

## ORIGINAL ARTICLE

## EMERGENCY INGUINAL HERNIA REPAIR: COMPARISON OF DESARDA'S VERSUS DARNING TECHNIQUE

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**Background:** Emergency inguinal hernia repair remains the commonest operation performed by general surgeons all over the world. The aim of this study was to compare the mean operative time, post-operative pain, wound infection and early recurrence between Desarda's and Darning emergency inguinal hernia repair. **Methods:** This is a randomized controlled trial conducted at Jinnah Postgraduate Medical Centre, Karachi. A total of 186 patients of male gender between ages 20–60 years with incarcerated, obstructed and strangulated inguinal hernia were enrolled in the study. Patients with primary and recurrent inguinal hernias were excluded. All patients were randomized to Desarda group (n=93) and Darning group (n=93). **Results:** Mean operative time in Desarda group was 55.53±6.81 minutes and mean operative time in darning group was 53.06±5.51 minutes ( $p$ -value 0.007). Mild to moderate pain was found insignificantly higher in Desarda group 75 (80.6%) as compared to Darning group 66 (71%) ( $p$ -value 0.170). Wound infection was found higher in Desarda group 18 (19.4%) as compared to darning group 9 (9.7%) ( $p$ -value 0.061). Recurrence was found significantly higher 15 (55.5%) in Darning group as compared to Desarda group 2 (7.4%) ( $p$ -value <0.001). **Conclusion:** No significant difference was observed in the postoperative pain, wound infection however, significant differences were observed in the mean operative time and recurrence rates.

**Keywords:** Inguinal Hernia Repair; Desarda's; Darning

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## INTRODUCTION

Hernia is a protrusion of a viscous or part of a viscous through an abnormal opening in the walls of its contacting cavity.<sup>1</sup> Among all hernias, inguinal hernia repair is the most common operation undertaken in routine surgical practice with an annual incidence of 13/1000 population of all ages.<sup>2</sup> Studies reported that inguinal hernia constitutes 73% of all external hernias.<sup>1,3</sup>

There are many ways of repairing an inguinal hernia, with over 80 operative techniques described since 1887.<sup>4</sup> Many surgeons use Darn as sole method of emergency inguinal hernia repair.<sup>5</sup> Darn technique was chosen to ascertain its effectiveness, postoperative complications and recurrence.<sup>6–8</sup> While, Desarda technique is a recently introduced tissue based repair that addresses physiology of the inguinal canal as well as the anatomy. Desarda technique is a tension free repair with less recurrence rates and requires less per-operative time.<sup>9</sup> Despite its advantages, it is relatively less employed in the centres worldwide.

It is noteworthy that the recurrence rate of the operation, wound infection, post-operative pain and operative time are the benchmarks against which the success of any hernia surgery is evaluated. The aim of our study was to compare Desarda's with polypropylene darn which are commonly employed for emergency inguinal hernia repair in men, assessing recurrence at 6 months in our setup.

## MATERIAL AND METHODS

This is a randomized controlled trial conducted in Jinnah Postgraduate Medical Centre Karachi in the period of 24 months from December 2013 to December 2015. A total of 186 patients of male gender between ages 20–60 years with incarcerated, obstructed and strangulated emergency inguinal hernia were enrolled in the study. Patients with primary and recurrent inguinal hernias were excluded.

Patients with incarcerated, obstructed and strangulated inguinal hernia from the emergency department were diagnosed clinically and selected according to inclusion criteria. They were randomly assigned by sealed opaque envelop method to either group I (Desarda hernia repair, n=93) or group II (Darning repair, n=93). Thorough clinical examination and laboratory profile including complete blood count, urea, creatinine and electrolytes to assess renal function, chest X-rays, ECG, blood sugar, PT & APTT were carried out to assess preoperative fitness for general anaesthesia. Permission of the Hospital Ethical Board was obtained. Written informed consent was obtained after discussing the purpose, procedure, risk and benefit of the study. Pre-operatively the patient was explained about the markings of severity of pain on visual analogue scale. After the procedure of repair, NSAIDS were given per rectally on operating table, and then postoperative pain was assessed using visual analogue scale (VAS) at 4 hourly intervals for 24 hours. Patient was asked to mark the level of his pain

on a 100 mm, non-hatched VAS scale marked at one end as “no pain” and at the other end as “worst pain imaginable”. Before analysis of the data, pain severity categories were defined. Patient with VAS pain scores 1–30 mm was defined as having mild pain, whereas scores above 70 mm were considered to have severe pain and those from 31–70 mm moderate pain.

Surgical wounds were also assessed by using Southampton wound grading score (SWGS) at 48 hours (before discharge) and 7<sup>th</sup> day (in the out-patient department). Any seroma or infection at wound site if noticed within 7 days of surgery was also noted. Follow up visits recorded at 14<sup>th</sup>, 21<sup>st</sup> and 28<sup>th</sup> day to assess the wound for infection or recurrence.

Statistical package for social sciences (SPSS-21) used to analyse data. Frequencies and percentages were computed for categorical variables like post-operative pain, wound infection and early recurrence for group I (Desarda’s) and group II (Darning repair). Mean±standard deviation (S.D) computed for quantitative variables like age, BMI and operative time. Independent sample *t*-test was used to compare mean pain score for group I & group II. Chi-square test applied to check proportion difference between groups for post-operative pain, wound infection and early recurrence.  $p \leq 0.05$  was considered as significant.

## RESULTS

Out of 186 patients (93 in each group), overall mean age of the patients was 60.50±15.22 years, mean BMI was 23.51±3.01 Kg/m<sup>2</sup> whereas mean operative time was 54.30±6.30 minutes. Significant difference was observed in mean operative time ( $p$ -value <0.001) between groups. General characteristics of the patients are shown in table-1.

Mild to moderate pain was found higher in Desarda group 75 (80.6%) as compared to Darning group 66 (71%) ( $p$ -value 0.170). Wound infection was found higher in Desarda group 18 (19.4%) as compared to Darning group 9 (9.7%) ( $p$ -value 0.061). Recurrence was found significantly higher 15 (55.5%) in Darning group as compared to Desarda group 2 (7.4%) ( $p$ -value<0.001)

**Table-1: General Characteristics of the groups**

	Group	Mean±SD	<i>p</i> -value <sup>†</sup>	95% CI
Age, years	Desarda	59.48±14.76	0.36*	-6.43–2.37
	Darning	61.51±15.68		
BMI, Kg/m <sup>2</sup>	Desarda	23.80±3.15	0.19*	-0.29–1.45
	Darning	23.22±2.86		
Operative Time, minutes	Desarda	61.6±9.87	<0.001**	6.24–10.87
	Darning	53.06±5.51		

## DISCUSSION

Emergency inguinal hernia is a common condition. In this study, during a period of 24 months, emergency inguinal hernia repair was performed in 186 patients.

Limited data is available on Desarda and Darn technique in patients undergoing emergency inguinal hernia repair. The findings of this study support the hypothesis that there is no significant difference in the postoperative pain, wound infection between Desarda and Darning hernia repair. Similar results were found in other studies as well.<sup>11–15</sup>

Koukourou had recorded no differences in early postoperative pain; however, he noted pain in 24, 48 & 72 hour.<sup>11</sup> Ali *et al* in their separate trials on Darn, reported Darn technique as safe with regard to postoperative pain<sup>12,13</sup> Similar results were also reported by WW Vrijland.<sup>14</sup>

In this study, we have also noticed higher wound infection rate in Desarda as compared to Darn group. Although, it was not statistically significant but it supports the hypothesis that Darn causes less postoperative wound infection than Desarda’s repair. This finding is also supported by a previous study.<sup>15</sup>

It is also noted that the advantage of Desarda repair, in it being of relatively low cost, and speaks for the fact that many recently published articles demonstrated an increasing interest in the Desarda repair.<sup>16,17</sup>

A documented evidence shows decrease in male sexual function, and this makes a surgeon to prefer tissue based technique when dealing with a young patient. Contaminated field as seen during surgery for strangulated hernias also promotes the use of tissue-based technique, such as Desarda, to be used frequently.<sup>18</sup>

We have significant higher recurrence rate in Darning group as compared to Desarda group however, it is reported that hernias recurrence rate is independent of the time off work and the type of work done.<sup>19</sup>

Hence, an intense global effort to improve the results of inguinal hernia treatment is ongoing. The scientific work of optimizing hernia surgery and lowering the number of complications is still in progress.

## CONCLUSION

Differences were observed in the postoperative pain and wound infection but they were statistically not significant. However, significant differences were observed in the mean operative time and recurrence rate.

## AUTHORS' CONTRIBUTION

AH, SM: Conceived the idea, literature search, paper writing, data collection & data analysis. MA, SR, SP: Literature review, data collection & analysis, supervision of study. AM: Literature review, data collection & analysis, supervision of study

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