Original Article (APMC – 583)

DOI: 10.29054/APMC/19.583

A Comparative Study of Desarda Repair and Lichtenstein (Mesh) Repair for Inguinal Hernia

Muhammad Rehman Gulzar, Muhammad Umar Farooq, Shahbaz Ahmad, Faiqa Aslam, Shuja Tahir, Zafar Ali Chaudhary

ABSTRACT

Background: Inguinal Hernia is very common problem and the most common operation performed is Lichtensteins repair, but primary tissue repairs are still being developed. In this study we evaluated short term results of Desarda repair versus Lichtensteins repair (Mesh repair) for primary inguinal hernia. **Objective:** To compare the short-term results of Desarda technique with Lichtenstein's technique in terms of mean operating time, post-operative scrotal hematoma formation, surgical site infection and time to resume physical activity. **Study Design:** Prospective study. **Settings:** Surgical Unit-V, Faisalabad Medical University, Faisalabad, Pakistan. **Duration:** 11 months from 21-03-2018 to 17-02-2019. **Methodology:** A total of 138 patients were operated in our unit during the study period and were allocated into two groups randomly: Group A (Desarda) and Group B (Lichtenstein) included 62 patients and 72 patients respectively. The primary outcome measures were Operating time, post-operative scrotal hematoma, surgical site infection and Time in days to return to Normal activity. **Results:** During the follow up period, Mean Operating time in Desarda group was 38.29 minutes and 44.30 minutes in Lichtenstein group (p value 0.004). 93.5% patients resumed routine activities on 1st Post-operative day in Desarda group whereas in Lichtenstein group 92.1% patients resumed routine activities on 1st Post-operative day (p value 0.745). In Group A Scrotal Hematoma was developed in 4.8% patients and in 1.3% patients in Group B (p value 0.22). Surgical site Infection was seen in 1 patient in Group A (1.61%) and 1 patient in Group B (1.31% p value 0.88). **Conclusion:** Our study concludes that Desarda repair is superior to Mesh repair in terms of operating time and the results of Post-operative complications in both techniques are statistically insignificant.

Keywords: Hernia, Lichtenstein Repair, Desarda Repair, Scrotal Hematoma

Corresponding Author

DR. MUHAMMAD REHMAN GULZAR, Associate Professor, Surgery, Faisalabad Medical University, Allied Hospital, Faisalabad-Pakistan
Contact / Email: +92 321-8667843, rehmangulzar@yahoo.com

Submitted for Publication: 01-04-2019 *Accepted for Publication: 23-05-2019*

Citation: Gulzar MR, Farooq MU, Ahmad S, Aslam F, Tahir S, Chaudhary ZA. Desarda Repair Versus Lichtenstein Repair, A Comparative Study. APMC 2019;13(2):153-6.

INTRODUCTION

Hernia can be defined as bulging of part of the contents of the abdominal cavity through a weakness in the abdominal wall. [1]
Amongst groin hernias, inguinal hernia is the most common type (75%) of groin hernia in both males and females. [2,3]
The life time risk of development of inguinal hernia is approximately 27% in males and 3% in females.[2-4]
Most cases of inguinal hernia need surgical repair thus hernia repair is one of the most commonly performed operations worldwide.[3,4] Inguinal hernias arise from the posterior wall of the inguinal canal which is an area of natural weakness covered by fascia transversalis, whose failure results in hernia formation.[1,3] Moreover, structures such as the spermatic cord and round ligament pass through this area creating potential weakness.[1-4]
Smoking, collagen defects and raised intra-abdominal pressure from coughing, constipation, heavy lifting etc. are also associated with development of inguinal hernia.[1]
Since it's a common problem, many surgeons have endeavored to treat this condition since the time of ancient civilizations.[2]
It was Bassini (1844-1924) who with the introduced his tissue-based repair with good results. Modifications of this technique are still used like Mcvay and Shouldice repairs. However, recurrence rate is high- 5-10% for primary inguinal hernia.[2,4]
In the early 1980s, Lichtenstein described his method of tension free repair using a mesh for inguinal floor reconstruction. This technique has now become gold standard because of low rates of recurrence that have been consistently reproducible.[2]
However, this method has its own set of disadvantages like chronic pain, testicular atrophy, foreign body sensation and seroma formation etc. thus there is an ongoing search for an ideal operation for inguinal hernias. Theoretically an ideal hernia repair should be tension free, tissue based with no potential damage to vital structures, no long-term complications like pain and recurrence. Dr. M. P. Desarda described a new technique in his study of 860 patients published in the world journal of surgery in 2006. This technique utilizes an undetached strip of external oblique aponeurosis that is sutured to inguinal ligament below and to the conjoined tendon above, behind the spermatic cord to provide a physiologically dynamic posterior wall. No recurrence was noted in this study with a median.[5]
Many surgeons all over the world have endeavored to adopt this procedure especially in relatively resource poor areas and to date excellent results have been obtained with low incidence of recurrence (about 1%) and short-term complications.
However, hernia repair with a mesh is still the most widely used procedure. Total extra-peritoneal laparoscopy repair of adult inguinal hernia is a new procedure as well.[6]

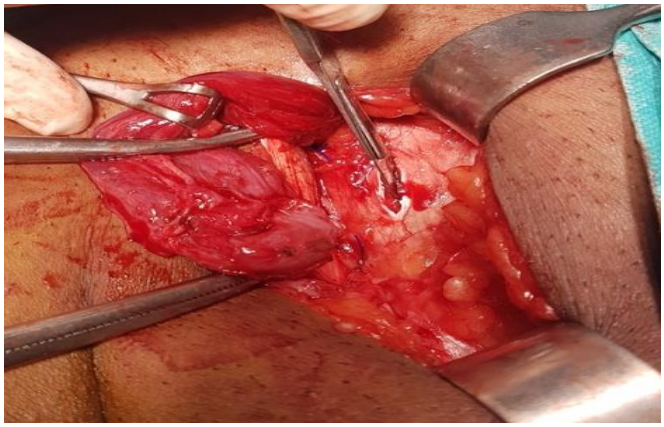
The purpose of our study is to compare the short-term results of Desarda technique with Lichtenstein's technique in terms of mean operating time, post-operative scrotal hematoma formation, surgical site infection and time to resume physical activity.

METHODOLOGY

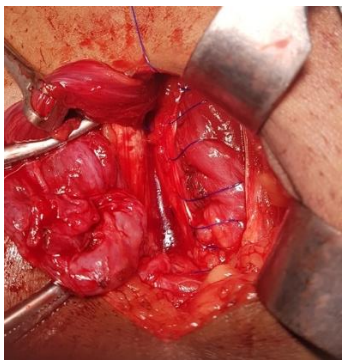
Study Design: Prospective study.
Settings: Surgical Unit-V, Faisalabad Medical University, Faisalabad, Pakistan.
Duration: 11 months from 21-03-2018 to 17-02-2019.
Sample Size: The study includes 138 patients.
Inclusion Criteria: Adult male patients with primary unilateral inguinal hernia.
Exclusion Criteria: Female patients, and those with recurrent, bilateral, strangulated or obstructed hernias and those with significant co-morbid diseases.
Methods: Desarda repair was performed on 62 patients and Lichtenstein repair was performed on 76 patients. Patients were admitted via outpatient department for elective hernia repair. They were thoroughly investigated in the inpatient department to identify their fitness status along with detailed history and examination. Informed consent was taken from all patients and they were randomly allocated to either Desarda group or Lichtenstein group. Protocol proforma was attached with each chart and data pertaining to variables was entered. Patients were seen during follow up and any complications were noted and entered in the proforma. Statistical analysis was done using IBM SPSS Statistics Version 23.
Surgical Technique: Surgery was performed by specialists (consultants and senior registrars). An oblique or transverse incision was made about 1.5-2 cm above the inguinal ligament. Inguinal canal opened by division of the external oblique aponeurosis. Spermatic cord lifted and its contents separated from the hernia sac. The sac itself was opened, its contents reduced to the abdominal cavity and transfixed and excised.

In Desarda technique, the edge of medial leaf of external oblique aponeurosis was sutured to inguinal ligament with running 2/0 polypropylene suture up to deep inguinal ring.

External oblique was again incised about 1.5-2.0 cm above the suture line thus creating a strip that was attached medially and laterally with original aponeurosis.



The upper margin of this strip was sutured with conjoined muscle/tendon using running 2/0 polypropylene suture.



The spermatic cord was placed on this strip and the edges of external oblique aponeurosis were approximated in front of the spermatic cord. Wound closed in standard manner using subcuticular non-absorbable suture.
In Lichtenstein technique, a 6x11 cm piece of mesh was fixed with conjoined tendon above and inguinal ligament below using non-absorbable sutures.
Operating Time: this was calculated in minutes from the time of making an incision to the placement of the last suture for skin wound closure
Surgical Site Infection: the presence of swelling, redness, warmth at surgical site with or without pus discharge and systemic features like fever and leukocytosis.

Post-operative Scrotal Hematoma: was diagnosed clinically by the presence of scrotal swelling and bluish discoloration (bruise)

Time to Resume Physical Activity: calculated in days and physical activity here means walking, going to toilet rather than strenuous physical activity.

RESULTS

The total number of patients included in the study was 138. The Mean age of the patients in Desarda group was 38.1 years (16-66 years) whereas that in Lichtenstein group was 41.4 years (15-68 years).

Table 1: Age distribution of patients

	Desarda Group	Lichtenstein Group
N	62	76
Minimum	16	15
Maximum	66	68
Mean	38.10	41.43
SD	12.602	15.013

Eighty-nine patients (64.5%) had right sided inguinal hernia and 49 patients (35.5%) had left sided inguinal hernia. 120 patients (84.2%) had indirect and 18 patients (15.8%) had direct inguinal hernia. Postoperative scrotal haematoma was noted in 3 patients (4.8 %) in Desarda group and in one (01) patient in Lichtenstein group (1.31%) with a p-value 0.22.

Table 2: Post-operative hematoma formation

	Desarda Group	Lichtenstein Group
N	62	76
Yes	03 (4.8%)	01 (1.3%)
No	59 (95.2%)	75 (98.7%)
P Value	0.22	

Surgical site infection was noted in only one patient in each group; 1.61 % in Desarda group and 1.31 % in Lichtenstein group (p value 0.88).

Table 3: Surgical site infection

	Desarda Group	Lichtenstein Group
N	62	76
Yes	01 (1.61%)	01 (1.31%)
No	61 (98.4%)	75 (98.7%)
P Value	0.88	

In Desarda group 93.5% patients were able to resume physical activity (like walking and going to washroom independently) one first postoperative day and 6.5% on the second day.

Table 4: Time in days to return to normal activities

	Desarda Group	Lichtenstein Group
N	62	76
1ST Day	58 (93.5%)	70 (92.1%)
2ND Day	04 (6.5%)	06 (7.9%)
P Value	0.745	

Whereas in Lichtenstein group 92.1% patients were able to resume physical activity (like walking and going to washroom independently) one first postoperative day and 7.9% on the second day (p-value 0.74). Mean Operating time was 38.29 min (17-70 min) and 44.30 min (25-120 min) in Desarda and Lichtenstein groups respectively.

Table 5: Operation time in minutes

	Desarda Group	Lichtenstein Group
N	62	76
Minimum	17	25
Maximum	70	120
Mean	38.29	44.30
SD	8.080	15.653
P Value	0.004	

DISCUSSION

Inguinal hernia is a frequently encountered problem with worldwide prevalence of 7%.[7] The clinical course is often complicated by obstruction and strangulation.[8] Mesh repair brought forth an era of tension free repairs when tissue repairs like Bassini and Shouldice methods did create tension and involved complicated dissection of the tissues (especially The Shouldice method). Because of its low recurrence rate, hernia repair using a mesh is widely regarded as the gold standard operation.

M.P. Desarda came up with his method of hernia repair wherein he used a strip of external oblique aponeurosis, undetached medially and laterally that is sutured to inguinal ligament below and conjoined tendon above in a tension free manner thus creating a physiologically active posterior wall. This procedure is still under evaluation. Many surgeons the world over have tried to compare this procedure with mesh repair and initial results are encouraging. P. R. I. Rodriguez et al in a large study on 1382 patients found that operative time in Desarda group was significantly longer than Lichtenstein group (p-value <0.05). however, rates of wound infection and postoperative haematoma formation were similar.[9]

Whereas W. Manyilirah et al concluded in their study that Desarda repair takes significantly shorter time than Lichtenstein procedure.[10] Similar results have been described in a study performed by A.E. Ahmed et al[11] and T. Siva Kumar et al[12] where they found that Desarda repair is faster to perform and is associated with a shorter hospital stay and shorter time to return to work.

B.S. Gedam et al[13] also found shorter operating time and earlier return to normal activity in patients treated with Desarda technique. However, a systematic review by H. Ge et al[14] concluded that there is no significant difference between Desarda and Lichtenstein techniques in terms of operating time, wound infection and haematoma formation.

In our study the mean operating time in Desarda group was 38.29 min whereas that in Lichtenstein group was 44.3 min and the difference is statistically significant (p-value 0.004) which is similar to results obtained by other researchers. The differences in wound infection, time taken to return to normal activities and

postoperative scrotal haematoma formation were statistically insignificant in the two groups.

Reduction in cost of surgery is an undeniable advantage of Desarda repair in comparison to mesh repairs. In a study performed by Ameer Afzal et al [7], cost of operation was 250 rupees and 2500 rupees in Desarda and Lichtenstein groups respectively (p value 0.05).

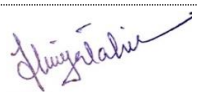
CONCLUSION

In our opinion Desarda repair technique is a valuable addition in the surgical armamentarium of hernia surgeons. It has the advantage of being tension free repair which is simple and cheap to perform and takes relatively shorter time. Another advantage is avoidance of foreign prosthetic material especially where there are concerns about infection and sexual activity.

REFERENCES

1. Tulloh B, Nixon SJ. Bailey and Love's Short Practice of Surgery. 27th ed. Boca Raton FL: Taylor & Francis Group, LLC;2018:1016-46
2. Wagner JP, Brunicardi FC, Amid PK, Chen DC. Schwartz's Principles of Surgery.10th ed. New York; McGraw Hill Education; 2015:1495-1520.
3. Pahwa HS, Kumar A, Agarwal P, Agarwal AA. Current trends in laparoscopic groin hernia repair: A review. World J Clin Cases. 2015;3(9):789-92.
4. Wade TJ, Brunt LM. The Washington manual of surgery. 7th ed. New Delhi: Wolters Kluwer; 2016:705-22.
5. Desarda MP. Physiological repair of inguinal hernia: A new technique (study of 860 patients). Hernia. 2006;10(2):143-6.
6. Lateef A, Khan AA, Khan SM, Zubair M. Complications of Total Extraperitoneal (TEP) Repair for Adult Inguinal Hernia. APMC. 2016;10(3):162-5.
7. Ahmed AE, Ahmed WB, Omar MA, Redwan AA. Desarda versus Lichtenstein repair for inguinal hernia: a randomized, multicenter controlled trial with promising results. Int Surg J. 2018;5:2723-6
8. Ameer A, Rashid A, Shahzad Y. Outcome of Desarda Vs Lichtenstein Repair for inguinal Hernia in Terms of Operative Time, Seroma Formation, Return to Normal Activity and Cost. PJMHS. 2017;11(1):93-6.
9. Rodriguez PRI, Herrera PP, Gonzalez OI, Alonso JRC, Blanco HSR. A Randomized Trial Comparing Lichtenstein Repair and No Mesh Desarda Repair for Inguinal Hernia: A Study of 1382 Patients. East Cent Afr J Surg. 2013;18(2):18-25.
10. Manyilirah W, Kijjambu S, Upoki A, Kiryabwire J. Comparison of non-mesh (Desarda) and mesh (Lichtenstein) methods for inguinal hernia among black African patients: a short-term double-blind RCT. Hernia. 2012;16(2):133-44.
11. Ahmed AE, Ahmed WB, Omar MA, Redwan AA. Desarda versus Lichtenstein repair for inguinal hernia: a randomized, multicenter controlled trial with promising results. Int Surg J. 2018;5:2723-6.
12. Kumar TS, Reddy MV, Inamdar P, Vijayendra P. Comparative study of tissue repair desarda technique versus lichtenstein's mesh repair in inguinal hernia. Indian J Med Res. 2018;8(7):1-3.
13. Gedam BS, Bansod PY, Kale VB, Shah Y, Akhtar M. A comparative study of Desarda's technique with Lichtenstein mesh repair in treatment of inguinal hernia: A prospective cohort study. Int J Surg. 2017;39:150-5.
14. Ge H, Liang C, Xu Y, Ren S, Wu J. Desarda versus Lichtenstein technique for the treatment of primary inguinal hernia: A systematic review. Int J Surg. 2018;50:22-7.

AUTHORSHIP AND CONTRIBUTION DECLARATION

AUTHORS	Contribution to The Paper	Signatures
Dr. Muhammad Rehman Gulzar Associate Professor of Surgery, Faisalabad Medical University, Faisalabad.	Chief Surgeon, Supervisor of whole process, Author Head of Unit	
Dr. Muhammad Umar Farooq Senior Registrar Surgical Unit-5 DHQ Hospital, Faisalabad	Surgeon, Author, Data Collection, Conceived the Idea	
Dr. Shahbaz Ahmad Assistant Professor of Surgery, Faisalabad Medical University, Faisalabad	Co- Author, Proof reading, Data Analysis	
Dr. Faiqa Aslam Women Medical Officer, Surgical Unit-5, DHQ Hospital, Faisalabad	Co-Author, Proof Reading	
Dr. Shuja Tahir Post Graduate Resident, Surgical Unit-5 DHQ Hospital, Faisalabad	Data Collection Statistical Analysis	
Prof. Dr. Zafar Ali Chaudhary Professor of Surgery and Vice Chancellor Faisalabad Medical University, Faisalabad	Literature Review, Comparative Discussion