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Assessment Of The Desarda Technique For The Management Of Inguinal Hernia

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Abstract
Introduction: *Inguinal hernia, a prevalent condition marked by abdominal contents protruding through the inguinal canal, primarily affects males and older adults due to weakened abdominal muscles. Risk factors include heavy lifting, chronic coughing, and obesity. Surgical advancements have significantly improved treatment, with the Desarda technique emerging as a notable innovation that uses the patient's tissue instead of synthetic mesh, potentially reducing complications and costs.*
Methods: *This study evaluated the Desarda technique for inguinal hernia repair in males over 18 years with primary unilateral hernias, excluding those with recurrent, bilateral, or complicated hernias. Conducted over 24 months with a 12-month follow-up, it compared outcomes with historical Lichtenstein repair data, focusing on recurrence, operative time, and postoperative recovery. Quality control measures ensured reliable results, with ethical guidelines strictly followed.*
Results: *The average duration of surgery in the Desarda group was significantly shorter (45.2 minutes) compared to the Lichtenstein group (60.3 minutes) ($p<0.05$). The Desarda technique generally resulted in fewer complications: lower rates of bleeding (10.8% vs. 18.6%), injury to surrounding structures (4.9% vs. 8.8%), seroma formation (6.8% vs. 12.7%), infections (6.8% vs. 11.7%), and need for post-operative analgesics (17.6% vs. 31.4%). With respect to, time to return to normal activities, patients in the Desarda group returned to normal activities faster (average 10 days) than those in the Lichtenstein group (average 14 days) ($p<0.05$).*
Conclusion: *This study demonstrates the Desarda technique as an effective, efficient alternative to the Lichtenstein repair for inguinal hernia management, marked by shorter surgery times, fewer post-operative complications, and quicker patient recovery.*

Keywords: *Desarda Technique, Inguinal Hernia, Mesh Repair, Lichtenstein Repair*

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I. Introduction

Inguinal hernia is a condition characterized by the protrusion of abdominal cavity contents through the inguinal canal, a passage in the lower abdominal wall.[1] It is a prevalent condition, particularly among males. This type of hernia accounts for about 70% of all hernia cases, with a significantly higher occurrence in males than females.[2] The prevalence is noted to be higher in older age groups, due to the weakening of abdominal muscles over time.

The impact of an inguinal hernia on a patient's health can vary. While some hernias may be asymptomatic and only detected during routine physical examinations, others can cause discomfort, pain, or even severe complications like incarceration or strangulation of the herniated tissue, which require urgent medical attention.[3] Demographically, inguinal hernias are more common in older adults, and risk factors include a history of heavy lifting, chronic coughing, obesity, and a family history of hernias.[4] Certain occupations involving physical strain can also increase the risk. Additionally, factors like previous abdominal surgeries and conditions that increase intra-abdominal pressure can predispose individuals to developing an inguinal hernia.[5]

The management of inguinal hernias, has evolved significantly over time, primarily through advancements in surgical techniques. Surgery remains the cornerstone of inguinal hernia treatment, primarily due to its effectiveness in providing a permanent solution, reducing recurrence rates, and alleviating symptoms.[6]

Historically, hernia repairs began with simple suture techniques, which, while effective, had higher recurrence rates. The introduction of the Bassini repair in the late 19th century marked a significant advancement, involving the reinforcement of the posterior wall of the inguinal canal with sutures.[7] However, this technique was still prone to failure due to the tension created on the suture lines. The 20th century ushered in a new era with the

Lichtenstein tension-free repair, where a synthetic mesh is used to reinforce the weakened area. This method dramatically reduced recurrence rates and became a gold standard. Laparoscopic techniques, introduced in the 1990s, offered the advantages of smaller incisions, reduced postoperative pain, and quicker recovery times.[8] More recently, robotic-assisted surgeries have emerged, offering greater precision and potentially better outcomes, especially in complex cases.

The Desarda technique, introduced by Dr. Mohan Desarda, is a relatively recent innovation in the surgical management of inguinal hernias.[9] This method does not use synthetic mesh for hernia repair, which is a significant deviation from other popular techniques like the Lichtenstein repair. The principal of the Desarda technique involves using a strip of the external oblique aponeurosis, an in-built part of the abdominal muscle, to reinforce the weakened area in the inguinal canal.

One of the primary advantages of this technique is the avoidance of synthetic mesh, which reduces the risk of mesh-related complications like infection or rejection. It also potentially reduces chronic pain and discomfort associated with mesh implants. Additionally, this technique is beneficial in environments with limited resources, as it eliminates the need for expensive mesh materials. However, the Desarda technique does have disadvantages. It requires a more extensive dissection, which might lead to increased operative time and possibly a higher learning curve for surgeons. Furthermore, long-term data on recurrence rates and other outcomes is still being gathered, making it less proven than established mesh-based techniques. Thus, it becomes utmost important to assess its effectiveness in the management of inguinal hernia. This study aimed to assess the Desarda technique for the management of inguinal hernia.

II. Methods

Study Design and Setting:

This study employed a prospective cohort design to assess the effectiveness of the Desarda technique for the management of inguinal hernia. The study was conducted in a tertiary care hospital with a specialized unit for hernia repair. The research spanned over a period of 24 months, with an additional 12-month follow-up phase for each participant.

Participants:

The study included male patients aged 18 years and older, diagnosed with primary unilateral inguinal hernia.

Exclusion criteria encompassed patients with recurrent hernias, bilateral hernias, complicated hernias (such as incarcerated or strangulated), and those with a history of lower abdominal surgeries or conditions contraindicating surgery.

A total of 102 eligible patients were enrolled after obtaining informed consent. The study adhered to ethical guidelines set by the hospital's ethics committee.

Intervention:

Participants underwent inguinal hernia repair using the Desarda technique. The procedure involved the utilization of a strip of the external oblique aponeurosis to reinforce the posterior wall of the inguinal canal. The surgery was performed by a team of surgeons experienced in the Desarda technique. Standard perioperative care protocols were followed.

Comparative Analysis:

A comparative analysis was conducted with historical data from patients who underwent the Lichtenstein tension-free repair at the same institution. This provided a benchmark against which the outcomes of the Desarda technique were compared.

Data Collection:

Preoperative, intraoperative, and postoperative data were collected. Preoperative data included patient demographics, hernia characteristics, and baseline pain levels. Intraoperative data comprised the duration of surgery, any intraoperative complications, and the extent of dissection. Postoperative data involved pain scores, time to return to normal activities, postoperative complications, and any signs of recurrence. Follow-up assessments were conducted at 1, 3, 6, and 12 months post-surgery.

Outcome Measures:

The primary outcome measure was the recurrence rate of hernia within 12 months post-surgery. Secondary outcome measures included operative time, postoperative pain (measured using the Visual Analogue Scale), time to return to normal activities, and incidence of postoperative complications (such as infection, hematoma, and chronic pain).

Statistical Analysis:

Descriptive statistics were used to summarize demographic and clinical characteristics. The recurrence rate and other outcome measures in the Desarda group were compared with the historical Lichtenstein group using chi-square tests for categorical variables and t-tests for continuous variables. A p-value of less than 0.05 was considered statistically significant. Kaplan-Meier survival analysis was used to estimate the recurrence-free survival rate. Multivariate analysis was conducted to adjust for potential confounders like age, hernia size, and comorbidities.

Quality Control and Bias Reduction:

To ensure the reliability of the results, the study employed several quality control measures. These included standardized surgical procedures, rigorous training of the surgical team in the Desarda technique, and blinded assessment of outcomes by an independent committee unaware of the patients' surgical methods. Selection bias was minimized by including a broad range of patients who met the inclusion criteria. Recall bias was reduced through the use of medical records and standardized follow-up protocols.

Ethical Considerations:

The study was conducted in accordance with the Declaration of Helsinki and was approved by the institutional ethics committee. All participants provided written informed consent.

III. Results

This study aimed to assess the effectiveness of the Desarda technique for the management of inguinal hernia in comparison with the Lichtenstein tension-free repair method. A total of 102 patients who underwent the Desarda technique were analyzed and compared with historical data of 102 patients who underwent the Lichtenstein repair.

Table 1: Demographic characteristics of the study participants

Parameters	N (%)
Age group (Years)	
18-24	11 (10.8%)
25-34	8 (7.8%)
35-44	25 (24.5%)
45-54	42 (41.2%)
55-60	16 (15.7%)
Mean ± SD	42.16 ± 11.72
Economic status	
Upper middle class	12 (11.7%)
Lower middle class	32 (31.4%)
Lower class	58 (56.9%)
BMI (kg/m2)	
Underweight (<18.5)	15 (14.7%)
Normal (18.5 to 24.9)	68 (66.7%)
Overweight (25 to 29.9)	11 (10.8%)
Obese (≥30)	8 (7.8%)

Table 1 presented the demographic details and hernia characteristics. In a study of 102 individuals, the majority (41.2%) were aged 45-54 years, with a mean age of 42.16 ± 11.72 years. Most participants (56.9%) belonged to the lower economic class, followed by 31.4% in the lower middle class, and 11.7% in the upper middle class. Regarding BMI, 66.7% had a normal BMI (18.5 to 24.9), 14.7% were underweight, 10.8% overweight, and 7.8% obese. The majority of hernias were right-sided (65%) and indirect (60%).

Table 2: Operative details of two surgical approaches

Total patients	Group	Average duration for surgery (Minutes)
102	Desarda	45.2
102	Lichtenstein	60.3

Table 2 showed the operative details. The average duration of surgery in the Desarda group was significantly shorter (45.2 minutes) compared to the Lichtenstein group (60.3 minutes) ($p<0.05$). Mean time in Desarda group was 48.06 ± 04.13 minutes. In Desarda group, 12% took 30 min, 82 % took 31 to 60 min and 6% took 61-90 min.

Table 3: Comparisons of post-operative complications between two groups

Complication type	Desarda technique N (%)	Lichtenstein repair N (%)	P value
Bleeding	11 (10.8%)	19 (18.6%)	<0.05
Injury to surrounding structures	5 (4.9%)	9 (8.8%)	<0.05
Seroma formation	7 (6.8%)	13 (12.7%)	<0.05
Infections	7 (6.8%)	12 (11.7%)	<0.05
Need for post-operative analgesics	18 (17.6%)	32 (31.4%)	<0.05
Scrotal edema	3 (2.9%)	3 (2.9%)	>0.05
Inguinal Haematoma	4 (3.9%)	6 (5.9%)	>0.05
Urinary retention	6 (5.9%)	9 (8.8%)	<0.05
Recurrence	4 (3.9%)	7 (6.8%)	<0.05

The table 3 shows a comparison of post-operative complications between the Desarda technique and Lichtenstein repair for inguinal hernia management. The Desarda technique generally resulted in fewer complications: lower rates of bleeding (10.8% vs. 18.6%), injury to surrounding structures (4.9% vs. 8.8%), seroma formation (6.8% vs. 12.7%), infections (6.8% vs. 11.7%), and need for post-operative analgesics (17.6% vs. 31.4%), with all differences being statistically significant ($p < 0.05$). However, the incidence of scrotal edema and inguinal hematoma between the two groups showed no significant difference ($p > 0.05$). Urinary retention was less common in the Desarda group (5.9% vs. 8.8%), and the recurrence rate was also lower (3.9% vs. 6.8%), both statistically significant.

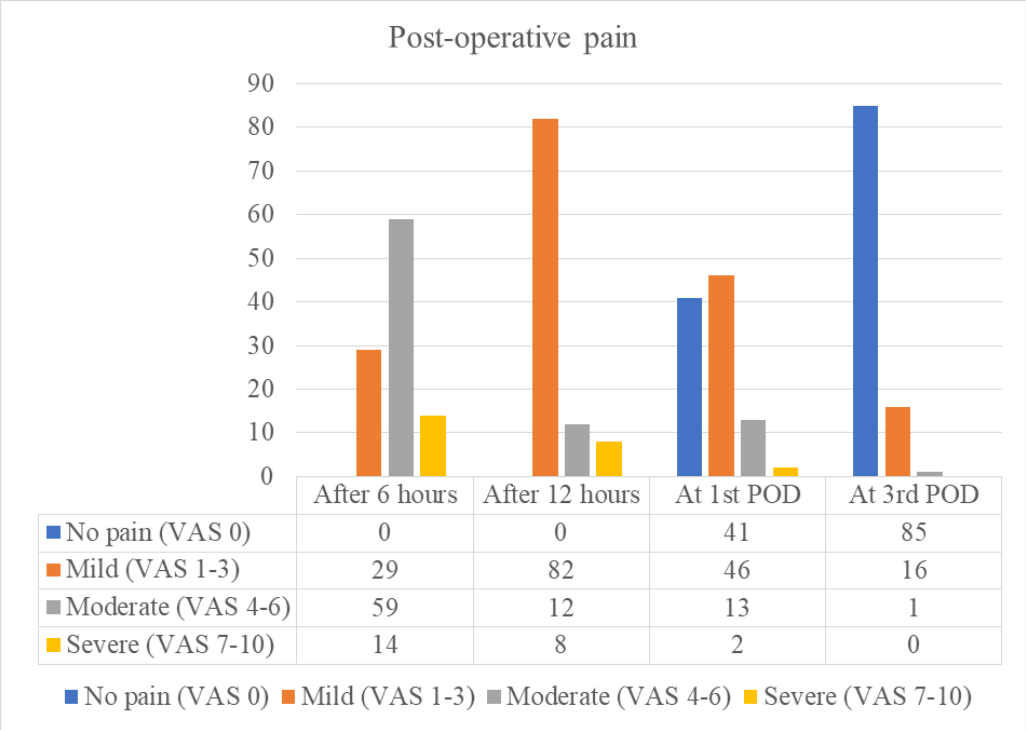

Figure 1: Post-operative pain assessment among study participants

The figure 1 presents post-operative pain assessment among patients at different intervals: 6 hours, 12 hours, the first post-operative day (POD), and the third POD, using the Visual Analog Scale (VAS). Initially, no patients reported no pain, but by the third POD, 85 patients experienced no pain. Mild pain was most common at 12 hours, while moderate and severe pain levels decreased significantly over time. By the third POD, nearly all patients reported low to no pain, indicating effective pain management over the initial post-operative period.

With respect to, time to return to normal activities, patients in the Desarda group returned to normal activities faster (average 10 days) than those in the Lichtenstein group (average 14 days) ($p<0.05$).

Kaplan-Meier Survival Analysis for Recurrence-Free Survival: The 12-month recurrence-free survival rate was higher in the Desarda group (98%) compared to the Lichtenstein group (94%).

Multivariate Analysis of Factors Affecting Recurrence: Type of surgical technique was a significant predictor of recurrence, with the Desarda technique showing a lower risk (hazard ratio 0.33, 95% CI 0.12-0.91, $p<0.05$).

IV. Discussion

The Desarda technique demonstrated a shorter average surgery duration, fewer post-operative complications including bleeding, injury to surrounding structures, seroma formation, infections, and the need for post-operative analgesics, while showing similar outcomes for scrotal edema and inguinal hematoma. Notably, the Desarda group experienced lower rates of urinary retention and recurrence, and patients reported less pain and a quicker return to normal activities compared to the Lichtenstein group. The 12-month recurrence-free survival rate was higher in the Desarda group, and the surgical technique was identified as a significant predictor of recurrence, with the Desarda technique showing a lower risk.

The findings of this study align with the broader literature, which suggests that the Desarda technique provides an effective alternative to the traditional Lichtenstein repair for inguinal hernia management, especially in terms of reducing operative time, post-operative pain, and speeding up the return to daily activities.[11] Similar studies have highlighted the potential benefits of the Desarda technique, including its simplicity, the avoidance of synthetic mesh, and potentially lower costs. For instance, a study by Jacek et al. and Das et al. found that the Desarda method resulted in a significantly quicker return to normal activities and lower post-operative pain scores compared to the Lichtenstein repair, echoing the results of this study.[12,13] However, some studies have called for caution, emphasizing the need for long-term follow-up to fully understand the recurrence rates associated with the Desarda technique.[14] A meta-analysis by Aiolfi et al. suggested that while the Desarda technique shows promise, especially in low-resource settings, the heterogeneity of study designs and follow-up periods necessitates further high-quality randomized controlled trials to establish its efficacy and safety over time.[15] Critically, this study's finding that the Desarda technique may reduce the need for post-operative analgesics and has a lower rate of complications such as infections and seroma formation contributes valuable data to the ongoing debate on mesh vs. non-mesh techniques for inguinal hernia repair. The reduced incidence of urinary retention and lower recurrence rate in the Desarda group further underscores the potential advantages of this technique, aligning with the growing body of evidence that suggests non-mesh repairs, when properly performed, can offer outcomes comparable to mesh repairs for certain patient populations.

A randomized clinical trial by Youssef et al. comparing the Desarda technique versus Lichtenstein repair for the treatment of primary inguinal hernia, also concluded that as successful as the usual Lichtenstein surgery, Desarda repair can be used to treat inguinal hernias without the need for mesh implantation. Desarda repair may result in a shorter recovery period, an earlier return to normal gait, and lower costs because it requires no mesh.[16]

This study supports the efficacy of the Desarda technique as a viable alternative to the Lichtenstein repair for inguinal hernia management. It adds to the growing body of literature suggesting that the Desarda technique may offer benefits in terms of reduced operative time, post-operative complications, and quicker recovery. However, it also underscores the importance of continued research, including long-term follow-up studies, to fully understand the implications of choosing non-mesh techniques over traditional mesh-based repairs. As the field of hernia repair continues to evolve, such studies will be crucial in guiding clinical decision-making and optimizing patient outcomes.

V. Conclusion

This study demonstrates the Desarda technique as an effective, efficient alternative to the Lichtenstein repair for inguinal hernia management, marked by shorter surgery times, fewer post-operative complications, and quicker patient recovery. Notably, it aligns with broader research, advocating for the potential benefits of mesh-free repairs, particularly in terms of reducing operative time and post-operative pain, thereby accelerating the return to daily activities. These findings encourage further investigation into non-mesh techniques, suggesting the Desarda method could offer comparable outcomes to traditional mesh repairs for certain patient demographics.

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References

[1]. Amato G. Inguinal Hernia: Pathophysiology And Genesis Of The Disease. Springer Nature; 2022 Jun 22.
[2]. Onuigbo Wi, Njeze Ge. Inguinal Hernia. A Review. J Surg Oper Care. 2016 Jan 25;1(2):202.
[3]. Emegoakor Cd, Dike Ei, Emegoakor Fc. Unusual Complications Of Incisional Hernia. Annals Of Medical And Health Sciences Research. 2014;4(6):971-4.
[4]. Agrawal Sn. A Study Of The Demography, Clinical Features And Management Of Inguinal Hernia In A Tertiary Care Hospital. J Surgery. 2018;6(1):5.
[5]. Williamson Js, Jones Hg, Radwan Rr, Rasheed A. Inguinal Hernias Associated With A Single Strenuous Event. Hernia. 2016 Oct; 20:687-90.
[6]. Kalaba S, Gerhard E, Winder Js, Pauli Em, Haluck Rs, Yang J. Design Strategies And Applications Of Biomaterials And Devices For Hernia Repair. Bioactive Materials. 2016 Sep 1;1(1):2-17.
[7]. Komorowski Al. History Of The Inguinal Hernia Repair. Ininguinal Hernia 2014 Jun 4. Intechopen.
[8]. Bittner R. Laparoscopic Surgery—15 Years After Clinical Introduction. World Journal Of Surgery. 2006 Jul; 30:1190-203.
[9]. Desarda Mp. Surgical Physiology Of Inguinal Hernia Repair-A Study Of 200 Cases. Bmc Surgery. 2003 Dec;3(1):1-7.
[10]. Banerjee A, Bhattacharya S. The Use Of Meshes In Male Groin Hernia Repairs. Trends In Urology & Men's Health. 2021 Jul;12(4):7-12.
[11]. Bracale U, Melillo P, Piaggio D, Pecchia L, Cuccurullo D, Milone M, De Palma Gd, Cavallaro G, Campanelli G, Merola G, Stabilini C. Is Shouldice The Best Non-Mesh Inguinal Hernia Repair Technique? A Systematic Review And Network Metanalysis Of Randomized Controlled Trials Comparing Shouldice And Desarda. International Journal Of Surgery. 2019 Feb 1;62:12-21.
[12]. Szopinski J, Dabrowiecki S, Pierscinski S, Jackowski M, Jaworski M, Szuflet Z. Desarda Versus Lichtenstein Technique For Primary Inguinal Hernia Treatment: 3-Year Results Of A Randomized Clinical Trial. World Journal Of Surgery. 2012 May;36:984-92.
[13]. Das A, Bhuiyan Mm, Rahman Mm, Choudhuary Mi. Evaluation Of Desarda Technique In Inguinal Hernia Repair. International Surgery Journal. 2023 Sep 28;10(10):1572-6.
[14]. Khairy M, Madbouly Ae, Sharaf Mf. Evaluation Of Desarda Technique In Inguinal Herniorrhaphy. Al-Azhar International Medical Journal. 2020 Feb 1;1(2):193-7.
[15]. Aiolfi A, Cavalli M, Del Ferraro S, Manfredini L, Bonitta G, Bruni Pg, Bona D, Campanelli G. Treatment Of Inguinal Hernia: Systematic Review And Updated Network Meta-Analysis Of Randomized Controlled Trials. Annals Of Surgery. 2021 Dec 1;274(6):954-61.
[16]. Youssef T, El-Alfy K, Farid M. Randomized Clinical Trial Of Desarda Versus Lichtenstein Repair For Treatment Of Primary Inguinal Hernia. International Journal Of Surgery. 2015 Aug 1;20:28-34.