

COMPARISON OF DESARDA METHOD VERSUS LICHTENSTEIN METHOD FOR THE MANAGEMENT OF INGUINAL HERNIA: A SHORT-TERM OUTCOME ANALYSIS

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ABSTRACT

Objective: Lichtenstein method is a gold standard surgery modality for the management of inguinal hernia but it is associated with post-operative complications such as groin pain, abdominal wall thickness, and surgical site infections. Desarda method is a physiologic non-mesh repair with no anticipated mesh related complications. The present prospective randomized study was conducted to compare short term outcomes of Desarda with Lichtenstein technique for the management of inguinal hernia.

Methods: This was a prospective randomized study conducted on 60 patients undergoing surgery for inguinal hernia. The patients were allocated into two groups as follows, Group A (n=30) patients undergoing Desarda's repair for inguinal hernia and Group B (n=30) patients undergoing Lichtenstein's repair. The following outcome was measured, post-operative pain (Day 1, Day 3, Day 5) – visual analog scale, duration of hospital stay and complications. p value <0.05 was considered significant.

Results: The demographics characteristic were similar in both the groups and not significant. The hospital stay duration was lower in Desarda group as compared to Lichtenstein groups and was significant (4.07±0.83 vs. 6.87±1.87 days). The post-operative VAS score at day 1, 3, and 5 were significantly lower in Desarda group as compared to Lichtenstein group. The incidence of complications were lesser in Desarda group as compared to Lichtenstein group but not significant.

Conclusion: The Desarda technique was superior when compared to Lichtenstein method in terms of early recovery, post-operative pain, and complications for the management of inguinal hernia.

Keywords: Inguinal hernia, Desarda method, Lichtenstein method, Post-operative pain, Complications.

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INTRODUCTION

Inguinal hernia (IH) is an abnormal protrusion of viscus or a part of viscus through an opening, normal or abnormal, in the walls of the cavity containing in it. The inguinal hernia is classified into two types, direct IH which involves posterior wall and the indirect IH which involves the deep ring [1]. IH is a commonly reported disease condition in the world, due to this, herniorrhaphy, surgical repair of IH is among the frequently conducted surgery [2]. The abdominal wall hernias is the frequently encountered conditions accounts for 75% and it imposes lifetime risk of 27% in males and 3% in females [3]. In a recently conducted systematic review the pooled prevalence of inguinal hernia is 7.7% and the subgroup analysis of various type of hernia showed that, the most common condition is inguinal hernia encompassing 12.72% among the Asian population [4].

In 2009, European hernia society reported the guidelines for hernia repair. They highlighted that the Lichtenstein or laparoscopic repair technique is the preferred choice for the surgical management of primary inguinal hernia in adult males. Two techniques are available mesh and non mesh repair and among these Shouldice method is the reliable non-mesh repair procedure with 1A recommendation level. The recurrence rate of shouldice technique ranges between 0.7 and 1.7% with a maximum of 15% based on experience [5]. The most commonly preferred open mesh repair technique is the Lichtenstein method with recurrence rates of 4% during long-term outcome [6]. Lichtenstein method employs mesh implantation and elicits certain demerits such as chronic groin pain, foreign body involvement, stiffness in the abdominal wall, infection at the surgical site and this impairs the

daily activity of the patients. In addition, the mesh related problems such as adverse. In addition, the mesh related problems such as mesh migration, mesh rejection, sexual dysfunction, and pain in the groin area are also reported in the mesh based hernia repair technique [7,8]. The effective and successful hernia surgery is evaluated on the terms of recurrence rate, complication rate, simple technique, low cost, and time taken for the patients to return to normal activities [9].

In 2001, Desarda reported a novel technique which satisfied the above criteria. In this technique, prosthetic mesh is not required and in addition complicated dressings or sutures is not needed and for repair weakened muscles or transversalis fasci is not used. Previous reports shows that Desarda is superior or with equal efficacy when compared to Shouldice and Lichtenstein repairs, with 1.8% complication rate and 0.2% recurrence [10,11]. In this backdrop, the present study was carried out to compare the short term outcomes and recurrence rate for 1 year between Lichtenstein's and Desarda's technique.

METHODS

This was a prospective randomized study conducted on 60 patients admitted at Sharda Hospital, School of Medical Sciences and Research, Greater Noida for inguinal hernia surgery.

The patients were divided into two groups as follows:

Group A (n=30): Patients undergoing Desarda's repair for inguinal hernia

Group B (n=30): Patients undergoing Lichtenstein's repair for inguinal hernia

Inclusion criteria

All patients of primary, uncomplicated Inguinal Hernia, patients above 18 years of age and fit for anesthesia were included in the study.

Exclusion criteria

The following criteria were excluded from the study:

- Patients with recurrent inguinal hernias
- Patients unable to interpret VAS
- Patient not giving consent to be included in the study
- Patients with infection in the inguinal region or epididymo-orchitis

Written informed consent was obtained from the entire patient with detailed explanation of the procedure going to be performed on them, the risks and complications involved and the advantages and disadvantages of the same and patient were chosen randomly for the procedure using the envelope lottery method.

A detailed history was taken and clinical examination performed and a complete diagnosis is made. Lab and radiological investigations were done for fitness/PAC along with specific tests as needed.

Outcomes

The following outcomes were evaluated and compared between the groups,

- Post-operative pain (Day 1, Day 3, and Day 5) – Visual analog scale
- Duration of Hospital stay
- Complications (Seroma, Hematoma, wound infection, and Recurrence).

Statistical analysis

The patients demographic data were presented as frequency, percentage, mean and standard deviations. The mean difference between the continuous variables of two groups was assessed using unpaired independent t-test and the follow-up data within the group were analyzed using paired t-test. $p < 0.05$ was considered as statistically significant. The data were analyzed using SPSS

RESULTS

In total, 60 cases of inguinal hernia were operated on during the study duration. In this study, 30 patients underwent Desarda procedure (Group A) and remaining 30 patients underwent Lichtenstein procedure (Group B). The demographic profile between the groups was similar and it was not significant. The results are shown in Table 1.

The mean duration of hospital stay was significantly lower in Group A (Desarda technique) as compared to Group B (Lichtenstein technique) and it was significant (4.07 ± 0.83 vs. 6.87 ± 1.87 days; $p = 0.001$). The results are shown in Table 2.

The post-operative VAS score was significantly lower in Group A (Desarda technique) as compared to Group B (Lichtenstein technique) at day 1 ($p = 0.001$), day 3 (4.00 ± 0.00 vs. 5.63 ± 0.69 ; $p = 0.001$) and day 5 (1.00 ± 0.00 vs. 1.87 ± 0.35 ; $p = 0.001$). Thus, the post-operative pain was lower in Desarda technique as compared to Lichtenstein technique. The results are shown in Table 3.

The complications of Desarda technique and Lichtenstein technique are shown in Table 4. The complications were more in Group B (Lichtenstein technique) as compared to Group A (Desarda technique) but it was not significant ($p > 0.05$).

No recurrence of inguinal hernia was observed in both the Lichtenstein and Desarda mesh repair in our study.

DISCUSSION

Among the various general surgery procedures, inguinal hernia repair is the most procedure globally. The effective and positive outcome

Table 1: Demographics characteristics of the patients

Parameters	Group A (Desarda)	Group B (Lichtenstein)	p-value
Age (Years)	41.43±12.66	47.06±14.82	0.119 ^a
Gender (M/F)	20/10	18/12	0.65 ^b
ASA status (I/II)	22/8	20/10	0.76 ^b
Height (cms)	156.65±34.76	158.12±30.43	0.32 ^a
Weight (kgs)	62.87±12.65	65.54±20.12	0.87 ^a

$p > 0.05$ (Not significant); ^aStudent t-test; ^bChi-square test

Table 2: Comparison of hospital stay between the groups

Parameters	Group A (Desarda)	Group B (Lichtenstein)	p-value
Hospital stay (days)	4.07±0.83	6.87±1.87	0.001

Table 3: Comparison of post-operative visual analog score scores between the groups

Post-operative VAS scores	Group A (Desarda)	Group B (Lichtenstein)	p-value
Day 1	5.57±0.50	7.67±0.88	0.001
Day 3	4.00±0.00	5.63±0.69	0.001
Day 4	1.00±0.00	1.87±0.35	0.001

$p < 0.05$ (Significant) significant ($p > 0.05$)

Table 4: Complication between the groups

Complications	Surgery type		Chi-square (p)
	Group A (Desarda)	Group B (Lichtenstein)	
	Frequency (%)	Frequency (%)	
Seroma			
Absent	29 (96.7)	27 (90.0)	1.071
Present	1 (3.3) 3.3%	3 (10) 10.0%	(0.301)
Hematoma			
Absent	30 (100.0)	28 (93.3)	2.069
Present	0 (0.0)	2 (6.7)	(0.150)
SSI			
Absent	30 (100.0)	27 (90.0)	3.158
Present	0 (0.0)	3 (10.0)	(0.076)

of inguinal hernia surgical repair is mainly depends on the hernia closure defect with tension free and also with low recurrence rate [12]. Tension-free procedures like mesh repairs is touted to be superior when compared to primary repair approximating tissues [13]. Due to this, Lichtenstein mesh repair is considered as a gold standard open repair method [14,15]. However, the surgical site infections is more frequent for mesh repair and it requires long-term antibiotic treatment and during severe stage there is a need of complete removal mesh and thus leaving the hernia untreated. In addition, the various mesh-related complications are mesh migration, "meshoma" which is due to contraction, migration or aggregation of prosthetic mesh, entrapment of nerves, and fistula formation in intestines.

In 2001 Desarda, developed a technique due to the non-availability of mesh in low income countries and also to reduce the mesh related complications. After the exploration of Desarda technique, it has been consistently compared to Lichtenstein tension free mesh repair, specifically in poor resource settings and reported to have better outcome with respect to complication with minimal rate of sepsis, faster to regain the normal activities [16], less operative time [17] and fast restoration of normal gait and less post-operative pain [18]. Thus, Desarda repair has a paramount chance to appear as a novel gold

standard specifically in low and middle income countries. The present study was done to compare the short-term clinical outcomes of inguinal hernia repair using Desarda's technique, a non-mesh method which has the capacity regain the normal functions of the inguinal canal as compared to the Lichtenstein mesh repair.

The cardinal factors for evaluating the effective hernia repair are not only the complications but also cost and early performance of normal activities. In our study, the hospital stay is significantly shorter in Desarda group as compared to Lichtenstein group (4.07 ± 0.83 vs. 6.87 ± 1.87 days; $p=0.001$). The results are consistent with the study done by Arafa *et al.* [18] where the time to return for basic activity was lower in Desarda group as compared to Lichtenstein group (3.74 ± 1.2 vs. 4.55 ± 1.1 days) and it was significant. In another study done by Ramu *et al.* [17]. The hospital stay was shorter in Desarda technique as compared to Lichtenstein method (3.38 days vs. 4.08 days).

In this study, the post-operative VAS scores at days 1, 3, and 5 were significantly lower in Desarda technique as compared to Lichtenstein method. Similarly in a study done by Gedam *et al.* [19] the post-operative pain was significantly less in the first 7 post-operative days in Desarda group as compared to Lichtenstein group ($p=0.009$). Likewise, in another study done by Arafa *et al.* [18], the post-operative VAS scores was significantly lower in Desarda group compared to the Lichtenstein group. In contrast, in a study done by Manyilira *et al.* [20] there was no significant difference in the VAS scores on 3rd and 7th post-operative between Desarda and Lichtenstein group.

In this study, there was no significant difference in the complication between the groups ($p>0.05$). However, the incidence of complications was higher in Lichtenstein group as compared to Desarda group as follows, Seroma (3 vs. 1), hematoma (2 vs. 0), and SSI (3 vs. 0). In Manyilira *et al.* [20] study there was equal distribution of complications between both the surgical groups, Seroma (8 vs. 8) and hematoma (4 vs. 4), respectively. In another study done by Arafa *et al.* [18], there was no SSI in Desarda group as compared to Lichtenstein group (0 vs. 1). Likewise, Vupputuri *et al.* [21] documented the higher incidence of complications among the Lichtenstein group compared to the Desarda and there was no significant difference found in recurrence rate among both the groups.

CONCLUSION

The present study concluded that non-mesh Desarda repair is superior to Lichtenstein repair in terms of the lesser hospital stay, early return to normal activity and the lower post-operative pain score for the surgical management of inguinal hernia. Furthermore, there was lower incidence of the post-operative complication, seroma, hematoma, and SSI among the Desarda technique compared to the Lichtenstein repair. Recurrence was not observed in the present study.

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CONFLICT OF INTEREST

Nil.

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