtenstein tension free Mesh repair is now widely used, and is often referred to as the gold standard despite a relative paucity of clinical trial comparing mesh repair

with non-mesh tissue repair. Cost of surgery and post-operative morbidity affecting the quality of life are important consideration in the inguinal hernia surgery.<sup>[3,4]</sup> There are no clear evidence scientifically to prove that Lichtenstein mesh prosthesis repair is superior to non-prosthesis repair in this respect Porrero JL, El Cambio et al,<sup>[5]</sup> There are advantages and disadvantages associated with all types of open inguinal hernia surgery. Desarda's tissue repair involves an undetached strip of the external oblique aponeurosis between the muscle arch and the inguinal ligament to give a strong and physiologically dynamic posterior wall. The posterior wall of the inguinal canal was weak and without dynamic movement in all patients.<sup>[6]</sup>

Strong aponeurotic extensions were absent in the posterior wall. The muscle arch movement was lost or diminished in all patients. The movement of the muscle arch improved after it was sutured to the upper border of a strip of the external oblique aponeurosis (EOA). The newly formed posterior wall was kept physiologically dynamic by the additional muscle strength provided by external oblique muscle to the weakened muscles of the muscle arch. A physiologically dynamic and strong posterior inguinal wall, and the shielding and compression action of the muscles and aponeurosis around the inguinal canal are important factors that prevent hernia formation or hernia recurrence after repair. In addition, the squeezing and plugging action of the cremasteric muscle and binding effect of the strong cremasteric fascia, also play an important role in the prevention of hernia MP Desarda et al. Desarda's result in a tension free repair without the use of any foreign body, being simple to perform. For inguinal hernia repair, different studies have tried to give an answer as to which of the existing technique is better. The euhernia collaboration made a systemic revision of the randomized prospective studies and analysis of the result of different studies. The use of synthetic mesh substantially reduces the risk of hernia recurrence irrespective of placement method. Mesh

repair appears to reduce the chance of persisting pain rather than increase it McGillicuddy JE et al.<sup>[7]</sup>

No patient had severe pain postoperatively and nearly all patients (n 396) were free of pain and discomfort after the second postoperative day. 340 patients (85%) were discharged by the 4th postoperative day, and most returned to normal activities within 2 weeks. There was 1 early Haematocele, and 1 recurrence at 2 years Desarda MP et al.<sup>[8]</sup> In this study Return to normal nonsternous Activity After 7-15 days in Desarda group was 84 % while only 48% of patient in Lichtenstein repair.(p value <0.0001). After Desarda repair there was less intensive postoperative pain, rated in VAS scale at 3.3 in first day after the surgery, 2.1 in second day and 1.5 in third one, respectively in group II rated at 3.8, 2.7 and 1.6. Patients after Desarda repair were discharged from hospital on fourth day after the surgery, in group II on fifth postoperative day (p < 0.05). One week after the hernia repair patients in both groups equally classified the intensity of the pain (VAS 1.2). Six months after the hospitalization the effect of performed surgery was described as good or very good. Only one patient in group I was unsatisfied with the surgery results. There was minor intensity of the pain at this point. Similar in both groups (I--0.8, II--1.1). Full activity was achieved by 46 patients in group I and 45 in group II. There was no hernia recurrence among the patients six months after the surgery Mitura K, Romanczuk M et al,<sup>[9]</sup> In This study mild to moderate pain only noticed mild to moderate on 1st , 3 rd , 5 th post-operative days was significantly less in Desarda's group as compare to Lichtenstein group(P value <0.0001).

A total of 208 male patients were randomly assigned to the D or L group (105 vs. 103, respectively). The primary outcomes measured were recurrence and chronic pain. Additionally, early and late complications foreign body sensation, and return to everyday activity were examined in hospital and at 7, 30 days, and 6, 12, 24, and 36 months after surgery. During the follow-up, two recurrences were observed in each group (p = 1.000). Chronic pain was experienced by 4.8 and 2.9% of patients from groups D and L, respectively (p = 0.464). Foreign body sensation and return to activity were not different between the groups. There was significantly less seroma production in the D group (p = 0.004) Szopinski J, Kapala A, Prywinski S, et al.<sup>[10]</sup> In This study no one documented chronic pain after both groups, significantly seroma less in Desarda group

(4%) compared to Lichtenstein group(16%), p value <0.0034).

The external oblique muscle technique satisfies all criteria of modern hernia surgery. Desarda's technique is simple and easy to do. It does not require risky or complicated dissection. There is no tension in suture line. It does not require any foreign material and does not use weak muscle or fascia transversalis for repair. It does not use mesh prosthesis so it is more economical and also avoid morbidity associated with foreign body like rejection, infection, chronic groin pain. Szopinski et al,<sup>[10]</sup> stated in their Randomized controlled trial that the Desarda's technique has the potential to enlarge the number of tissue based method available to treat groin hernias. The most evident indication for use financial constraints or if a patient disagree with the use of mesh.

## CONCLUSION

The goal is to analyse the results of Lichtenstein tension-free mesh repair to Desarda's repair. We have reached a conclusion relying upon the results of our investigation, despite the fact that it demands the study of a wide range of patients and a longer follow-up period. Primary inguinal repair with the "Lichtenstein and Desarda Hernia repairs" are similar in terms of process and complexity. The severity of local complications and pain in the Lichtenstein repair is higher in comparison to Desarda's repair. The amount of time taken to get back to typical nonsternous exercise is much longer in the Lichtenstein group When compared to Desarda's repair. people who are being treated are equally pleased with outcomes of both technique. Both groups show no signs of hernia recurrence during

follow-up Period. As Desarda's technology is less expensive than Lichtenstein's, it is deployed in rural and remote places. When compared Desarda's repair to Lichtenstein's repair, the average hospital stay is shorter.

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