

Desarda's Versus Lichtenstein Technique of Hernia Repair

IFTIKHAR AHMAD BHATTI¹, HABIBULLAH ISHAQU², ZUBAIR AHMAD³, UMAR FAROOQ DAR⁴

ABSTRACT

Aim: To compare Desarda's versus Lichtenstein's repair in patients with unilateral, primary, reducible inguinal hernia in terms of mean operative time and seroma formation.

Methods: This randomized control trial conducted at Department of Surgery, Sharif Medical & Dental College, Lahore. Two hundred patients with unilateral, primary, reducible inguinal hernia were randomly distributed in to two groups to undergo hernia repair i.e. Lichtenstein and Desarda's. Outcome was measured in terms of mean operative time and seroma formation. Seroma formation was defined as presence of enclosed cavity containing serous fluid determined by ultrasonography at 30th post-operative day.

Results: Eighty three patients (41.5%) were above 50 years of age or whereas remaining 117 patients (58.5%) were below 50 years of age. Seventy nine patients (39.5%) were female and 121 patients (60.5%) were male. Seroma formation was 6% in Desarda's group while 10% in Lichtenstein group ($P > 0.05$). Similarly difference in mean operative time was statistically non-significant. Seroma formation was common in older age group. There was no effect of smoking, obesity and gender on seroma formation or operative time.

Conclusion: It is concluded that there is no difference in frequency of seroma formation and mean operative time in Desarda's or Lichtenstein's technique of hernia repair.

Key words: Inguinal hernia, Lichtenstein repair, Desarda's group, Seroma formation, Operative time

INTRODUCTION

Inguinal hernias by far are the most common types of hernias seen in our tertiary care settings.¹⁻³ The estimated lifetime risk for inguinal hernia is 27% for men and 3% for women.⁴ Inguinal hernia repair is one of the commonest operations done and the choice of a method depends on the surgeon as there were no written surgical guidelines for hernia treatment till 2009.⁵⁻⁷ However, the ideal method for modern hernia surgery should be simple, cost effective, safe, tension free and permanent. The Lichtenstein operation to a great extent achieves all these goals.⁸ The Lichtenstein mesh, however has its shortcomings which include; its initial cost, non-availability in small cities of the developing world, tendency to fold and wrinkle, movement that may lead to mesh failure, since the groin is a very mobile area and chronic groin sepsis, that requires mesh removal. Non mesh repair like Desarda has been advocated in these situations^{9,10}.

In a study, 208 male patients were randomly assigned to the D (Desarda) or L (mesh-based Lichtenstein) group. 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 at 30th day [0% vs 7.8%] ($p=0.004$)⁹. In another study¹⁰ a significant difference was recorded in regard to operative time-with the Desarda's repair taking a remarkably shorter duration [15.9±3.52 minutes for Lichtenstein repair and 10.02±2.93 minutes for Desarda's repair, effect size (95% CI): 5.92 (4.62–7.20), $P=0.0001$]. There was no significant difference in complication rate in both groups (Intraoperative complications in Desarda vs Lichtenstein are 4.00% vs 1.96% ($p=0.6170$), Postoperative 10% vs 13.70% ($p=0.564$), Postoperative day 14 13.7% vs 14% ($p=0.1$)¹⁰.

Rationale of current study is that there is no local study¹⁻³ available comparing the mesh and non-mesh hernia repair in online repositories for last five years. Available international data is scarce. One available RCT found equal rate of complications¹⁰ while other proved increased seroma formation⁹ in Lichtenstein group. Current study will help find an evidence for better and cost effective technique in terms of mean operative time and seroma formation.

PATIENTS AND METHODS

This randomized control trial was carried out in Department of Surgery, Sharif Medical & Dental College, Lahore from October 2013 to January 2015. Two hundred patients with unilateral, primary,

¹Department of Surgery, Sharif Medical & Dental College Lahore,

²Department of Surgery, Sheikh Zaid Hospital Quetta,

³DHQ Teaching Hospital, Dera Ghazi Khan,

⁴Department of Community Medicine, Gujranwala Medical College
Correspondence to Dr. Umar Farooq Dar e-mail:
umardar84@gmail.com Cell:03214035099

reducible inguinal hernia determined by clinical examination were selected. Duration of the repair was started at the beginning of a particular repair technique after herniotomy had been performed, and ends when the last stitch of the repair is knotted, before closing the other layers of the wound. It was recorded in minutes. Seroma formation was defined as presence of enclosed cavity containing serous fluid determined by ultrasonography at 30th post-operative day. Patients with renal failure (serum creatinine more than 2mg/dl) and diabetes were excluded. After approval from ethical review board, 200 patients admitted for unilateral, primary, reducible inguinal hernia were evaluated by consultant, and the patients fulfilling the inclusion criteria were included in the study after taking the informed consent. All the operations were carried out by same consultants on operative list under general anesthesia. Included patients were randomly divided into two groups using random table i.e., one group in which hernia was repaired by standard mesh (Lichtenstein) and second group by Desarda's method. Data of all patients was collected on a structured questionnaire regarding outcome (mean operative time and seroma formation) according to operational definitions along with age, gender and history of current smoking and Body mass index $>30\text{kg/m}^2$. Each patient was followed by ultrasonography on post-operative day 30 for presence of seroma by ultrasonography. Body mass index $>30\text{kg/m}^2$ and history of smoking was taken as effect modifier and data was stratified accordingly. All the data from the proforma was entered and analyzed in the SPSS version 17. The descriptive statistics like age and operative time were presented in the form of mean \pm standard deviation while sex, smoking history, Body mass index $>30\text{kg/m}^2$ and seroma formation as frequency and percentage. The mean difference between mean operative time was determined using Student t-test while post stratification significance and difference in seroma formation was determined by chi square test. A value of $P\leq 0.05$ was considered as significant.

RESULTS

Two hundred patients were included in our sampled population with mean age distribution 53.25 ± 6.768 ranged from 32 to 60 years. Eighty three patients (41.5%) were either 50 years of age or above whereas remaining 117 patients (58.5%) were below 50 years of age. Seventy nine patients (39.5%) were female and 121 patients (60.5%) were male. Sixteen patients (8%) were presented with seroma formation whereas 184 patients (92%) showed negative results. Operative time in 90 patients (45%) was less than 25

minutes whereas in 110 patients (55%) operative time was either 25 minutes or more. Mean operative time was 28.85 ± 5.66 minutes (Table 1). When we cross tabulated treatment group with seroma formation, results were non-significant ($p=0.297$). 6 patients of Desarda's group developed seroma formation and 10 patients of Lichtenstein group showed similar results (Table 2). Two hundred patients had statistically equally distributed mean operative time in Lichtenstein and Desarda groups was not significant [$P>0.05$] (Table 3). When we cross tabulated treatment group with operative time, in Desarda's technique 44 patients took less than 25 minutes while 56 patients took more time. Lichtenstein technique almost followed the same trend. Statistically results were non-significant [$p=0.887$] (Table 4).

Table 1: Descriptive statistics of the patients

Variable	No.	%
Gender		
Male	121	60.5
Female	79	39.5
Seroma formation		
Yes	16	8.0
No	184	92.0
Age (years)	53.25 ± 6.78	
Operative time (minutes)	28.85 ± 5.66	

Table 2: Cross tabulation between group and seroma formation

Group	Seroma Formation	
	Yes	No
Desarda's	6	94
Lichtenstein	10	90
Using Chi square test P value	0.297 (Non-significant)	

Table 3: Mean distribution by operative time in treatment groups

Group	Operative time
Desarda's	28.90 ± 5.57
Lichtenstein	28.80 ± 5.77
Using student 't' test P value	0.88 (Non-significant)

Table 4: Cross tabulation between group and operative time

Group	Operative time	
	Less than 25 minutes	25 minutes & more
Desarda's	44	56
Lichtenstein	46	54
Using Chi square test P value	0.88 (Non-significant)	

DISCUSSION

In our study, 16 patients (8%) developed seroma whereas 184 patients (92%) showed negative results.

When we cross tabulated treatment group with seroma formation, results were non-significant ($p=0.297$). 6 patients of Desarda's group (6%) developed seroma while 10 patients of Lichtenstein group (10%) had seroma at end of study period. Our results are different from previous studies¹¹⁻¹⁴.

In the previous study, there was significantly less seroma production in the Desarda's group at 30th day (0% vs. 7.8%) ($p=0.004$)⁹. The difference in results may be secondary to difference in demographic profile of included patients. Similarly in our study, mean operative time was equally distributed in both Lichtenstein and Desarda groups. When we cross tabulated treatment group with operative time, in Desarda's technique 44 patients took less than 25 minutes while 56 patients took more time. Lichtenstein technique almost followed the same trend. Results were non-significant ($p=0.887$).

In another study¹⁰ a significant difference was recorded in regard to operative time- with the Desarda's repair taking a remarkably shorter duration (15.9 ± 3.52 minutes for Lichtenstein repair and 10.02 ± 2.93 minutes for Desarda's repair, effect size (95% CI): 5.92 (4.62–7.20), $P=0.0001$). There was no significant difference in complication rate in both groups (intraoperative complications in Desarda vs Lichtenstein are 4.00% vs 1.96% ($p=0.6170$), Postoperative 10% vs 13.70% ($p=0.564$), Postoperative day 14 13.7% vs 14% ($p=0.1$).¹⁰ Seroma formation was common in older age group. There was no effect of smoking, obesity and gender on seroma formation or operative time.

CONCLUSION

It is concluded that there is no difference in frequency of seroma formation and mean operative time in Desarda's or Lichtenstein's technique of hernia repair. So we accept the null hypothesis and conclude the Desarda's repair of primary reducible inguinal hernia has equal mean operative time and

frequency of seroma formation as compared with Lichtenstein's.

REFERENCES

1. Sheikh SA, Iqbal M, Mustafa N, Muhammad I, Farooq U, Mehmood Y. Non-mesh repair of adult inguinal hernia: a simple solution. *Rawal Med J* 2011;36(1):9-13.
2. Ghafoor T, Rehan TM, Amjad S, Waseem M, Anwar MS. Sutureless tension free Lichtenstein repair: a safe option for indirect inguinal hernia. *J Sheikh Zayed Med Coll* 2010;1(3):74-7.
3. Malik AM, Khamiso AK, Talpur AH, Laghari AA. Factors influencing morbidity and mortality in elderly population undergoing inguinal hernia surgery. *J Pak Med Assoc* 2010;60(1):45-7.
4. Staerkle RF, Buchli C, Villiger P. Patient satisfaction, hernia recurrence rate, and chronic pain 10 years after endoscopic total extraperitoneal inguinal hernia repair. *Surg Laparosc Endosc Percutan Tech* 2009;19:405-9.
5. Situma SM. Comparison of Desarda versus modified Bassini inguinal Hernia repair: a randomized controlled trial. *East Cent Afr J Surg* 2009;14:70-6.
6. Szczesny W, Szopinski J, Reslinski A. Early postoperative pain after Lichtenstein and Desarda hernioplasty. *Polish Surg* 2010;12:67-75.
7. Genc V, Ensari C, Ergul Z. A very late-onset deep infection after prosthetic inguinal hernia repair. *Chirurgia* 2010; 105: 555-7.
8. Simons MP, Aufenacker T, Bay-Nielsen M. European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. *Hernia* 2009;13:343-.
9. Szopinski J, Dabrowiecki S, Pierscinski S, Jackowski M, Jaworski M, Szuflet Z. Desarda Versus Lichtenstein Technique for Primary Inguinal Hernia Treatment: 3-Year Results of a Randomized Clinical Trial. *World J Surg* 2012;36:984-2.
10. Manyililah 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.
11. Dabbas N, Adams K, Pearson K, Royle G. Frequency of abdominal wall hernias: is classical teaching out of date? *JRSM Short Rep* 2011;2:5.
12. Rosemar A, Angerås U, Rosengren A, Nordin P. Effect of body mass index on groin hernia surgery. *Ann Surg* 2010; 252:397-405.
13. Bendavid R. Femoral pseudo-hernias. *Hernia* 2002; 6:141-7.
14. Pitoulias GA, Donas KP, Chatzimavroudis G. The role of simple renal cysts, abdominal wall hernia, and chronic obstructive pulmonary disease as predictive factors for aortoiliac aneurysmatic disease. *World J Surg* 2012; 36:1953-8.