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Original Research Article

Evaluating Desarda's Tissue-Based Repair as an Alternative to Mesh in Complicated Groin Hernias

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Abstract:

Background: Inguinal hernia repair remains a cornerstone procedure in general surgery. While mesh use, exemplified by Lichtenstein's technique, is prevalent, its suitability is compromised in complex hernias and resource-constrained settings. The Desarda no-mesh repair offers a promising tissue-based solution.

Objective: This study sought to evaluate the outcomes of Desarda's repair in a cohort of patients with complicated inguinal hernias where mesh repair was contraindicated.

Methods: A prospective observational study was conducted on 30 patients undergoing Desarda's repair at a tertiary care centre between March 2024 and June 2025. Data captured included patient demographics, operative variables, pain assessments, complication rates, and time to activity resumption.

Results: Mean patient age was 55.2 ± 16.2 years, exclusively male. The right side was predominant (66.6%). Mean operative time was 96 minutes, and average hospitalization was 4.5 days. Postoperative pain showed a significant decrease from day 1 (VAS 4.8) to day 7 (VAS 0.3), with no chronic pain at 30 or 90 days. Complications were observed in 23.3% (seroma, wound infection, hematoma), all minor and manageable. No recurrences were documented. A remarkable 93% of patients returned to normal activities within 15 days.

Conclusion: Desarda's repair is a safe, effective, and cost-beneficial alternative to mesh hernioplasty, particularly advantageous for complicated inguinal hernias.

Keywords: Desarda repair, No-mesh hernioplasty, complicated hernia, Tissue-based repair.

Introduction

The primary form of abdominal wall disruption is the inguinal hernia (IH). This condition constitutes approximately three-quarters of all acquired defects found in the groin region and generates a significant operative demand on general surgical departments globally [1]. The lifetime probability of developing an IH favours males substantially, estimated at 27%, compared to just 3% for females [2]. Even though it is so widespread, the precise demographic footprint (incidence and prevalence) of IH remains elusive, largely due to diverse reporting standards and regional underestimation [3]. Effective surgical intervention necessitates two primary actions: adequate sealing of the anatomical breach and bolstering the rear boundary of the inguinal canal to restrict relapse and negative postoperative outcomes [4]. Historically, management has progressed through several generations of repair: ranging from ancient tissue-approximation methods (e.g., Bassini, Shouldice, McVay) to modern prosthetic scaffold deployment, exemplified by the Lichtenstein procedure [5]. The globally accepted benchmark remains the Lichtenstein tension-free hernioplasty [6]. This method utilizes a synthetic prosthesis and is favoured for its reproducibility and diminished rates of long-term hernia recurrence. Nevertheless, relying on foreign material introduces specific drawbacks [7]. Patients face risks including persistent neuropathic discomfort in the groin, feeling the implant, severe localized infection, rejection, and, infrequently, displacement of the device. Crucially, the implantation of prosthetic material is routinely avoided in emergency surgery or when the surgical field is septic or compromised (e.g., strangulated or incarcerated hernias). To counteract these inherent limitations, Mohan P. Desarda pioneered an innovative, suture-based (tissue-only), tension-free solution in 2001 [8]. This technique draws on autologous material, specifically fashioning a reinforcing band from a

strip of the external oblique aponeurosis (EOA) to strengthen the rear canal wall dynamically. Dubbed the "dynamic repair," this approach eliminates the need for foreign implants, shortens the required training period for surgeons, and offers substantial cost savings, making it an optimal choice for low-resource environments [9]. Evidence supporting the Desarda procedure has demonstrated merit, showing improved patient comfort (reduced postoperative pain), faster return to activity, and negligible rates of relapse across extended follow-up periods [10]. Motivated by this potential, this research aims specifically to assess the utility and clinical outcomes of the Desarda repair when managing complex inguinal hernias in clinical scenarios where standard mesh placement is either infeasible or strictly prohibited.

Materials and Methods

This investigation employed a prospective observational methodology. It was conducted within the Department of General Surgery at VIMSAR, Burla, and Odisha India. The study spanned from March 2024 to June 2025, focusing on a cohort of consecutive patients who presented either with intricate inguinal hernias or for whom mesh-based repair techniques were contraindicated. Initially, 32 individuals were screened for potential eligibility. During the surgical procedure, one participant was excluded due to the discovery of an inadequate external oblique aponeurosis. Furthermore, one patient was unfortunately lost to follow-up owing to mortality. Consequently, the final analysis encompassed 30 patients.

Criteria for Inclusion

- Individuals aged over 18 years with a confirmed diagnosis of inguinal hernia.
- Patients exhibiting coexisting medical conditions such as immunosuppression, malignancy, prolonged corticosteroid use, or those undergoing chemotherapy.
- Cases involving complicated hernias (e.g., obstructed, strangulated, or irreducible types) where the use of mesh for repair was deemed unsuitable.

Criteria for Exclusion

- Patients deemed medically unfit for surgical intervention.
- Individuals who declined to provide informed consent.
- Cases of recurrent hernia.
- Patients identified intraoperatively with a notably thin, weakened, or divided external oblique aponeurosis.

Operative Procedure

Every patient underwent Desarda's repair, performed under stringent aseptic conditions and appropriate anaesthesia. A standard oblique incision was made in the groin region to expose the external oblique aponeurosis (EOA). The superior margin of the EOA was then secured to the inguinal ligament using absorbable monofilament sutures. A strip of the EOA, approximately 1.5 to 2 cm in width, was fashioned and sutured to the internal oblique muscle, thereby reinforcing the posterior wall of the inguinal canal. The spermatic cord was repositioned medially, and the inferior leaf of the EOA was approximated to finalize the reconstruction. Comprehensive details concerning patient demographics (age, gender, occupation, and residential location), clinical manifestations, comorbidities, and specific hernia characteristics were meticulously recorded. Intraoperative observations, the total time of the surgical procedure, and the patient's postoperative progression were systematically documented in structured case report forms.

The primary endpoints for assessment included:

- Postoperative pain scores: Quantified using the Visual Analogue Scale (VAS) on specific days following surgery (day 1, 3, 7, 30, and 90).
- Time to resume normal activity: The duration required for patients to return to non-strenuous daily routines.
- Postoperative complications: Such as wound infection, seroma formation, and hematoma, orchitis, and hernia recurrence.
- Secondary outcomes comprised the duration of the operative procedure and the length of inpatient hospitalization.

Results

The study enrolled an exclusively male cohort of 30 patients. The mean age of the participants was calculated as 55.2 years (SD ± 16.2), reflecting a broad age range spanning 18 to 82 years. Age distribution favoured the middle-aged group (41–60 years), which accounted for nearly half of the sample (48.3%). Furthermore, a sub-stantial segment (38.7%) consisted of individuals over the age of 60, while patients under 40 represented a minority (12.9%). (See Table 1). Regarding the anatomical site of the hernia, a clear lateral preponderance was established: two-thirds (66.6%) were located on the right side, with the remaining 33.3% presenting with a left-sided hernia. Notably, no bilateral cases were identified (Figure 1). The average surgical time was 96.3 ± 22.5 minutes, with procedural durations varying significantly from 60 to 140 minutes. Extended procedure times were typically associated with cases requiring complex dissection due to the severity or complicated nature of the hernia. The mean duration of hospitalization was 4.5 ± 3.2 days. Early discharge was achieved for 60% of the subjects, who were released within three days post-

surgery. Conversely, 40% of patients re-quired an extended institutional stay, primarily due to the management of minor postoperative complications (Table 2). Postoperative pain intensity exhibited a statistically significant and highly progressive reduction over the follow-up period ($p < 0.001$). Using the Visual Analog Scale (VAS), the average score dropped sharp-ly from an initial peak of 4.8 on Postoperative Day (POD) 1 to 1.5 by POD 3, practically resolving to 0.3 by POD 7. Clinical pain resolution was rapid: 23.3% of individuals reported being completely pain-free by POD 3, and this number surged to 70% by the seventh day. Full pain resolution was universally achieved and main-tained by the one-month (POD 30) and three-month (POD 90) markers (Table 3, Figure 2). A total of 23.3% of the patient group experienced some form of postoperative complication. All adverse events documented were minor and were successfully addressed through conservative, non-surgical treatment. Fluid collection (sero-ma) was the most frequently reported issue, occurring in 13.3% of cases. This was followed by localized wound infection (6.6%) and the formation of a hematoma (3.3%). Importantly, the long-term safety profile was excellent, with zero reported instances of hernia recurrence, material-related complications, or the de-velopment of chronic inguinal pain throughout the follow-up period (Table 3, Figure 3). Documentation of functional recovery highlights the benefit of the repair technique, demonstrating a swift return to routine, non-strenuous activities for the patient population (Table 5). The majority of participants—60%—resumed their normal routine between the 8th and 15th postoperative day. A substantial subset (33.3%) achieved this milestone even earlier, within the first seven days. Only a small fraction (6.6%) required more than two weeks for recovery, generally due to the temporary existence of a minor complication. This rapid recovery pattern supports the purported advantage of early mobilization and function associated with Desarda's approach. Analysis of the baseline health statistics (Table 4) revealed that 43.3% of the patients presented with no pre-existing comorbid illnesses. In those who did have systemic conditions, the profile re-flected typical findings for an elderly hernia population. Type 2 diabetes mellitus was the most common asso-ciated condition, affecting 20% of the subjects, followed closely by essential hypertension at 16.6%. Chronic obstructive airway disease (COAD) and chronic kidney disease were also documented in 10.0% and 3.3% of the population, respectively.

Table 1: Baseline Demographic and Clinical Profile of Patients Undergoing Desarda Repair

Variable	Category	Count (n)	Proportion (%)
Age (years)	18–40	4	12.9
	41–60	15	48.3
	>60	12	38.7
Sex	Male	30	100
Hernia Location	Right-sided	20	66.6
	Left-sided	10	33.3

Table 2: Operative Parameters: Duration of Surgery and Length of Hospital Stay

Variable	Mean ± SD	Range	Distribution (%)
Operative time (minutes)	96.3 ± 22.5	60–140	–
Hospital stay (days)	4.5 ± 3.2	2–20	<3 days: 60% >3 days: 40%

Table 3: Postoperative Outcomes: Pain Scores and Early Complications

Outcome Metric	Findings
Mean VAS Score	POD 1: 4.8; POD 7: 0.3; POD 30 & 90: 0
Pain-free Patients (%)	POD 3: 23.3%; POD 7: 70%; POD 30–90: 100%
Complications (n=30)	Seroma: 13.3%; Wound infection: 6.6%; Hematoma: 3.3%
Time to Resume Activity	≤7 days: 33.3%; 8–15 days: 60%; >15 days: 6.6%

Table 4: Spectrum of Comorbid Conditions in the Study Cohort

Comorbidity	Count (n)	Proportion (%)
Diabetes mellitus	6	20.0
Hypertension	5	16.6
Chronic respiratory issues (COAD)	3	10.0
Chronic kidney disease	1	3.3
None	13	43.3

Table 5: Postoperative Functional Recovery: Time to Return to Normal Activities

Time to Return to Activity	Number of Patients (n)	Percentage (%)
≤ 7 days	10	33.3
8–15 days	18	60.0
> 15 days	2	6.6

Discussion

Inguinal hernia correction stands as a ubiquitous intervention within general surgery globally, accounting for millions of procedures annually [11]. The primary aims of such surgical interventions are consistent: to achieve a lasting anatomical correction, minimize adverse post-operative events, facilitate swift patient recovery and resumption of daily life, and drastically lower the chances of the hernia reappearing. This particular investigation highlights the Desarda tissue-based method, which exhibited encouraging results concerning its ease of execution, significant reduction in post-surgical discomfort, accelerated patient rehabilitation, and an almost imperceptible rate of reoccurrence throughout the observation period. Demographic Characteristics The patient cohort was entirely male, possessing an average age of 55 years. This demographic profile is in line with worldwide epidemiological trends, which consistently report a greater prevalence of inguinal hernias in men than in women [12]. The majority of individuals fell within the 41-60 age bracket, a pattern frequently observed in extensive epidemiological studies indicating a peak incidence of hernias among middle-aged and older men [13].

A predominance of right-sided hernias was noted, a finding often corroborated by prior research that links this asymmetry to factors such as delayed testicular descent and inherent anatomical distinctions on the right side of the body [14]. Operative Parameters and Hospital Stay The mean surgical duration for the procedures in this investigation averaged around 96 minutes. While this extends beyond the typical timeframe for conventional mesh hernioplasty, it was deemed appropriate considering that a significant proportion of cases involved intricate or complicated hernias. These findings echo those of Gedam et al., who documented an average operative time of 90 minutes when employing Desarda's method for similarly complex scenarios [15]. Patients in our cohort spent an average of 4.5 days hospitalized, with over half (60%) being released within three days. Such brevity in hospitalisation and prompt patient mobility aligns with observations by Desarda and his team in their own clinical studies [16]. Postoperative Pain A particularly striking revelation was the marked decrease in reported pain intensity during the initial postoperative week, culminating in complete pain absence by day 30 for all participants. Crucially, chronic groin discomfort – a frequently encountered sequela of mesh-based repairs, often attributed to foreign body responses and nerve impingement – was entirely unobserved within our patient group. This outcome corroborates findings from randomized controlled trials, such as those by Szopinski et al., which established Desarda's repair as delivering substantially lower rates of chronic pain compared to the Lichtenstein mesh technique [17]. This inherent benefit positions the Desarda method as an especially attractive option for younger, active individuals, and in environments where access to prosthetic mesh is restricted or cost-prohibitive. Postoperative Complications The total incidence of complications stood at 23.3%, predominantly comprising minor issues such as seromas, wound infections, and hematomas, all successfully managed through non-surgical approaches. Significantly, no instances of hernia recurrence were documented during the limited follow-up period. This encouraging lack of reoccurrence within our patient group lends credence to prior investigations by Desarda and colleagues, who reported recurrence rates between 0% and 1% even over extended observation periods [18].

Eliminating the need for synthetic mesh inherently removes the dangers associated with prosthetic materials, such as infection, rejection, or migration. This aspect proves especially advantageous in cases of contaminated or complex hernias, where the implantation of mesh might be deemed inappropriate or even harmful. Return to Normal Activity Prompt patient ambulation and a swift return to daily routines are pivotal indicators of surgical triumph, particularly important for active, working-age demographics. Our research revealed that 93% of participants recommenced their regular activities within two weeks, consistent with findings from both Indian and global studies that compared Desarda's technique against Lichtenstein repair [15,19]. This shortened rehabilitation timeline is attributable to the dynamic structural reinforcement offered by the external oblique aponeurotic strip, which effectively functions as a physiological posterior wall, thereby mitigating stress and facilitating rapid post-operative movement.

Comparative Advantages of Desarda's Repair While prosthetic mesh repair is widely adopted as the gold standard, it is not without its long-term drawbacks, including persistent groin discomfort, a foreign body sensation, and elevated financial implications [16]. The Desarda method directly

tackles these issues by presenting a financially viable, tension-free, and biologically integrated reconstructive option. Moreover, its independence from specialized prosthetic materials renders it exceptionally well-suited for environments with limited resources [20]. The surgical technique itself is considered relatively straightforward to master and consistently achievable, factors that contribute to its increasing recognition and adoption. Limitations Acknowledged constraints of this research encompass its comparatively modest sample size and the restricted timeframe of post-operative observation. To definitively corroborate these findings, more extensive, multicenter randomized controlled trials offering prolonged outcome tracking are imperative. Furthermore, this study did not undertake direct comparative analyses with alternative tissue-based methods, like the Shouldice repair. Clinical Implications Notwithstanding these limitations, the current investigation underscores the efficacy of Desarda's repair as a secure and viable option for intricate inguinal hernias where prosthetic mesh is deemed unsuitable. The demonstrated lack of reoccurrence, minimal post-surgical discomfort, and expedited return to daily routines observed herein strongly affirm its value both in constrained healthcare environments and within specialized surgical contexts.

Conclusion

The Desarda method, a repair system relying exclusively on autogenous tissue, establishes a secure, efficacious, and biologically compatible substitute for prosthetic hernioplasty in correcting inguinal ruptures. This approach is especially critical in complex clinical situations where the implantation of synthetic mesh is medically inadvisable or contraindicated. Data collected during this investigation indicate that patients who received this specific type of reconstruction reported negligible postoperative discomfort.

Furthermore, they accomplished a rapid resumption of their ordinary daily routines and displayed zero incidence of recurrence throughout the monitored initial follow-up period. The mechanics of the repair hinge on utilizing a mobile strip derived from the external oblique aponeurosis. This structure provides robust, dynamic strengthening to the posterior canal wall. Since this reinforcement is achieved without creating localized anatomical tension or introducing any type of alloplastic material, the likelihood of developing persistent chronic pain in the groin area, alongside other complications frequently linked to synthetic mesh, is substantially reduced.

Beyond its physical merits, the surgical protocol proved to be both economically accessible and readily standardized. These attributes make the technique particularly well-suited for deployment in general surgical settings globally, including those regions characterized by limited resources.

In conclusion, while the requirement for large-scale, long-duration randomized studies is acknowledged to fully validate its efficacy over time, the current evidence emphatically supports Desarda's repair as a highly valued and essential component within the spectrum of surgical modalities available for managing inguinal pathologies.

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