

## Evaluation of Desarda's Technique in Inguinal Hernioplasty

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### Abstract

**Background:** Desarda technique for hernia repair is an emerging technique for inguinal hernia repair known for its low-cost procedure, less recurrence rate and feasibility of the procedure. The aim of this study was to evaluate the treatment of inguinal hernia with this method in terms of various operative and postoperative parameters.

**Patients and methods:** The present study included 100 male patients, presented to Al-Hussain University Hospital, for elective repair of uncomplicated inguinal hernia, during the period from March 2015 till November 2018. All the 100 patients were subjected to Desarda non-mesh tissue repair.

**Results:** The mean operating time was 45.25±12.55 min. There were no intraoperative complications. Postoperative pain according to the Visual Analogue Scale (VAS) on day 2 was 3,12. While mean VAS was 1.28 and 0.12 after one week and one month respectively. No patient had discomfort for more than 15 days after this repair. No chronic pain, sensation of foreign body and no recurrence was observed. Patients were freely mobile within 18-24 h after surgery. The mean hospital stay was 1.87 ± 0.78 days. Patients returned to their daily activities within 6-14 days (mean: 8.62 days).

**Conclusion:** Desarda repair is a simple operation to do, does not require prosthesis or complicated dissection of the inguinal canal. It is preferably indicated in young cases, infected surgical fields or in the presence of financial limitations or in patients refusing mesh or with history of mesh rejection in another site.

**Keywords:** Hernia; Inguinal; Desarda; Herniorrhaphy; Tension-Free

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## INTRODUCTION

Inguinal hernia is a common problem for which mesh based repairs is the treatment of choice. Lichtenstein repair is considered the gold standard. However, it has its own limitation such as foreign body sensation, wound infection, cord fibrosis, chronic pain, etc.<sup>1</sup> Desarda's technique for repair of inguinal hernia is new technique characterised by its low-cost, low recurrence rate and feasibility.<sup>2</sup> Desarda suggested that, this repair method achieves the principle of "no-tension" presented by Lichtenstein. The strip is moved from the anterior to the posterior wall of the inguinal canal without tension on the posterior wall. The concept of an undetached, movable aponeurotic strip that "physiologically" enforces the posterior wall of the inguinal canal is original and interesting.<sup>3</sup> The expenses of inguinal hernia management are not insignificant, especially in developing countries in Asia or

Africa. A great advantage of Desarda's technique is its low cost. That is why many published studies recently demonstrated an interest in the technique.<sup>4-7</sup> This study evaluates the results of primary inguinal hernia repair with Desarda's technique as regards postoperative morbidity and recurrence after one year of follow-up. It has the potential to become the gold standard of inguinal hernia repair in the years to come.

## PATIENTS AND METHODS

The present study included 100 patients, presented to Al-Hussain University Hospitals, in Cairo, Egypt, for elective repair of uncomplicated inguinal hernia, during the period from March 2015 till November 2018, after obtaining the local ethics committee approval. All patients admitted to the surgery department signed a written informed consent. All the 100 patients subjected to Desarda non mesh tissue repair. Inclusion criteria were:

Age over 14 years, non-recurrent, uncomplicated inguinal hernia. Exclusion criteria were irreducible, strangulated or recurrent hernia, intra-operative non fit criterion (an aponeurosis that was divided, tiny, and/or weak), patients at high risk for anaesthesia, class 4 and 5 according to physical status classification of the American Society of Anaesthesiologists (ASA), history for drug abuse, psychiatric illness, uncontrolled depression and suicidal attempt and patients unable to understand the questionnaire.

#### **Surgical Techniques**

Operations were carried out under spinal anaesthesia. Proper herniotomy was done by suturing the external oblique aponeurosis to the reflection of the inguinal ligament starting from the pubic tubercle till 2 cm behind the cord using polypropylene sutures, then incision is done in the external oblique aponeurosis 2.5-3 cm above the previous suture line leaving flap of external oblique aponeurosis in the floor of inguinal canal where its upper border is sutured to the conjoint tendon using continuous polypropylene sutures. Then, the cord contents are returned to their anatomic position. The external oblique aponeurosis is then re-approximated. Scarpa's fascia is closed with interrupted absorbable sutures. Lastly, skin is closed with subcuticular stitches. Wound was closed without insertion of a drain (Figures 1-3).

Data were analyzed using IBM SPSS software package version 20.0. Quantitative data were presented as mean and SD. Qualitative data were presented as number and percentage.



**Fig. 1: External oblique flap repair behind the cord.**



**Fig. 2: External oblique aponeurosis in the floor of inguinal canal where its upper border is sutured to the conjoint tendon using continuous polypropylene sutures.**



**Fig. 3: Final closure; Scarpa's fascia was closed with absorbable sutures.**

General  
Surgery

#### **RESULTS**

The present study included 100 patients, presented to Al-Hussain University Hospital, for elective repair of uncomplicated inguinal hernia, during the period from March 2015 till November 2018. All the 100 patients subjected to Desarda non mesh tissue repair.

All patients underwent Desarda repair under spinal anaesthesia and there were no intra-operative complications. Their age ranged from 15-60 years with a mean of  $37.5 \pm 22.5$ . Half of cases (51%) were overweight with BMI 26-29. Eighty patients (80%) had a right sided hernia while 20 patients (20%) had a left side one. Ninety of them (90%) had oblique hernia while 10 patients (10%) had direct one. Ten patients (10%) had a history of other side hernia repair with Prolene mesh.

As regard to the operative time (calculated from skin incision to skin closure), it ranged from 30-70 minutes with a mean of  $(45.25 \pm 12.55)$ . Technical difficulties presented in 15 patients (15%). Five patients were obese and needed longer time for dissection with an operative time reached 70 minutes, and 5 patients had an unclear anatomy. The overall operative time for these patients was 70 minutes. The surgeons were almost satisfied with the procedure (in 95% of the patients). Surgeons were unsatisfied in 5 cases (5%) earlier in the study as they were not so familiar with the new technique which took longer time than expected (5 minutes). The cremasteric muscle was cut in 15 patients (15%) for better positioning of the external oblique flap. The three nerves (ilio-inguinal, ilio-hypogastric and genital branch of genito-femoral nerve) were identified and preserved in 85 patients (85%). The iliohypogastric nerve was cut in 10 patients (10%), while clear identification of the 3 nerves failed in 5 patients (5%). The posterior wall was weak and required a repair in 20 patients (20%) (Table 1).

Technical difficulties		
no	85	85
yes	15	15
Causes for technical difficulties		
Not-yet-familiar with technique	5	5
Obese patient	5	5
Anatomy (unclear)	5	5
Surgeon Satisfaction		
Not Satisfied	5	5
Satisfied	95	95
Operative time (min)		
Min - Max	30.0 - 70.0	
Mean ± SD	45.25 ± 12.55	
Nerves		
Not Clear	5	5
Preserved	85	85
Cutting iliohypogastric	10	10
Repair of posterior wall	20	20
Cremasteric muscle		
Cut	15	15
Preserved	85	85

Table 1: Comparison between the two studied groups according to the surgical technique.

Complications	(n=100)
Seroma	4 (4%)
Wound Infection	4 (4%)
Hematoma	4 (4%)
Orchitis	0
Testicular Atrophy	0
Recurrence	0
F.B. sensation	0

Table 2: Postoperative complications.

As regard to pain, evaluation of the post-operative pain was done using the Visual Analogue Scale (VAS).<sup>8</sup> Mean VAS on 2nd post-operative day was 3.12. One-week post-operative, mean VAS was

1.28 and mean VAS at 1 month was 0.12. Only 12 patients had pain at the end of 1 month.

The impact of pain on patient's need of analgesia was as follow: 10 patients (10%) showed a continuous need of analgesia. The impact of pain was obvious on the patient's return to them daily activity and work.

All patients were mobile within 18-24 h after operation (mean: 19.26 h). The mean hospital stay was 1.87 ± 0.78 (days). Patients returned to their daily activities within 6-14 days (mean: 8.62 days). There were no cases of chronic pain lasting more than 3 months. Cutting the Iliohypogastric nerve did not significantly affect the severity of post-operative pain or the incidence of chronic pain.

As regard postoperative complications, they are illustrated in table 2. No recurrences were observed over a minimum period of 3 months. As regards to the cost; the price of sutures needed for repair and wound closure (about 70 LE) at time of study. The minimal follow up period was 3 months.

### DISCUSSION

There are advantages and disadvantages associated with all types of open inguinal hernia surgery. The current non-mesh techniques (Bassini/Shouldice) are blamed for causing tension and mesh repair is blamed for causing foreign body reaction. While in Desarda's technique, a strip of the external oblique aponeurosis is sutured between the muscle arch and the inguinal ligament to give a strong and physiologically dynamic posterior wall.<sup>9</sup>

Professor Desarda hypothesized that the additional muscle strength, provided by external oblique muscle to the weakened muscles of the muscle arch, has kept the new posterior wall dynamic. This dynamically enhanced strong posterior inguinal wall, and the shielding and compression action of the muscles and aponeurosis around the inguinal canal are important factors that prevent hernia formation or hernia recurrence after repair. So, it results in a tension free repair without the use of any foreign body, being simple to perform.<sup>9,10</sup> Losanoff and Millis criticized Desarda's repair and objected for incomplete and unreliable method of follow up in his study and the technique described by Desarda is not superior to mesh repair.<sup>2</sup> Naguib and Samerraai, also stated in their study that follow-up in Desarda study was unsatisfactory and tension free technique was also questioned.<sup>11</sup>

In the present study, as regard to the operative time (calculated from skin incision to skin closure), it ranged from 30-70 minutes with a mean of (45.25 ± 12.55).

The EU Hernia Trialist Collaboration made a systematic revision of the randomized prospective studies and the analysis of the results of these different studies. It showed that the duration of

surgery was less in mesh hernioplasty in six studies, longer in three and equal in the remaining six.<sup>1</sup> Rodriguez et al., found that there was a significant but slight increase in operating time with the Desarda operation.<sup>12</sup> In the present study, there was statistically significant results as regard postoperative complications, time to resumption of normal activity, local hypoesthesia, and recurrence. In the present study mild to moderate pain only noticed on 1st week. After the 1st week post-operative, pain was significantly less. After Desarda's repair there was less intensive postoperative pain, rated in VAS scale at 3.12 in 2nd day after surgery. One week after hernia repair patients described far less intensity of the pain (VAS: 1.28). In the present study, no one documented chronic pain after one month of surgery.

In a study by Szopinski et al., a total of 208 male patients were randomly assigned to the D or L group (105 vs. 103, respectively). The primary outcomes measured were recurrence and chronic pain. During the follow-up, two recurrences were observed in each group ( $p = 1.000$ ). Chronic pain was experienced by 4.8 and 2.9% of patients from groups D and L, respectively ( $p = 0.464$ ). Foreign body sensation and return to activity were not different between the groups. There was significantly less seroma production in the D group ( $p = 0.004$ ).<sup>13</sup>

In the present study, six months after the hospitalization, the effect of performed surgery was described as good or very good. There was no hernia recurrence among the patients six months after the surgery, but long-term follow-up is needed for assessment of this new tissue-based technique.

In a large study (2225 patients) by Rodriguez et al., four cases of recurrences seen in Desarda's group. They believed that it was due to failure of proper lateralization of the cord and insufficient narrowing of the internal ring as advised by Desarda.<sup>12</sup>

In the present study, patients were freely mobile within 18-24 h after surgery (mean: 19.26 h). The mean hospital stay was  $1.87 \pm 0.78$  days. Patients returned to their day-to-day activities within 6-14 days (mean: 8.62 days).

Rodriguez et al., found that hospital stay and the period required to return to normal work after operation was in favour of the Desarda's group. Sixty two cases in Lichtenstein group required more than 3 days in the hospital compared to only 5 patients from the Desarda's group; statistically significant.<sup>12</sup>

As regard to post-operative complications, in our study, 4 seromas, 4 wound infections and 4 cases of hematoma were observed.

Abbas et al., also reported similar results, seroma formation rate 0% in Desarda and 1.4% in Lichtenstein repair.<sup>14</sup> Manyilirah et al., and Rodriguez et al., achieved better results as regard post-operative complications, 3.4% in Desarda's group and 6% in Lichtenstein group.<sup>12, 18</sup>

The above data were in favour of Desarda's repair, compared to other inguinal hernia repairs. Operative time was significantly short. Desarda technique is cost effective when compared with Lichtenstein method, so can be done easily, especially in rural areas. Return to everyday activity was early, there was significantly less post-operative pain measured on VAS. The mean hospital stay is low for Desarda repair compared to Lichtenstein repair.

This is a simple operation to do, does not require prosthesis or complicated dissection of the inguinal canal compared to Bassini and Shouldice. Desarda method represents an alternative of other methods widely adopted today. This repair has the potential to become the gold standard of hernia repair in the future.

#### CONCLUSION

Desarda's repair is easy to perform and is good in terms of postoperative pain, return to everyday activity and no foreign body sensation. Desarda technique could be indicated in young cases, infected surgical fields or in the presence of financial limitations or when patients refusing mesh or have a history of mesh rejection in another site.

#### REFERENCES

1. Simons MP, Aufenacker T, Bay-Nielsen M. et al.: European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. *Hernia* 2009; 13:343-403.
2. Losanoff JE and Millis JM.: Aponeurosis instead of prosthetic mesh for inguinal hernia repair: neither physiological nor new. *Hernia* 2006, 10:198-199 author reply 200-102
3. Desarda MP and Ghosh DN.: Comparative study of open mesh repair and Desarda's no mesh repair in a district hospital in India. *East Central Afr J Surg.* 2006, 11(2):18-34.
4. Szopinski J, Dabrowiecki S, Pierscinski S, et al.: Desarda Versus Lichtenstein Technique for Primary Inguinal Hernia Treatment: 3-Year Results of a Randomized Clinical Trial. *World J Surg* 2012, 36(5): 984-992.
5. Situma SM.: Comparison of Desarda versus modified Bassini inguinal Hernia repair: a



- randomized controlled trial. *East Cent Afr J Surg* 2009, 14:70–76
6. Desarda MP.: A new technique of inguinal hernia repair—neither similar to nor modification of Desarda's repair. *J Indian Med Assoc* 2007, 105:654
  7. Desarda MP.: No-mesh inguinal hernia repair with continuous absorbable sutures: a dream or reality? A study of 229 patients. *Saudi J Gastroenterol* 2008, 14:122–127
  8. Preedy V and Watson R: Visual Analogue Scale. In: *Handbook of Disease Burdens and Quality of Life Measures: Springer New York* 2010; 43-49.
  9. Desarda MP.: Surgical Physiology of Inguinal Hernia Repair-A Study of 200 Cases. *BMC Surgery* 2003, 3:1-9.
  10. Desarda MP.: Inguinal Herniorrhaphy With an Undetached Strip of External Oblique Aponeurosis: A New Approach Used In 400 Patients. *Eur J Surg.* 2001; 167:443–8.
  11. Naguib N and Samerraai AE.: No-mesh inguinal hernia repair with continuous absorbable sutures: is it a step forward or backward? *Saudi J Gastroenterol.* 2009;15(1):67-8.
  12. Rodriguez P, González O, Rocha J, et al.: A Randomized Trial Comparing Desarda repair no mesh and Lichtenstein repair for inguinal hernia (A study of 2225 patients). *Biomed J Sci & Tech Res* 2018; 6(4)-. BJSTR. MS.ID.001396.
  13. Szopinski J, Kapala A, Prywinski S, et al.: Desarda Technique for Inguinal Hernia Treatment: First Polish Experiences. *Pol Przegl Chir.* 2005; 77:159–68.
  14. Abbas Z, Bhat SK, Koul M, et al.: Desarda's no mesh repair versus Lichtenstein's open mesh repair of inguinal hernia a comparative study. *J Evolut Med Dent Sci.* 2015; 4(77):13279-85.
  15. Manyilira W, Kijjambu S, Upoki A, et al.: Comparison of non-mesh (Desarda) and mesh (Lichtenstein) methods for Inguinal Hernia repair among black African patients: a short-term double-blind RCT. *Hernia* 2012; 16(2):133-44.