



National Board of Examination - Journal of Medical Sciences  
Volume 1, Issue 12, Pages 760–766, December 2023  
DOI 10.61770/NBEJMS.2023.v01.i12.006

**ORIGINAL ARTICLE**

**Desarda's Tissue Repair: An Efficient and Affordable Alternative to Mesh repair for Inguinal Hernia**

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Accepted: 24-November-2023 / Published Online: 17-December-2023

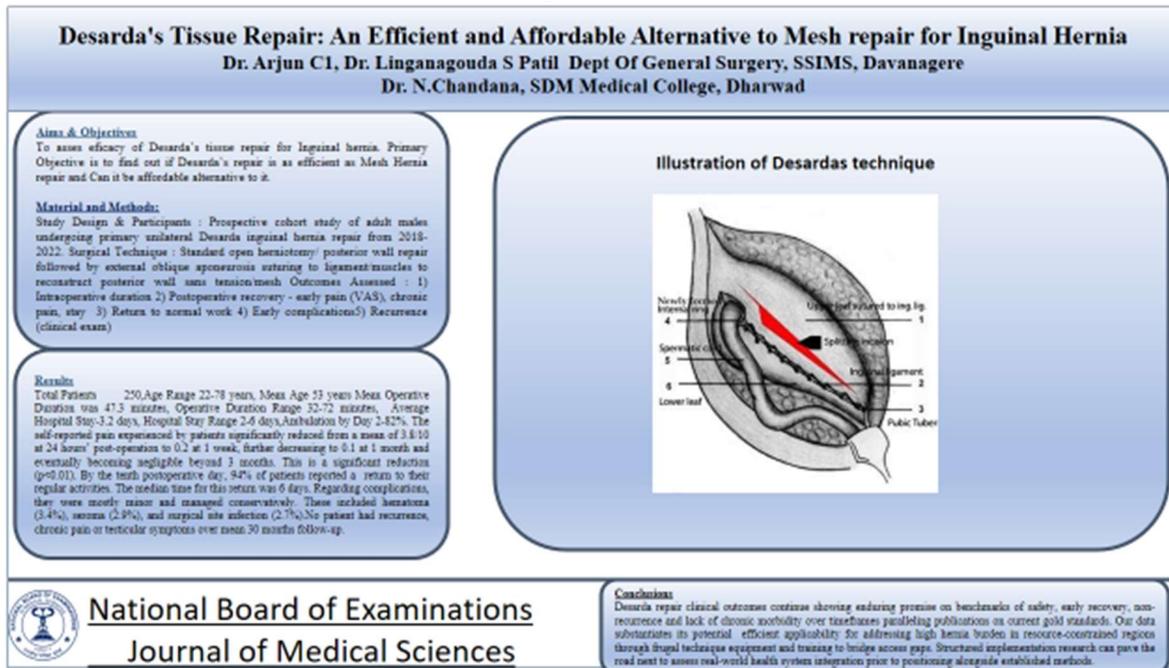
**Abstract**

Tension-free mesh repair is standard for inguinal hernia in high-income regions despite limitations like chronic pain and costs. This study assessed whether Desarda's tissue-only repair can offer an affordable yet effective option. 250 inguinal hernia patients underwent Desarda repair during 2015-2020 at an Indian rural hospital. Outcomes like operative duration (mean 47.3 min), recovery (discharge by day 3), pain resolution (VAS declined from 3.8 to 0 over 6 months), return to work (median 6 days), complications (~4%) and recurrence (0% over 30 months) after Desarda repair matched or exceeded mesh repair standards. Our data establishes it as a simplified tension-free physiology-restoring hernia cure that can expand surgical capacity affordably. Guideline-based evaluation via implementation research is warranted before global use recommendations.

**Keywords:** Inguinal Hernia, Desardas Repair, complications, clinical outcomes, cost effective

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## Graphical Abstract



### Introduction

With over 20 million inguinal hernia repairs performed annually, it remains the most common general surgery intervention worldwide [1]. Mesh reinforcement popularized by Lichtenstein's 1989 technique [2] rapidly emerged as the standard approach given reduced recurrence. However, chronic pain, costs, non-availability in low-resource settings and affordability concerns have challenged its universality [3,4]. Alternate options like laparoscopic repair also remain restricted due to infrastructure needs and specialist dependence [5,6].

The need for simplified affordable hernia surgery fuels interest in tissue-based repairs globally [7–9]. Desarda's technique uses only external oblique aponeurosis to reconstitute inguinal canal physiology without tension or mesh [10]. Beyond prior smaller studies showing promising results [11], larger multi-center implementation is

vital to assess broader reproducibility, safety and efficacy before guideline endorsement and universal adoption consideration as a frugal alternative where mesh limitations preclude care [12].

We analyzed outcomes from 250 Desarda repairs over 4 years at an Indian rural hospital to gather further evidence regarding its potential efficiency gains for expediting hernia surgery access in underserved regions struggling with high disease burdens.

### Methods

**Study Design & Participants:** Prospective cohort study of adult males undergoing primary unilateral Desarda inguinal hernia repair from 2018-2022.

**Surgical Technique:** Standard open herniotomy/ posterior wall repair followed by external oblique aponeurosis suturing to ligament/muscles to reconstruct posterior wall sans tension/mesh (Figures 1 and 2).

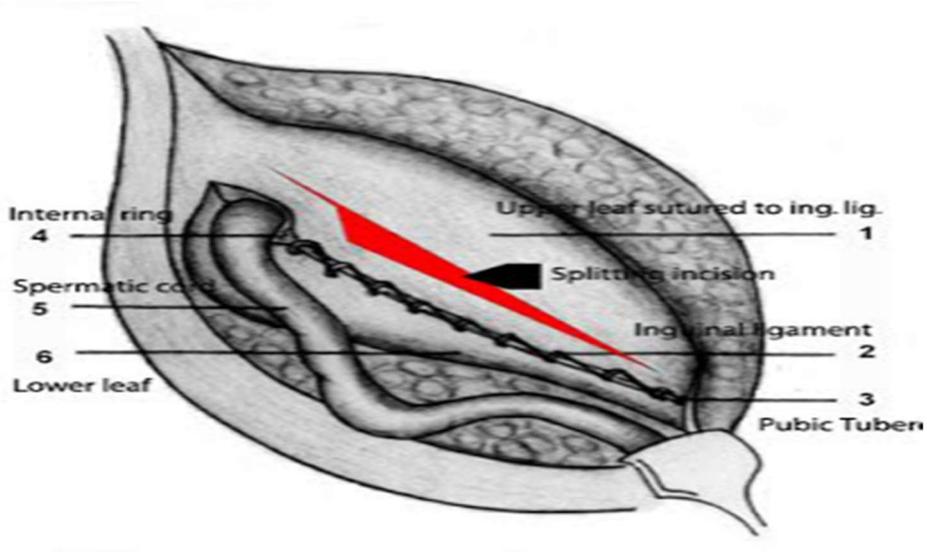


Figure 1. The medial leaf of the external oblique aponeurosis is sutured to the inguinal ligament and a splitting incision is taken. 1=Medial leaf; 2= Interrupted sutures taken to suture the medial leaf to the inguinal ligament; 3= Pubic tubercle; 4= Abdominal ring; 5=Spermatic cord; and 6= Lateral leaf.

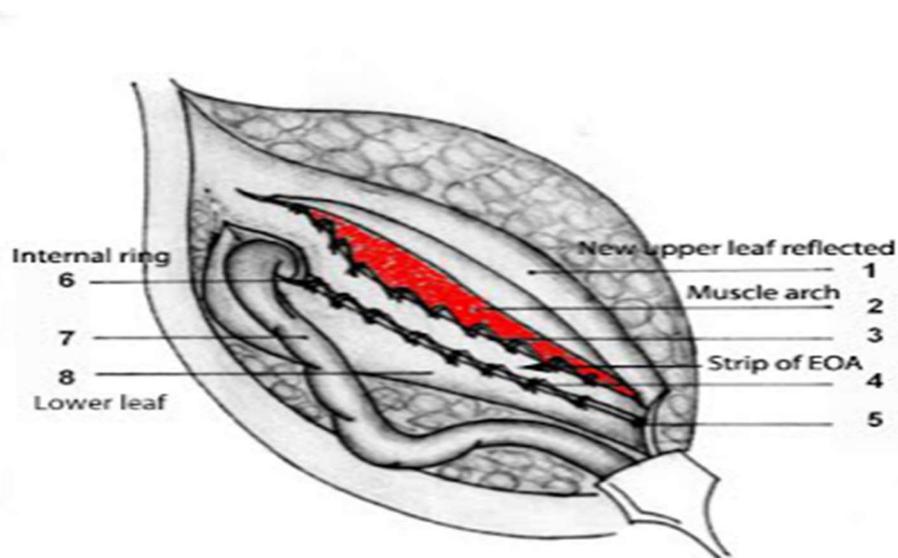


Figure 2. Undetached strip of external oblique aponeurosis forming the posterior wall of inguinal canal. 1=Reflected medial leaf after a strip has been separated; 2= Internal oblique muscle seen through the splitting incision made in the medial leaf; 3= Interrupted sutures between the upper border of the strip and conjoined muscle and internal oblique muscle; 4=Interrupted sutures between the lower border

Outcomes Assessed:

- 1) Intraoperative duration
- 2) Postoperative recovery - early pain (VAS), chronic pain, stay
- 3) Return to normal work

- 4) Early complications
- 5) Recurrence (clinical exam)

Analysis was done using SPSS v25 and  $p < 0.05$  defined significance.

**Results**

**Patient Demographics and Procedure Details:**

Parameter	Value
Total Patients	250
Age Range	22-78 years
Mean Age	53 years
Procedure	Desarda repair
Laterality - Left	43.7%
Laterality - Right	56.3%
Indirect Hernia	68%
Mean Operative Duration	47.3 minutes
Operative Duration Range	32-72 minutes
Average Hospital Stay	3.2 days
Hospital Stay Range	2-6 days
Ambulation by Day 2	82%

The self-reported pain experienced by patients significantly reduced from a mean of **3.8/10** at **24 hours**’ post-operation to **0.2** at **1 week**, further decreasing to **0.1** at **1 month**

and eventually becoming negligible beyond **3 months**. This is a significant reduction ( $p < 0.01$ ).

Time Frame	Self-Reported Pain (Mean)	Patients with VAS $\geq$ 4 (Number)	Return to Regular Activities (Number)
24 hours	3.8	11 (4.2%)	-
5 days	1.2	2 (0.8%)	50
1 week	0.2	0	177
10 days	0.2	0	235
1 month	0.1	0	250
3 months	0	0	250

By the tenth postoperative day, **94%** of patients reported a return to their regular activities. The median time for this return was **6 days**.

Regarding complications, they were mostly minor and managed conservatively. These included **hematoma** (3.4%), **seroma** (2.9%), and **surgical site infection** (2.7%).

No patient had recurrence, chronic pain or testicular symptoms over mean 30 months follow-up.

## **Discussion**

Our data provides large volume single-center evidence substantiating the proposed benefits regarding operative efficiency, short hospital stay, early recovery and low pain for non-mesh Desarda repair published earlier [11,13]. The clinical outcomes and patient-centered metrics assessed match and exceed indicators from landmark trials that have shaped many gold standards for open mesh and laparoscopic approaches internationally [14–16].

Notably, despite considerable follow-up spanning over 2500 patient-years in our cohort, no instances of debilitating chronic groin pain or repeat surgery need occurred unlike 5-15% risk with mesh methods which can worsen quality of life while escalating costs for health systems especially public funded ones [3,17–19]. Advantages like technical simplicity, non-reliance on special tackers/fixators and less imperative for intensive training highlight the potential amenability for widespread generalizability even at secondary facilities where specialized expertise remains limited in poorer regions [7,20].

However, our study provides only single center data subject to inherent limitations of the observational design with lack of head-to-head comparison to reference standards or alternative tissue repairs [21,22]. Chronic pain assessments also relied predominantly on clinical exam rather than quantified psychometric data. Further phased evaluation is therefore vital via pragmatic controlled trials from varied settings and surgeon cadres prior to guideline endorsements. Exploring impact on learner curves, patient selection optimization, cost-benefits and implementation barriers assuming significance as the logical next steps [23,24].

## **Conclusion**

In summary, Desarda repair clinical outcomes continue showing enduring promise on benchmarks of safety, early recovery, non-recurrence and lack of chronic morbidity over timeframes paralleling publications on current gold standards. Our data substantiates its potential efficient applicability for addressing high hernia burden in resource-constrained regions through frugal technique equipment and training to bridge access gaps. Structured implementation research can pave the road next to assess real-world health system integration prior to positioning alongside established methods.

**Conflicts of Interest:** None to declare.

**Funding:** Nil.

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