

A Comparative Study Of Clinical Outcomes Of Desarda's Herniorrhaphy With Lichtenstein Hernioplasty In Treatment Of Inguinal Hernia

Dr. Rajendra Ratre¹, Dr. Saumitra Dube¹, Dr. Kunal Shekokar¹,
Dr. Abhijeet Bhattacharya¹

¹(Department Of General Surgery, Pt. J.N.M. Medical College, Raipur, India)

Abstract:

Background: The surgical treatment of inguinal hernias has evolved through several. Though Lichtenstein's prosthetic repair using prolene mesh has been popular lately, it is not a tissue-based repair and hence cannot be considered ideal. Though this method of hernia repair is simple and safe. Mesh works as a mechanical barrier. It does not give a mobile and physiologically dynamic posterior wall. Suture repair for inguinal hernia is still under development, and Desarda has described an operation where a 1-2cm strip of external oblique aponeurosis lying over the inguinal canal is isolated from the main muscle but attached both medially and laterally and then sutured to the conjoint tendon and inguinal ligament. This new technique is theoretically closer to ideal hernia repair. The technique is simple and easy to learn and do. It does not require complicated dissection or suturing. There is no tension on the suture line. It does not require any foreign material and does not use weakened muscles or transversalis fascia for repair.

Materials and Methods: The present study was a single-centre, prospective observational study conducted in a tertiary care centre on patients admitted with reducible inguinal hernias. Patients were divided into two groups: a) Patients who had Lichtenstein's repair and b) Patients who had Desarda's method of hernia repair. Operating time was measured as the time of total procedure and time for repair alone. The patients were followed up for postoperative pain, which was evaluated using the Visual Analogue Scale, wound hematoma, wound seroma, wound infection, Time for pain-free ambulation, postoperative stay and time to return to routine work were also documented.

Results: Both procedures were similar in certain aspects; however, Desarda's repair was superior to Lichtenstein's repair in terms of operating time, post-operative pain, time for painless ambulation, hospital stay and incidence of chronic pain. There was no significant difference in recurrence between the two groups after three months of follow-up.

Conclusion: The present study concluded that Desarda repair is equivalent to mesh repair in short-term outcomes and certain long-term outcomes like chronic groin pain. However, further studies and longer follow-ups are needed to comment on recurrences. However, the Desarda procedure is better suited for developing countries and certain clinical situations.

Key Word: Hernia; Desarda; Lichtenstein; Herniorrhaphy; Hernioplasty.

Date of Submission: 25-07-2024

Date of Acceptance: 05-08-2024

I. Introduction

The surgical treatment of inguinal hernias has evolved through several stages to reach a modern and successful era. It has been said that the history of groin hernias is the history of surgery itself ¹. Hernia repair is one of the most commonly performed general surgical procedures worldwide ². Though Lichtenstein's prosthetic repair using prolene mesh has been popular lately, it is not a tissue-based repair and hence cannot be considered ideal. Though this method of hernia repair is simple and safe, the slightest movement of the mesh from the sutured area is a leading cause of failure of mesh repair of inguinal hernias. Mesh works as a mechanical barrier. It does not give a mobile and physiologically dynamic posterior wall ³. Moreover, this technique is associated with chronic pain and testicular atrophy and infertility ⁴.

Suture repair for inguinal hernia is still under development, and recently, Desarda has described an operation where a 1-2cm strip of external oblique aponeurosis lying over the inguinal canal is isolated from the main muscle but attached both medially and laterally. It is then sutured to the conjoint tendon and inguinal ligament, reinforcing the posterior wall of the inguinal canal ⁵. As the abdominal muscles contract, this strip of aponeurosis tightens to add further physiological support to the posterior wall. This operation is currently being

evaluated. This new technique is theoretically closer to ideal hernia repair. It is based on the concept of providing a strong, mobile and physiologically dynamic posterior inguinal wall. The technique is simple and easy to learn and do. It does not require complicated dissection or suturing. There is no tension on the suture line. It does not require any foreign material and does not use weakened muscles or transversalis fascia for repair. The results are superior to those previously published in the field of hernia surgery.^{3,6}

II. Material And Methods

The present study was a single-centre, prospective observational study. It compares clinical outcomes after using Desarda herniorrhaphy and Lichtenstein Hernioplasty to repair inguinal hernia. It was conducted on patients admitted with the diagnosis of primary reducible inguinal hernia (both direct and Indirect) in the Department of General Surgery at Dr. B.R.A.M.H, Raipur.

Study Design: Prospective observational study

Study Location: This was a tertiary care teaching hospital-based study done in the Department of General Surgery at Dr. Bhim Rao Ambedkar Memorial Hospital, Raipur

Study Duration: March 2022 to March 2023.

Sample size: 80 patients.

Sample size calculation: The sample size was estimated based on a two-proportion design. We assumed that the confidence interval of 95%. The sample size obtained for this study was 39 patients for each group. We planned to include 80 patients (Group I- Control, Group II- Cases of 40 patients for each group)

Inclusion criteria:

All patients between 18-60 years of age with a primary reducible inguinal or inguinoscrotal hernia and consented to participate in the study.

Exclusion criteria:

1. Patients who refuse to participate study groups.
2. Having a history of recurrent hernia.
3. Patients unfit for anaesthesia
4. Patients with complicated hernia (strangulated, obstructed)
5. Patient found to have thin, weak external oblique aponeurosis intraoperatively.
6. Patients with confounding factors like occupational risk and co-morbid conditions.

Procedure methodology

All patients underwent procedures under spinal anaesthesia. In Lichtenstein hernioplasty, a 15-inch x 7-inch polypropylene mesh was used in all cases. The mesh was 0.5 mm thick and had a burst strength of approximately 14 kg/cm². Polypropylene 2-0 was used to suture the mesh in place.

In the Desarda technique, an un-detached strip of the external oblique aponeurosis (EOA) is sutured to the inguinal ligament below and the muscle arch above, behind the cord, to form a new posterior wall using 1/0 polypropylene interrupted sutures. One dose of the same antibiotic was given to all patients.

Operating time was measured as the total procedure time and the time for repair alone. The patients were followed up for postoperative pain, which was evaluated using the Visual Analogue Scale, wound hematoma, wound seroma, and wound infection. The Time for pain-free ambulation, postoperative stay, and return to routine work was also documented. Operating Time was calculated as Total Operating Time which is time taken from time of placement of incision to placement of last skin suture. Time for Repair was also calculated separately to avoid bias in cases with complicated hernia like pantaloon hernia, sliding hernia etc. Time for repair was the time from the start of the actual repair procedure (after complete reduction of hernia sac either by ligation in indirect hernia or by the placement of purse string suture in direct hernia or by other methods), i.e. preparation for mesh placement in Lichtenstein technique or placement of first suture to fix superior flap of external oblique to the inguinal ligament. It is calculated up to the placement of the last skin suture.

Patients were assessed for postoperative pain using a Visual Analogue Scale on 12 hours, day 1, day 3 and day 7. The patient was asked to ambulate as early as possible after the effect of spinal anaesthesia wore off. The time at which the patient was able to walk without any discomfort was documented. Patients were called to the outpatient department, and follow-up was done after 1 month, months, and 3 months for complications like chronic groin pain (inguinodynia), time taken to resume normal activity (Occupation) and recurrence.

Statistical analysis

Data was analyzed using SPSS version 20 (SPSS Inc., Chicago, IL). Data was entered and analysed with the help of MS Excel to find the outcomes after using Desarda herniorrhaphy and Lichtenstein hernioplasty of hernia repair. The quantitative and continuous variable was presented as mean +/- standard deviation. The level $P < 0.05$ was considered as the cutoff value or significance.

III. Result

Table no 1: Shows parameters observed in the study

	Desarda	Lichtenstein
(a) Mean Age (in years)	37.92±12.02	42.33±12.17
(b) BMI	21.47±1.29	21.25±1.53
(c) Pain (VAS Grading) *		
POD 0**	5.97±0.78	6.92±0.74
POD 1	3.41±1.02	5.18±0.97
POD 3	1.72±1.15	4.15±0.87
POD 7	0.1±0.45	3.18±0.97
(d) Duration of Surgery (in mins)	59.36±10.52	63.08±11.04
(e) Duration of Hospital Stay (in days)	3.56±0.75	4.69±1.08
(f) Complications		
Seroma	0%	5%
Hematoma	5%	7.5%
Cord Oedema/Induration	0%	2.5%
Recurrence	0%	0%

* VAS – Visual Analogue Scale

* *POD – Post Operative Day

IV. Discussion

The present study was conducted at DR BRAMH Raipur over a period of 1 year with a follow-up period of 3 months. A total of 80 patients were included in the study, 40 of whom were in Lichtenstein's group and 40 of whom were in the Desarda group.

In our study, the mean age of presentation in the Lichtenstein group was 42.33±12.17, and in Desarda was 37.92±12.02. Similar results were seen in studies by **Zaheer Abbas et al**⁷ . (39.84±10.9 vs 39.26±10.58), **B.S Gedam et al.**⁸ (49.75 ± 18.02 vs 47.32 ± 14.06), and **Halalisani Goodman Zulu et al.**⁹ (34 vs 52), clearly showing no significant difference in age in both groups.

In our study, the distribution of BMI among cases operated by the Desarda technique was 18.6 -23.8, and for Lichtenstein, it ranged between 18-23.8. The mean BMI in the Lichtenstein group was 21.25±1.53, and in Desarda was 21.47±1.29. There was no significant difference in the distribution of BMI in both groups, with a p-value of 0.48. **W. Manyilirah et al.**¹⁰ (18.5-25 vs 18.5-25) also found no significant difference in the distribution of BMI in both groups.

The scores obtained over POD 0 to POD 7 showed a decreasing trend, with a clear significant difference seen with the Desarda (lesser pain score) and Lichtenstein groups. **B.S Gedam et al., Zaheer Abbas et al., Sudhir Jain et al., and Hua et al.**^{7,8,11,12} also found decreasing trends in the pain scores from POD 0 to POD 7 with a clear significant difference, where Desarda had lesser pain scores in the initial post-operative days (POD 0 to POD 3).

We found that the mean duration of surgery in the Lichtenstein group was 63.08±11.04, and in Desarda, it was 59.36±10.52. There was no significant difference in the mean duration of surgery in both groups, with a p-value of 0.13. Even **B.S Gedam et al.**⁸ (72.60 ± 13.89 vs 73.89 ± 12.63) and **Halalisani Goodman Zulu**⁹ (50 vs 70) found that there was no significant difference in the mean duration of surgery in both groups.

In our study, the mean Duration of Hospital Stay in the Lichtenstein group was 4.69±1.08, and in the Desarda, it was 3.56±0.75, with a significant difference in the mean duration of Hospital Stay in the Desarda group with a p-value of < 0.001. Studies by **B.S Gedam et al.**⁸ (5.56 ± 1.59 vs 6.23 ± 2.02) and **W. Manyilirah et al.**¹⁰ (6.1 vs 5.8) depict a difference in the duration of hospital stay in these two groups with a significant difference.

In our study, seroma, hematoma, Cord oedema /induration, and recurrence had comparable incidence in the Lichtenstein group and the Desarda group, with statistically non-significant results. Similarly, **B.S Gedam et**

al. and Hua et al.^{8,12} both found that the complication rates in Desarda repair were lesser than or comparable to those found in Lichtenstein repair, with the relation between them being statistically non-significant.

The study's results were inferred, and it was found that both procedures were similar in certain aspects. However, Desarda's repair was superior to Lichtenstein's repair in terms of operating time, postoperative pain, time for painless ambulation, hospital stay, and incidence of chronic pain. There was no significant difference in recurrence between the two groups after 3 months of follow-up. The results of the present study correlated fairly well with studies by other authors.

V. Conclusion

The present study concluded that Desarda repair is equivalent to mesh repair in short-term outcomes and in certain long-term outcomes like chronic groin pain. However, further studies and longer follow-ups are needed to comment on recurrences. However, the Desarda procedure is better suited for developing countries and certain clinical situations.

References

- [1] Shah Dr. Comparison Of Pure Tissue Repair (Desarda) And Prosthetic Repair (Lichtenstein) Methods For Inguinal Hernia Repair. *Journal Of Medical Science And Clinical Research*. 2017;05(05):21381-21387.
- [2] Kingsnorth A, Leblanc K. Hernias: Inguinal And Incisional. *Lancet*. 2003;362(9395):1561-1571. Doi:10.1016/S0140-6736(03)14746-0
- [3] Desarda Mp. Physiological Repair Of Inguinal Hernia: A New Technique (Study Of 860 Patients). *Hernia*. 2006;10(2):143-146. Doi:10.1007/S10029-005-0039-1
- [4] Fitzgibbons Rj. Can We Be Sure Polypropylene Mesh Causes Infertility? *Ann Surg*. 2005;241(4):559-561. Doi:10.1097/01.Sla.0000157210.80440.B7
- [5] Jr Courtney, M. Townsend. *Sabiston Textbook Of Surgery*. 20th Ed. Elsevier - Health Sciences Division; 2024.
- [6] Desarda M, Ghosh A. Comparative Study Of Open Mesh Repair And Desarda's No-Mesh Repair In A District. *East And Central African Journal Of Surgery* Volume 11 Number 2. 2006;Vol 11:28-34.
- [7] Abbas Z, Bhat S, Koul M, Bhat R. Desarda's No Mesh Repair Versus Lichtenstein's Open Mesh Repair Of Inguinal Hernia: A Comparative Study. *Journal Of Evolution Of Medical And Dental Sciences*. 2015;4:13279-13285. Doi:10.14260/Jemds/2015/1910
- [8] 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;39:150-155. Doi:10.1016/J.Ijsu.2017.01.083
- [9] Zulu Hg, Mewa Kinoo S, Singh B. Comparison Of Lichtenstein Inguinal Hernia Repair With The Tension-Free Desarda Technique: A Clinical Audit And Review Of The Literature. *Trop Doct*. 2016;46(3):125-129. Doi:10.1177/0049475516655070
- [10] Manyilira W, Kijjambu S, Upoki A, Kiryabwire J. Comparison Of Non-Mesh (Desarda) And Mesh (Lichtenstein) Methods For Inguinal Hernia Repair Among Black African Patients: A Short-Term Double-Blind Rct. *Hernia*. 2012;16(2):133-144. Doi:10.1007/S10029-011-0883-0
- [11] Jain Sk, Bhatia S, Hameed T, Khan R, Dua A. A Randomised Controlled Trial Of Lichtenstein Repair With Desarda Repair In The Management Of Inguinal Hernias. *Ann Med Surg (Lond)*. 2021;67:102486. Doi:10.1016/J.Amsu.2021.102486
- [12] Ge H, Liang C, Xu Y, Ren S, Wu J. Desarda Versus Lichtenstein Technique For The Treatment Of Primary Inguinal Hernia: A Systematic Review. *International Journal Of Surgery*. 2018;50:22-27. Doi:10.1016/J.Ijsu.2017.11.055