

Original Research Article

Study of non-mesh technique of Desarda for inguinal hernia

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Received: 06 April 2019

Accepted: 18 May 2019

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ABSTRACT

Background: The tissue based techniques are still acceptable for primary inguinal hernia repair according to the European Hernia Society guidelines. Desarda's no mesh technique, introduced in 2001, is a hernia repair method using an undetached strip of external oblique aponeurosis. This study compares the results with the studies done worldwide on Desarda's technique.

Methods: A total 120 cases were studied for 2 years (2015-2017), the primary outcomes measured were postoperative pain scores on day 1,7,30 using visual analogue scale, time taken to return to basic activities, time measured from skin incision to skin closer. Complications like cord oedema, seroma, fever, surgical site infection, chronic groin pain and recurrence were evaluated.

Results: After a 15-month mean follow up period, 01 (0.83%) case had a recurrence among 120 patients. Mean operative time is 60 min; mean pain score on day-1, 7, 30 are 3.35, 0.9 and 0.008 respectively. Mean time taken to return back to work is 24 hours; complications like chronic groin pain, foreign bodysensation are not seen in single cases. These results are comparable with the studies done worldwide.

Conclusions: In Desarda's technique of inguinal hernia repair does not use mesh, so no complication related with the foreign body are seen and postoperative pain is less, early return to basic activities and Postoperative complications are less.

Keywords: Desarda technique, Inguinal hernia repair, Postoperative complications

INTRODUCTION

Inguinal hernia is one of the commonest surgical problems encountered by surgeons worldwide. Because of frequency of occurrence of hernia cases, this remains an important medical problem, and this is the most evolving topic till today in surgery for better result of the inguinal hernia repair.¹

There were no written surgical guidelines for hernia treatment until 2009, when the European hernia society (EHS) published its recommendations based on analysis of literatures and the result of clinical trials. According to EHS guidelines mesh based techniques, the Lichtenstein

technique in particular, is recommended for the treatment of primary inguinal hernia in adults.^{1,2}

Successful surgical repair of hernia depends on a tension free closure of the hernia defect to attain the lowest recurrence rate. The Lichtenstein mesh repair has its shortcomings which include; foreign body sensation in the groin, discomfort and abdominal wall stiffness, which may affect the everyday functioning of the patient.³

The benchmarks against which a successful hernia surgery is evaluated are recurrence rate, rate of complication including chronic groin pain, low cost and time taken to return to normal activities.⁴

Improvement in surgical techniques and better understanding of the anatomy and physiology of the inguinal canal has significantly improved outcomes for many patients. These improvements have occurred most notably in centres specializing in hernia surgery, with some institutions reporting failure rates of less than 1%.^{5,6}

The Dr. Desarda claims results, which are superior or equal to Shouldice and Lichtenstein repairs in low frequency of complications and approximately 0.2% recurrences in his studies.⁷

The success of groin hernia repair is measured primarily by the permanence of the operation, fewest complications, minimal costs, earliest return to normal activities. The publication of the results of the author's series of operation prompted many others to adopt this technique. Their results, as communicated to the author, are equally encouraging.⁸

This study is undertaken in a medical hospital which is not a specialized hernia centre where general surgeons are not labelled as expert hernia surgeons, to compare the early and late morbidities in terms of postoperative pain, complications, early return to basic activities and recurrence as seen with the Desarda's technique studies done worldwide.⁸

METHODS

This is a prospective study, carried out in Indira Gandhi Government Medical College and Hospital Nagpur, India during June 2015 to Nov 2017, total 120 cases were studied.

Study was approved by local ethical committee. Informed consent was taken from all the participating patients after explaining the purpose of the study. All patients age 18 years and above with non-complicated inguinal hernia were eligible for the study. Patients below 18 years, complicated, recurrent inguinal hernia and patients found to have thin, weak or divided external oblique aponeurosis intraoperatively were excluded from the study.

Patients diagnosed inguinal hernia clinically were evaluated further for pre-anaesthetic purpose and evaluated specifically for predisposing factors for hernia like bladder outlet obstruction (BPH), chronic cough in smokers by USG KUB (prostate), chest X ray- PA respectively. Patients were given treatment for 3 months for predisposing factors before taken into surgery.

The data was collected as regard operative time in minutes calculated from skin incision to skin closure, hospital stay in hours, post-operative pain was measured by VAS score on day 1st, 7th and day 30th, time taken to return back to routine work in days, post-operative complications like chronic groin pain, foreign body sensation, recurrence during follow up period.

Follow up record was collected from the OPD and ward during post-operative period on 7th day, 30th day, 3rd month, 6th month, 1 year and till 2 years after surgery. Visual analogue scale (VAS) scored as 0- least pain, 10- maximum pain, 5- moderate pain. Chronic groin pain defined as VAS score >5 for 3 months. Return back to basic activities was described as the patient's ability to perform basic activities (getting up from bed, walking without any support by himself) at home is calculated in hours and days. Analytical statistics-continuous variables were presented as Mean and Categorical variables were expressed in actual numbers and percentages. The operative technique of this new repair method was followed as described by Desarda.

Desarda's repair technique

Skin and fascia are incised through a regular oblique inguinal incision to expose the external oblique aponeurosis. The thin, filmy fascial layer covering it is kept undisturbed as far as possible and an assessment made about the strength of it and its thinned-out portion. The thinned out portion is usually seen at the top of the hernia swelling, extending and fanning out to the lower crux of the superficial ring.⁸

The external oblique is cut in line with the upper crux of the superficial ring, which leaves the thinned out portion in the lower leaf so a good strip can be taken from the upper leaf. The external oblique, which is thinned out as a result of aging or long standing large hernias, can also be used for repair if it is able to hold the interrupted sutures. Herniotomy done as in regular hernia repair.⁸

The medial leaf of the external oblique aponeurosis is sutured with the inverted part of inguinal ligament from the pubic tubercle to the internal ring using No.1 polypropylene (prolene) interrupted sutures.

The first two sutures are taken in the anterior rectus sheath where it joins the external oblique aponeurosis. The last suture is taken so as to narrow the internal ring sufficiently without constricting the spermatic cord.

Each suture is passed first through the inguinal ligament, and then the external oblique. The index finger of the left hand is used to retract the cord structures laterally while taking lateral sutures.⁸

A splitting incision is made in this sutured medial leaf, partially separating a strip with a width equivalent to the gap between the muscle arch and the inguinal ligament but not more than 2 cms.

This splitting incision is extended medially up to the pubic symphysis and laterally 1-2 cms beyond the internal ring. The medial insertion and lateral continuation of this strip is kept intact. A strip of the external oblique is now available, the lower border of which is already sutured to the inguinal ligament.

The upper free border of the strip is now sutured to the conjoined tendon lying close to it with No.1 polypropylene interrupted sutures throughout its length.

The aponeurotic portion of the internal oblique muscle is used for suturing to this strip wherever and whenever possible to avoid tension; otherwise, it is not a must for the success of the operation.⁸

This will result in the strip of the external oblique being placed behind the cord to form a new posterior wall of the inguinal canal. At this stage the patient is asked to cough and the increased tension on the strip exerted by the external oblique to support the weakened internal oblique and transversus abdominis is clearly visible. The increased tension exerted by the external oblique muscle is the essence of this operation

The spermatic cord is placed in the inguinal canal and the lateral leaf of the external oblique is sutured to the newly formed medial leaf of the external oblique in front of the cord, as usual, again using 2.0 vicryl interrupted sutures.⁸

Undermining of the newly formed medial leaf on both of its surfaces facilitate its approximation to the lateral leaf. The first stitch is taken between the lateral corner of the splitting incision and lateral leaf of the external oblique. This is followed by closure of the superficial fascia and the skin as usual.



Figure 1: Undetached strip of external oblique aponeurosis forming the posterior wall of inguinal canal.

RESULTS

This is a prospective and interventional study carried out in 120 cases. This study is designed to study the parameters like age, sex wise distribution, comorbidities, operative time, post-operative pain scores, time take to return to basic activities and complications associated with surgery in present Desarda's hernia repair technique and comparing these results with results of studies done worldwide on Desarda's technique.

The maximum cases were seen in the age group of 51-60 years i.e. 23.33% (28), followed by 20.66% (25) cases

were seen in 31-40 years age group, the mean age of 120 cases was 48 years, and other demographic profile like sex distribution, type, side of hernia were seen as shown in the Table 1.

Table 1: Demographic variables.

Variables	Findings (n=120)
Age (mean)	48 years
Sex	Males- 120 (100%),
Type of hernia	D- 36 (30%), IND-82 (68.33%), Pantaloons-02 (1.6%)
Side	RT-69 (57.5%), LT-46 (38.33%), B/L-05 (0.4%)
Comorbid conditions	
Hypertension	41 (34.16%)
Chronic smoker	26 (21.66%)
Urinary obstructive symptoms	22 (18.3%)
Diabetes melitus	17 (14.16%)
Chronic cough	15 (12.5%)
Pulmonary tuberculosis	Nil

The mean operative time observed is 60 min (35-85 min), mean postoperative pain score on day-1 is 3.3, on Day-7 is 0.9 and day-30 is 0.008, and the mean time taken to return to basic activities is 24hrs as shown in Table 2.

Table 2: Operative time, post operative pain scores and time taken to return back to basic activities.

Variables	Mean values
Operative time in min	60 mins (35-85 mins)
Post operative pain score (visual analogue scale)	
POD-1	3.3
POD-7	0.9
POD-30	0.008
Time taken to return back to basic activities	24 hours

Table 3: Complications.

Complications	No. of patients	Percentage (%)
Early complication (<30 days)		
Cord oedema	06	5
Fever	03	2.5
Surgical site infection	02	1.66
Seroma	03	2.5
Late complications (>30 days)		
Chronic groin pain	0	0
Foreign body sensation	0	0
Recurrence	01	0.83
Total	15	

Postoperative complications like cord oedema is seen in 06 (5%) cases, fever is seen in 03 (2.5%) cases, surgical site infection is 02 (1.66%), seroma is seen in 03 (2.5%) and recurrence is seen in 01(0.8%) case. There were no chronic groin pain and foreign body sensation seen postoperatively in this Desarda's technique.

DISCUSSION

Surgical repair of the inguinal hernia is the most common general surgery procedure performed today.⁹ The successful surgical repair of inguinal hernia depends on a tension free closer of hernia defect to attain the lowest possible recurrence rate. A successful hernia surgery is evaluated on the basis of recurrence rate, rate of complication and time taken to return to normal activities.¹⁰

The new method of hernia repair described by Desarda is based on physiological principle. The posterior wall of the canal is made up of the transversalis fascia, which is strengthened medially by the falx inguinalis or edger of rectus and more laterally by the aponeurotic extensions from the transversus abdominis arch that make the posterior wall strong. Strong musculo-aponeurotic structures around the inguinal canal still give protection to prevent herniation in such individuals. Weak and physiologically a-dynamic posterior wall of inguinal canal in such individuals leads to hernia.⁸

Bassinis/Shouldice or similar open repairs use those weak muscles for repair even if they are weak leading to failures. The strip of external oblique aponeurosis provides the aponeurotic element to the transversalis fascia of the posterior wall. Action like cough and straining causes contraction of the abdominal muscles. Contraction of external oblique muscle creates lateral tension in the strip while contraction of the internal oblique/conjoined muscle pulls this strip upwards and laterally, creating tension above and laterally, making the

strip a shield to prevent any herniation. The strip provides a new insertion to the weak and flabby internal oblique and transversus abdominis. This helps to improve the muscle contraction of the internal oblique and transversus abdominis muscle. Thus a strong and physiologically dynamic posterior wall is prepared in this operation.⁸

The present study comparing the results of other Desarda's technique studies done worldwide for clinical outcomes, postoperative pain, complications and recurrence in the treatment of primary inguinal hernia.

In this study one patient had recurrence after 1 year 3 months follow up that is 0.83%, which was comparable with the incidence in other studies like Desarda et al had 0%, Szopinski et al had 1.94%, Rodriguez et al had 0.5%, Youssef et al had 1.4%, Abbas et al had 0% and Gedam et al had 1.08%.^{10-12,14-16}

Postoperative pain score in the present study on day 1 is 3.3, day 7 is 0.9 and day 30 is 0.008 which is comparable with the results of other studies like Youssef et al had 2.4, 1.4 0.1, Gedam et al had 2.4, 0.2,0.1, Abbas et al had 2.8, 1.4, Mitura et al had 3.3, 1.6.^{12,14,16}

In this study the mean time taken to return to basic activities is 24 hours, which is comparable with the other studies like Desarda et al had 1.2Days, Szopinski et al had 24 hours, Manyilirah et al had 2Days, Youssef et al had 3.9 Days, Gedam et al had 2.5 Days.^{10-13,16} The mean operative time in this study is 60min which is comparable with the other studies like ZQbbas et al is had 66 mins, Rodriguez et all had 48min, Youssef et al had 66 mins, Gedam et al had 73 mins.^{12,14-16} Not a single patient had a chronic groin pain and foreign body sensation in present study which is comparable with the other studies like Desarda et al had 0% in both, Szopinski et al had 4.8%, 14.6% respectively, Youssef et al had 2.8%, 9.8% respectively, Gedam et al had 1.08%,0% respectively.^{10-12,16}

Table 4: Post operative outcomes.

Studies	Recurrence (%)	Chronic groin pain (%)	Foreign body sensation (%)	Operative time (mins)	Postoperative pain score	Time taken to return to basic activities
Present study	0.83	0	0	60	Day 1: 3.3, Day 7: 0.9 Day 30: 0.008	24 hours
Desarda et al¹⁰	0	0	0	-	-	1.2 days
Szopinski et al¹¹	1.94	4.	14.6	-	Day 30: 0.6	24 hours
Youssef et al¹²	1.4	2.8	9.8	59	Day 1: -2.4, Day 7: 1.4, Day 30: 0.1	3.9 days
Gedam et al¹⁶	1.08	1.08	0	73	Day 1: 2.4, Day 7: 0.2, Day 30: 0.001	2.5 days
Abbas et al¹⁴	0	-	-	66	Day 1: 2.8, Day 7: 1.4,	

CONCLUSION

In this study of Desarda's technique of inguinal hernia repair, the results are comparable with the results of other study done worldwide. A healthy external oblique aponeurosis in a virgin unexplored area is most important factor deciding intraoperative feasibility for performing Desarda repair. Post-operative pain is less and not longer, early return back to basic activities, No chronic groin pain, foreign body sensation and Post-operative complications are less seen in Desarda's technique of inguinal hernia.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Primatesta P, Golacre MJ. Inguinal hernia repair, incidence of elective and emergency surgery. *Int J Epidemiol.* 1996;25:835-9.
2. Schools IG, Van Dijkman B, Butzelaar RM, Van Geldere D, Simons MP. Inguinal hernia repair in Amsterdam region. *Hernia.* 2001;5:37-40.
3. D'Amore, L. Long-term discomfort after plug and patch hernioplasty. *Hernia.* 2008;12(4):445-6.
4. 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(3):122.
5. Gilbert AI. Inguinal hernia repair: Biomaterials and suture less repair. *Perspect Gen Surg.* 1991;2:113-29.
6. Gilbert AI. suture less repair of inguinal hernia. *Am J Surgery.* 1992;163:331-5.
7. Hernia abstract book. 2015 Available from: <https://www.europernherniasocietv.eu/fileadmin/downloads/Abstract-Books/HerniaAbstractBookMilan2015.pdf>. Accessed 15 February 2019.
8. Desarda MP, Ghosh MSA. Comparative Study of Open Mesh Repair and Desarda's No-Mesh Repair in a District Hospital in India. *East Central African J Surg.* 2006;11(2):28-34.
9. Rutkow IM. Demographic and socioeconomic aspects of hernia repair in the United States in 2003. *Surgical Clinics of North America.* 2003;83(5):1045-51.
10. Desarda MP. Comparative study of open mesh repair and Desardass no mesh repair in a set-up of a district hospital in India. *Gert Afric Jor Surg.* 2006;11(2):1-9.
11. Szopinski J, Dabrowiecki S, Pierscinski S. Desarda versus Lichtenstein technique for primary inguinal hernia treatment: 3year results of a randomized clinic trial, *World J Surg.* 2012;36(5):984e-92.
12. Youssef T, EI-Alfy K, Farid M. Randomized clinical trial of Desarda versus Lichtenstein repair for treatment of primary inguinal hernia. *International J Surg.* 2015;20:28-34.
13. Manyilirah W, Kijjambu S, Upoki A, Kiryabwire J. 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.
14. Abbas Z, Bhat SK, Koul M, Bhat R. Hernia, Desarda, Lichtenstein, VAS. Desarda s no mesh repair versus lichtenstein s open mesh repair of inguinal hernia a comparative study. 2015;22(9035).
15. Rodriguez P, Herrera PP, Gonzalez OL, Alonso JR, Blanco HS. A Randomized Trial Comparing Lichtenstein Repair and No Mesh Desarda Repair for Inguinal Hernia: A Study of 1382 Patients. *East Central African J Surg.* 2013;18(2):18-25.
16. Gedam BS, Bansod PY, Kale VB, Shah Y, Akhtar M, A comparative study of Desarda's technique with Lichtenstein mesh repair in treatment of inguinal hernia: A prospective cohort study. *Int J Surg.* 2017;39:150-5.

Cite this article as: Bansod AN, Jantli M, Umalkar R, Ansari A, Tayade PC, Awachar N. Study of non-mesh technique of Desarda for inguinal hernia. *Int Surg J* 2019;6:2178-82.