ORIGINAL ARTICLE

Desarda repair for inguinal hernia: An initial experience at Khyber Teaching Hospital, Peshawar

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Abstract

Objective: The aim of the study was to determine the efficacy and safety of Desarda repair technique of inguinal hernia in terms of recurrence and other complications especially pain.

Material and Methods: The descriptive cross-sectional study was conducted in the Department of Surgery at Khyber Teaching Hospital, Peshawar, Pakistan for a period of fifteen months. 55 male patients with age more than 14 years who presented with an inguinal hernia on either side were operated after taking an informed consent. Data was collected on a set performa and analyzed on SPSS 20.

Results: A total of 55 male patients with inguinal hernia were operated. The mean operative time was 42.82 minutes. The maximum pain score of 6 on first post-operative day was observed only in 1(1.8%) patient. There was nil pain score at tenth post-operative day in 43(78.2%) patients. The wound grade on tenth post-operative day came out to be 0 in 52(94.5%) patients. No acute complications were reported in 51(92.7%) patients. Mild scrotal swelling was reported only in 3(5.5%) patients. No recurrence was observed after a maximum follow up of one year.

Conclusion: Desarda tissue based inguinal hernia repair is a viable, safe and a more economical alternative to mesh techniques.

Keywords: Desarda Repair, Inguinal Hernia, Recurrence, lichtenstein repair

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Introduction:

Inguinal hernia is the most common pathology encountered by general surgeons world-wide.[1] It comprises of almost 75% of all abdominal wall hernias.[2] The lifetime risk estimated for inguinal hernia is 27% for men and 3% for women.[3] The repair of inguinal hernia is the second most common general surgical operation after appendectomy comprising of 10-15% of all surgical procedures.[4] It has been mentioned that the history of groin hernias is the history of surgery itself.[5] Widely the inguinal hernia is seen as a minor disorder. Since, its surgery may be easily performed in both in and out patient setups, it is too often considered as a trivial complaint. While in many countries it is considered a speciality. Inguinal hernias remain an eminent problem due to its frequency.[6] Unless it is treated properly, it may turn out to be very disabling.[7]

The ideal operation to treat inguinal hernias is still a long way to define.[8] The fact that there lacks the ideal treatment for it is the existence of nearly 80 techniques of which 20 are currently in use.[7] By the time, new techniques have been developed as the complication rate of older ones are becoming unacceptable.[9] Nevertheless, the ideal methodof hernia surgery in this modern age should be simple, safe, cost effective, tension free and permanent. And the Lichtenstein surgery for inguinal hernia achieves all the goals to a great extent. Whereas, the open no-mesh repair techniques use non absorbable interrupted or continuous sutures.[1] Of those, Shouldice re-

pair is considered the standard. But it is hard to learn & master. A direct supervision is needed to achieve the desired outcome.[10]

Moreover, the synthetic prostheses used in inguinal hernia have evolved new clinical issues such as foreign body sensation, discomfort and stiffness which may affect day to day activities of the patient.[11] Complications involving mesh repair such as surgical site infections, migration of mesh, meshoma or plugoma tumour formation and adversely affecting the sexual function remain the major clinical problems.[12-14]

The complication rates observed so far made the investigators to look for new techniques of hernia repair. One such attempt was the Desarda tissue based repair technique which got recognition as a new option for inguinal hernia repair.[15,16] In Desarda repair, after the sac is excised, a strip of external oblique is partly separated from medial leaf at the upper crux of the external inguinal ring with its continuity intact laterally. It is then sutured to the inguinal ligament below and arch of conjoint tendon above, behind the cord to form a new reinforced posterior wall.[15] The European Hernia Society guidelines recommend Lichtenstein technique and Laparoscopic methods for surgical management of symptomatic inguinal hernia in adult individuals.[1]

Although tension free mesh repair is the standard method, its use is not common in countries with poor socio-economic status, non-availability of mesh and laparoscopic facilities. Therefore, traditional suturing techniques such as Shouldice, Darning, Desarda and Bassini are still practiced in our part of the world with comparable results.[18] Whereas, Desarda repair technique has also been found to be comparable to other forms of repairs.[19]

Considering the low socio-economic status & health facilities in our setup, this study has been performed to evaluate the initial experience & results of the tissue based repair for inguinal hernia. The emphasis was on the successful outcomes, in terms of operative time, post-operative pain, surgical site infections, recurrence and last but not the least, the economic implications. It will add more to the current literature as such a study is not conducted here until now.

Material and Methods:

The descriptive cross-sectional study was conducted in the Department of Surgery at Khyber Teaching Hospital, Peshawar, Pakistan between October, 2016 to December, 2017. All male patients with age more than 15 years who presented with an inguinal hernia on either side were included while female patient, bilateral herniae, recurrent herniae, bleeding disorders or other immuno-compromised patients were excluded after taking informed written consent in the study.

The total number of 55 patients were operated after taking a complete history, clinical examination and relevant investigations. The aim of the present study was to test the hypothesis laid that desarda repair is as effective as the standard mesh repairs, allowing recurrence free hernia repair without using the mesh. The outcomes studied were operative time in minutes, pain score, wound infection, other post-operative complications and recurrence. Data was collected on a set performa and analyzed on SPSS 20.

Frequency and percentages were calculated for categorical data like post-operative complications. Mean±S.D. was for numerical variables like age etc. All results were presented in tables.

Results:

A total of 55 male patients with inguinal hernia on either side were included in the study. The mean age was 39.24 years and S.D. 18.83 with age range of 15 to 73 yearsas shown in table no.1. The mean operative time was 42.82 minutes and S.D 6.72 with range of operative time from 30 to 60 minutes. The pain score at first post-operative day are given in table no.2 with maximum of 6 in only one patient (1.8%). The pain score at 10th post-operative day as observed was 43(78.2%) patients with nil pain (zero score), 8(14.5%) with pain score 1 and 4(7.3%) with pain score 2. In our study the wound infection rate according to South Hampton wound grade on the

Table-1: Age Range

Age Range	Frequency	Percent
15 - 20	16	29.1
21 - 30	8	14.5
31 - 40	7	12.7
41 - 50	7	12.7
51 - 60	7	12.7
61 - 70	8	14.5
Greater than 70	2	3.6
Total	55	100.0

(Mean 39. 24 ±S.D 18.83)

Table-2: Pain Score at 1st Post-Op Day

Pain Score	Frequency	Percent
1	2	3.6
2	24	43.6
3	21	38.2
4	4	7.3
5	3	5.5
6	1	1.8
Total	55	100.0

(Mean 2. 72 ±S.D 0.99)

Table-3: Stratification of pain among operative time

Pain Score at 1st Post-Op Day	Operative Time in minutes							Total	P-Value
	30.0	35.00	40.00	45.00	50.00	55.00	60.00		
One	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	2(3.6%)	0(0.0%)	0(0.0%)	2(3.6%)	0.589
Two	1(1.8%)	7(12.7%)	7(12.7%)	6(10.9%)	1(1.8%)	2(3.6%)	0(0.0%	24(43.6%)	
Three	0(0.0%)	4(7.3%)	5(9.1%)	7(12.7%)	2(3.6%)	2(3.6%)	1(1.8%)	21(38.2%)	
Four	0(0.0%)	1(1.8%)	1(1.8%)	0(0.0%)	2(3.6%)	0(0.0%)	0(0.0%)	4(7.3%)	
Five	0(0.0%)	1(1.8%)	0(0.0%)	1(1.8%)	1(1.8%)	0(0.0%)	0(0.0%)	3(5.5%)	
Six	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
Total	1(1.8%)	13(23.6%)	14(25.5%)	14(25.5%)	8(14.5%)	4(7.3%)	1(1.8%	55(100%)	

tenth post-operative day was 0 in 52(94.5%) patients while 1 in 3(5.5%) patients. While mild scrotal swelling was in observed 3(5.5%) patients. Among the 55 patients 39(70.9%) were followed for one year, and 16(29.09%) for six months but no recurrence was observed. There were no other long term complications reported. We analyzed and stratified post-operative pain among operative time and age and the results are as shown in table No.2.

Discussion:

Inguinal hernia has always been the most common condition afflicting human kind. With passing days newer techniques are formulated considering the rate of complications of the older ones.[9] The efficiency of all these procedures vary in terms of time to operate, post-operative pain, wound infections and recurrence. All these factors are not only influenced by the type of procedure but also by the technical skills and expertise of the operating surgeons.[20] However, the preferable method for inguinal hernia repair should be safe, simple, tension free, cost effective and permanent with minimum chances of recurrence.

Though the operative technique considered as standard for hernia is tension free mesh repair. But the tissue based techniques are still liable to be accepted by the European hernia society guidelines, for primary inguinal hernia repair.[21]

Despite the frequency of this procedure, there are no ideal results and the results vary from good to excellent. The recurrence rate for mesh repair is 1% in specialized centres but can be 4% in non-specialized centres and may reach upto 18%.[17]

At issue based herniorrhaphy technique for inguinal hernia has been proposed by Desarda MP.[15] It is based on the concept of creating a physiologically dynamic posterior wall. The weak muscles of the conjoint arch are strengthened by the undetached strip of external oblique aponeurosis which surely prevents herniation via the increased tone in the strip.[6] The advent of continuous suture repair for inguinal hernia appears promising. It does not involve the use of any prosthetic material with minimal chances of recurrence or chronic pain. The technique of continuous suturing saves time and suture material. Desarda technique fulfills all the criterion for a tension free hernia repair. The foremost indications for the method include young patients, presence of financial limitations or patients' choice. Desarda tissue repair technique is easy to learn, master and teach further.[22]

The mean operative time in our patients was 42.82 minutes. While Mitura K & associates found it to be 56.6 minutes for Desarda and 66.5 minutes for Lichtenstein repair.[19] Therefore, it seems that with growing evolution of the technique it requires less per-operative time and

Table-4: Stratification of pain among operative time

	Pain score on 1st Postoperative Day						Total	P-Value
Age in Years	One	Two	Three	Four	Five	Six		
16	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
17	1(1.8%)	1(1.8%)	1(1.8%)	0(0.0%)	1(1.8%)	0(0.0%)	4(7.3%)	
18	0(0.0%)	4(7.3%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	6(10.9%)	
20	0(0.0%)	4(7.3%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	5(9.1%)	
22	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	1(1.8%)	2(3.6%)	
25	0(0.0%)	0(0.0%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	2(3.6%)	
26	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
28	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
30	0(0.0%)	1(1.8%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	2(3.6%)	
35	0(0.0%)	1(1.8%)	2(3.6%)	0(0.0%)	1(1.8%)	0(0.0%)	4(7.3%)	
38	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
40	0(0.0%)	0(0.0%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	2(3.6%)	0.589
45	0(0.0%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	2(3.6%)	
50	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	5(9.1%)	
51	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	1(1.8%)	
55	0(0.0%)	2(3.6%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	4(7.3%)	
58	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
60	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
61	0(0.0%)	1(1.8%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	3(4.3%)	
65	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	1(1.8%)	
68	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
70	1(1.8%)	2(3.6%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	3(4.3%)	
72	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	
73	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.8%)	0(0.0%)	1(1.8%)	
Total	2(3.6%)	24(43.6%)	21(38.2%)	4(7.3%)	3(5.5%)	1(1.8%)	55(100.0%)	

confers as the initial step to its acceptance. As a study conducted by Zulu HG et al also noted Desarda to have a shorter operative time.[23] According to another study comparing the mean operative time between Desarda and Bassini repair concluded it as 30.66 minutes for Desarda while 32.40 minutes for Bassini's repair.[9]

In our study, the maximum number of patients i.e. 16(29%) were in the age range of 15-20 among the studied group. While Ifthikhar AB et al in their series found that 83 (41.5%) patients were above 50 years in a total of 200 patient's studied.[24]

A VAS (visual analogue scale) of 1-10 was taken for the parameter of pain score at first post-operative day in our study. The score on first post-operative day came out to be 2 in 24(43.6%) patients, of 3 in 21(38.2%) patients and the maximum score of 6 was observed only in 1(1.8%) patient with the mean of pain score being 2.72±S.D. While according to Mitura K et al, it is 3.3 for Desarda and 3.8 for Lichtenstein.[19] According to another study there was no significant difference in the mean pain score. Though a significant difference was recorded regarding the operative time with Desarda marked shorter duration repair.[25] In a study comparing Desarda with Bassini it was less in Desarda being 2.80 as compared to 3.20 in Bassini's repair.[9]

The pain score at tenth post-operative day in our patients was divided into nil, pain score 1 and pain score 2. About 43(78.2%) of our patients had nil pain on tenth post-operative day. While according to literature one week after hernia repair by Desarda or Lichtentstein; patients equally classified the intensity of pain.[19] Mean VAS on 7th post-operative day was significantly less in Desarda i.e. 1.86 than Bassini's repair i.e. 3.00.[9] According to a study by Youssef T et al there was no significant statistical difference in mean post-operative VAS scores for pain at the five time points between Desarda and Lichtenstein repairs. On the other hand the shorter operating time and earlier ambulation with normal gait gained Desarda more points .[8]

In our study the wound grade on tenth post-operative day was observed to be falling into 0 or 1a. With a very promising result it came out to be 0 in 52(94.5%) patients of the total of 55 cases. There were no acute post-operative complications reported in 51(92.7%) patients. However, mild scrotal edema was noted in only 3(5.5%) patients. According to a study one early haematocoele was noted. And the same study had observed 1(0.25%) recurrenceat 2 years.[15] While we followed 39 cases for one year and the rest for six months, but did not observe any recurrence. Another study by Mitura K et al reported no recurrence at six months after the surgery.[19] There was no recurrence in Desarda while one recurrence in Bassini's repair.[9] Another study showed no significant difference between Desarda and the other repairs regarding the intra and post-operative complications but common among all was scrotal edema that too only 12% in Desarda and 17% in Lichtenstein[6] against our observation of 5.5% Seroma formation was reported to be 6% in Desarda while 10% in Lichtenstein repair.[24]

The most common issues concerning Inguinal hernia surgery are the initial cost, mesh infection and last but not the least, recurrence.[26] And we have observed in our study that the Desarda, tissue based herniorrhaphy technique, is more economical, less painful and with similar safety profilein terms of recurrence. Moreover, there is also no need to put a life long prosthetic material in the body. Our patients were satisfied with the results.

Even though Desrada has a number of advantages but it still has not gained much popularity and the vast majority of the surgeons still practice the mesh techniques. One of the studies by Muhammad Al Fatah et al recommended Desarda repair to deserve more attention and further evaluation.[22]

Conclusion:
The initial results of our study are very encouraging. The lower cost, lesser pain and safety in terms of recurrence makes Desarda technique a viable alternative to the standard mesh repair in our part of the world with lesser health budgets.

Recommendations: We recommend further randomized trials trough It is also preferable choice in young patients to avoid sexual impairment as occurs more in mesh repairs.

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Dr. ZiauddinAfridi, Idea conception, data collection & initial drafting

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