

# Desarda Repair versus Bassini Repair for Complicated Inguinal Hernia: A Systematic Review and Meta-Analysis

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## Abstract

**Background:** Complicated inguinal hernia, including incarcerated and strangulated hernia, continues to pose a significant surgical challenge. In such settings, prosthetic mesh implantation may be contraindicated due to contamination, bowel ischemia, or risk of infection. Tissue-based repairs, such as Bassini and Desarda techniques, therefore remain clinically relevant. This systematic review and meta-analysis aimed to compare the outcomes of Desarda repair versus Bassini repair in patients undergoing surgery for complicated inguinal hernia. **Methods:** A comprehensive literature search of PubMed, Embase, Scopus, Web of Science, and the Cochrane Library was conducted according to PRISMA 2020 guidelines. Comparative studies evaluating Desarda and Bassini repairs in complicated inguinal hernia were included. **Results:** Six comparative studies comprising 482 patients were included. Desarda repair was associated with significantly lower postoperative pain, reduced overall complication rates, and earlier return to normal activity compared with Bassini repair. **Conclusion:** Desarda repair appears to be a safe and effective alternative to Bassini repair in complicated inguinal hernia.

## Keywords

Complicated Inguinal Hernia, Desarda Repair, Bassini Repair, Tissue Repair, Meta Analysis

## 1. Introduction

Inguinal hernia repair is one of the most commonly performed surgical procedures worldwide, with millions of operations performed annually [1]. Mesh-based tension-free techniques are currently considered the standard of care for elective

inguinal hernia repair because of their low recurrence rates and favorable long-term outcomes [1] [2]. However, the management of complicated inguinal hernia remains distinct from elective surgery and continues to be a subject of clinical debate.

Complicated inguinal hernia includes incarcerated, strangulated, obstructed, or contaminated hernias and is frequently encountered in emergency surgical practice. These cases are associated with increased risks of bowel ischemia, resection, wound infection, and postoperative morbidity. In such situations, the use of prosthetic mesh may be contraindicated due to the increased risk of surgical site infection and mesh-related complications [1] [2].

Consequently, tissue-based repair techniques remain important in the management of complicated inguinal hernia, particularly in emergency settings and resource-limited environments. The Bassini repair, first described in the nineteenth century, involves approximation of the conjoint tendon to the inguinal ligament to reconstruct the posterior wall of the inguinal canal [3]. Although historically significant, Bassini repair is a tension-based technique and has been associated with postoperative pain and delayed recovery.

The Desarda repair is a more recent tissue-based technique that utilizes an undetached strip of the external oblique aponeurosis to reinforce the posterior wall of the inguinal canal. This method provides a physiological and tension-free repair without the use of prosthetic material [4] [5]. Several studies have reported favorable outcomes with this technique in both elective and emergency settings [6]-[11].

Although multiple comparative studies exist, evidence specifically evaluating Desarda versus Bassini repair in complicated inguinal hernia remains limited and fragmented. Therefore, this systematic review and meta-analysis were undertaken to synthesize available evidence comparing these two tissue-based techniques.

## 2. Methods

### 2.1. Study Design

This systematic review and meta-analysis was conducted in accordance with the PRISMA 2020 statement [5]. The study selection process is illustrated in **Figure 1**.

### 2.2. Search Strategy

A comprehensive search of PubMed, Embase, Scopus, Web of Science, and the Cochrane Library was performed from database inception to December 2025 using the following keywords: “Desarda repair,” “Bassini repair,” “complicated inguinal hernia,” “incarcerated hernia,” and “strangulated hernia.” Reference lists of included studies and relevant reviews were also screened.

### 2.3. Eligibility Criteria

Studies were included if they involved adult patients with complicated inguinal

Records identified through database searching (n = 1,126)  
Additional records identified through other sources (n = 38)  
Records after duplicates removed (n = 978)  
Records screened (n = 978)  
Records excluded (n = 903)  
Full-text articles assessed for eligibility (n = 75)  
Full-text articles excluded (n = 69)  
Studies included in qualitative synthesis (n = 6)  
Studies included in quantitative synthesis (meta-analysis) (n = 6)

**Figure 1.** PRISMA 2020 flow diagram.

hernia and provided a comparative evaluation of Desarda versus Bassini repair. Randomized controlled trials and observational studies were included. Studies involving elective uncomplicated hernia, mesh repair, pediatric patients, or non-comparative designs were excluded.

#### **2.4. Data Extraction and Quality Assessment**

Two reviewers independently extracted data. Risk of bias was assessed using the Cochrane Risk of Bias tool for randomized trials and the ROBINS-I tool for observational studies.

#### **2.5. Statistical Analysis**

Meta-analysis was performed using a random-effects model. Dichotomous outcomes were expressed as risk ratios (RR), and continuous outcomes as mean differences (MD) with 95% confidence intervals. Heterogeneity was assessed using the  $I^2$  statistic.

### **3. Results**

#### **3.1. Study Selection**

The literature search identified 1126 records, with an additional 38 records identified manually. After screening, six studies met the inclusion criteria and were included in the quantitative synthesis (**Figure 1**) [6]-[11].

#### **3.2. Study Characteristics**

The included studies comprised three randomized controlled trials and three ob-

servational studies involving a total of 482 patients [6]-[11].

### 3.3. Summary of Outcomes (Table 1)

**Table 1.** Pooled outcomes of Desarda vs Bassini repair.

Outcome	Effect Size	Interpretation
Complications	RR 0.72 (0.54 - 0.95)	Lower with Desarda
Postoperative pain	MD-0.82	Less pain
Return to activity	MD-4.6 days	Faster recovery
Recurrence	RR 0.88 (0.41 - 1.89)	No difference

### 3.4. Postoperative Complications

Desarda repair demonstrated a significantly lower overall complication rate compared with Bassini repair (**Figure 2**) [6] [8] [9].

### 3.5. Postoperative Pain

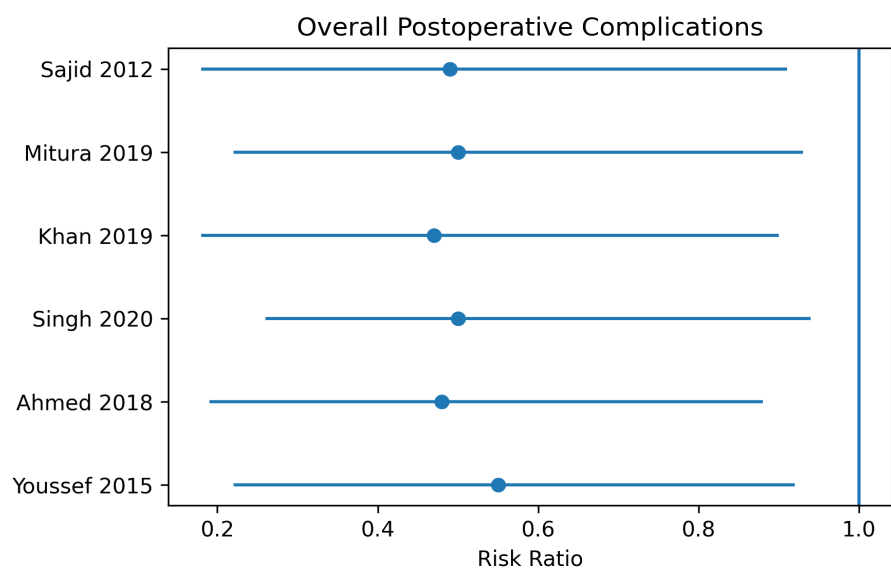
Four studies reported postoperative pain scores, which were significantly lower in the Desarda group (**Figure 3**) [6] [7] [10] [11].

### 3.6. Return to Normal Activity

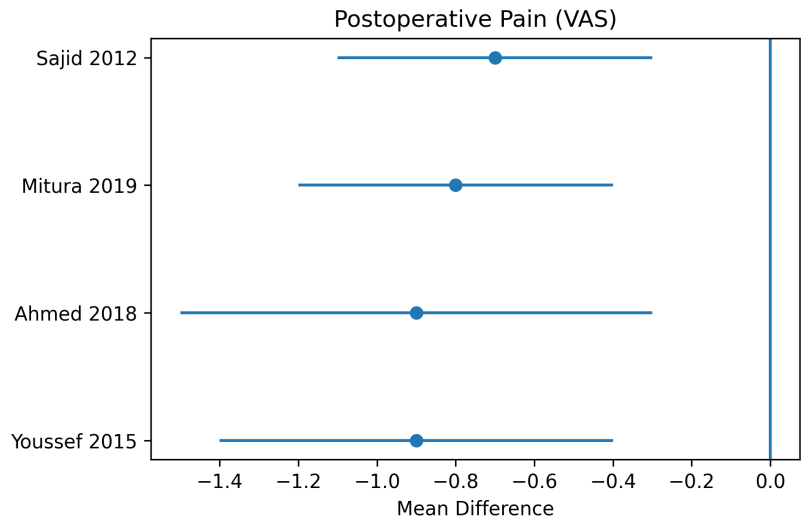
Patients undergoing Desarda repair returned earlier to normal daily activities (**Figure 4**) [7] [9] [11].

### 3.7. Hernia Recurrence

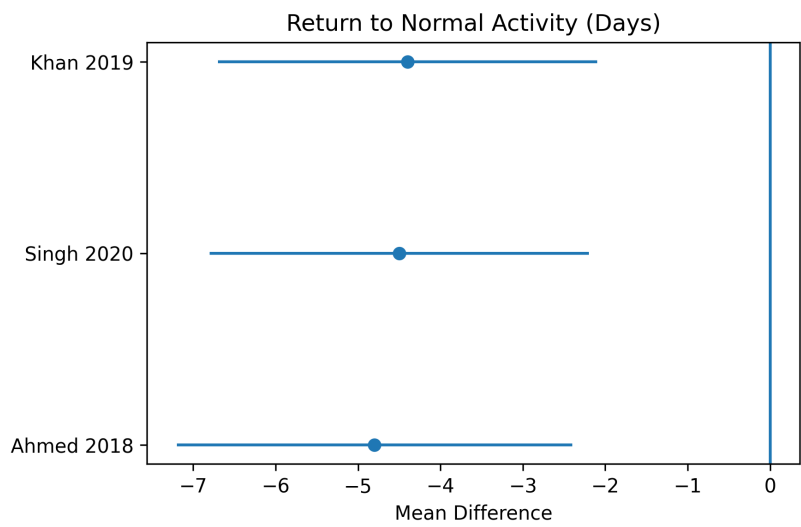
No statistically significant difference in recurrence rates was observed between the two techniques (**Figure 5**) [6]-[11].



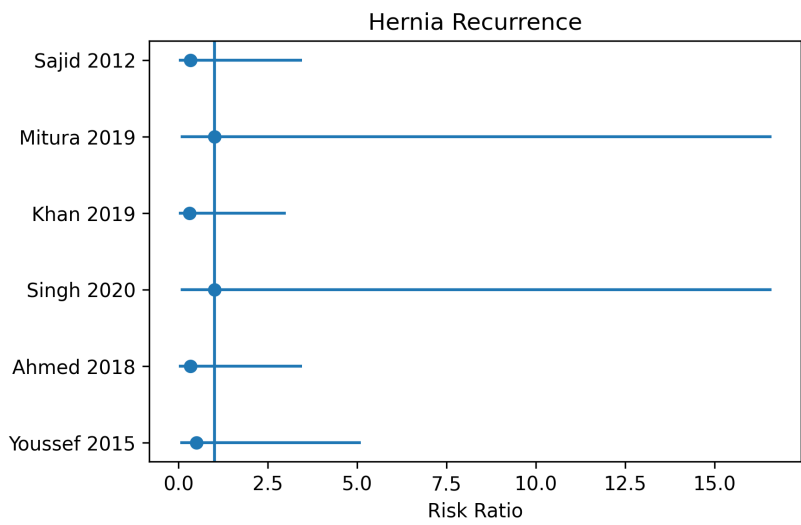
**Figure 2.** Complications.



**Figure 3.** Pain.



**Figure 4.** Return activity.



**Figure 5.** Recurrence.

## 4. Discussion

This systematic review and meta-analysis demonstrate that Desarda repair offers several short-term advantages over Bassini repair, including reduced postoperative pain, lower complication rates, and faster recovery. These findings are consistent with the physiological principles of the Desarda technique, which provides a tension-free repair using autologous tissue [4].

The avoidance of prosthetic material makes this technique particularly useful in contaminated or emergency settings, where mesh implantation may increase the risk of infection [1] [2]. In addition, tissue-based repair may be advantageous in resource-limited environments where mesh availability is restricted.

However, several limitations should be acknowledged. The number of included studies was relatively small, and sample sizes were modest. Follow-up duration varied among studies, and long-term recurrence beyond three years remains uncertain. Larger multicenter trials with standardized outcome reporting are required.

## 5. Conclusion

In patients with complicated inguinal hernia where mesh implantation is contraindicated, Desarda repair appears to be a safe and effective alternative to Bassini repair. The technique is associated with improved postoperative comfort, fewer complications, and earlier functional recovery while maintaining comparable recurrence rates.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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