MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.59218/makrjms.2023.8.126.129

OPEN ACCESS

Key Words
Hernia, Desarda's tissue repair, Lichtenstein hernia repair

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Received: 16 August 2023
Accepted: 2 September 2023
Published: 4 September 2023

Citation: Neetu Singh, Gaurav Sharma, Sonali Alla and Sanjay Lodha, 2023. Comparision of Desarda's Tissue Repair with Lichtenstein Hernia Repair for Inguinal Hernia. Res. J. Med. Sci., 17: 126-129, doi: 10.59218/makrjms. 2023.8.126.129

Comparision of Desarda's Tissue Repair with Lichtenstein Hernia Repair for Inguinal Hernia

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ABSTRACT
The surgical treatment of inguinal hernias has evolved through several stages to reach a modern and successful era. Despite the frequency of this procedure, no surgeon has ideal results and complications to challenge surgeons. To compare the results of Desarda's tissue repair with Lichtenstein hernia repair for inguinal hernia. METHOD: Study conducted on 50 patients aged between 21-82 years at Government medical college Kota for 27 months between October 2019 and Dec 2021. Patients Aged 18 and above, with a primary, reducible, irreducible and obstructed inguinal or inguino-scrotal hernia and who consented to participate in the study were taken. Age of the patients ranged between 21 years to 82 years with mean age 44.78±15.68 years, hernia was more common on right side i.e. 64% whereas 4% were bilateral. Repair time in mesh group was 14-19 min, whereas 11-18 min. in non mesh group ($p<0.05$). There was no significant statistical difference in mean pain scores at five points of time between the two intervention groups ($p>0.05$). This study has shown that the efficacy of Desarda's technique in respect of influencing the short-term outcomes of hernia repair is comparable to those of Lichtenstein method. It is wise to recommend Desarda's tissue repair as a reasonable option to Lichtenstein inguinal hernia repair.

INTRODUCTION

A hernia is defined as an abnormal protrusion of an organ or tissue through a defect in its surrounding walls. The surgical treatment of inguinal hernias has evolved through several stages to reach a modern and successful era. Despite the frequency of this procedure, no surgeon has ideal results and complications to challenge surgeons[1].

Approximately 75% of all hernias occur in the inguinal region. Men are 25 times more likely to have a groin hernia than women. An indirect inguinal hernia is the most common hernia, regardless of gender. In men, indirect hernias predominate over direct hernias at a ratio of 2 to 1. Direct hernias are very uncommon in women. Both indirect inguinal and femoral hernias occur more commonly on the right side. The prevalence of hernia increases with age, particularly for inguinal hernia[2].

Since recurrence rates have been reduced with mesh repairs, outcome research in groin hernia repair has recently focused on chronic pain. Chronic pain adversely affects daily life for 5-10% of patients[3] Pain is the most common discomfort experienced by patients after an ambulatory inguinal herniorrhaphy[4]. Inguinal hernia repair is one of the most frequently performed surgical operations. The Physiologically dynamic tension free inguinal herniorrhaphy using external oblique aponeurosis (Desarda's technique) of inguinal hernia repair done by Prof Desarda, who has used it since 1990. There are reports of its excellent results from the ongoing clinical trials in India, Poland, Cuba, South Korea and Albania[5].

To validate the use of the Desarda's tissue repair and its comparison to the open mesh (Lichtenstein) - the criterion standard must be established. Thus the purpose of this study is to attempt to establish the influence of this new technique on early clinical outcomes of inguinal hernia repair and if proved to be effective it will be a basis for the promotion of its use.

Aim: To compare the results of Desarda's tissue repair with Lichtenstein hernia repair for inguinal hernia and outcomes of Desarda's tissue repair for inguinal hernia.

MATERIAL AND METHODS

The study was a single-centre, prospective randomised controlled trial conducted on 50 patients aged between 21-82 years at Government medical college Kota for 27 months between October 2019 and Dec 2021. Patients Aged 18 and above; With a primary, reducible, irreducible and obstructed inguinal or inguino-scrotal hernia and Who consented to participate in the study were taken. Patients with Impaired mental state and were unable to give consent and to give an accurate assessment of the key outcomes of the operation. Patients with inguinal hernias seen in SOPD were interviewed and clinically assessed. The purpose of the study and the methods of treatment were carefully explained to the patients individually. Screening for suitability for surgery included history taking, physical examination, requesting for and reviewing the laboratory tests. Total operative time in this study was taken from skin incision to skin closure. The Hernia repair time was taken as the duration of actual repair technique, from the end of herniotomy or sac reduction to the time of placement of the last stitch of repair. Repair Techniques included DESARDA'S TISSUE REPAIR and LICHTENSTEIN'S MESH REPAIR. The first follow up was done one to two hours after the operation. The second follow up was done on the 7th postoperative day. Patient was followed at 1 and 3 months for pain score (VAS) and any complications present noted.

RESULT

In this study the age of the patients ranged between 21 years to 82 years with mean age 44.78±15.68 years. The youngest patient included in this study series was 21 years and eldest was 82 years old. In this study only 4% of the patients were female, as compared to males who made 96% of the total cases. Labourers constituted the vast majority of study subjects (36%) (Table 1).

In present study hernia was more common on right side i.e. 64%. Left side hernia comprised about 32% whereas 4% were bilateral. In this present study 34 cases were belongs to indirect hernia which contributed 68%, out of them 44% cases were with internal ring dilatation. Direct hernia was present in 11 cases which contributed 22% of the total. Direct as well as indirect hernia was present in 10% of Cases (Table 2).

The general trend shows an increase in pain score on the 3rd postoperative day, followed by a marked decline in socres on the 7th day and the pain score was nearly zero at 1 month. There was no significant statistical difference in mean pain scores at five points

Table 1: Sociodemography

Parameters	Group A	Group B
Age		
20-29	3	4
30-39	11	3
40-49	10	3
50-59	0	5
>60	1	10
Mean±SD	41.36±11.59	50.96±18.44
Sex		
Male	24	24
Female	1	1
Occupation		
Labourer	18	36
Farmer	15	30
Students	7	14
Business owner	4	8
Security services	3	6
Teacher	1	2
House wife	2	4

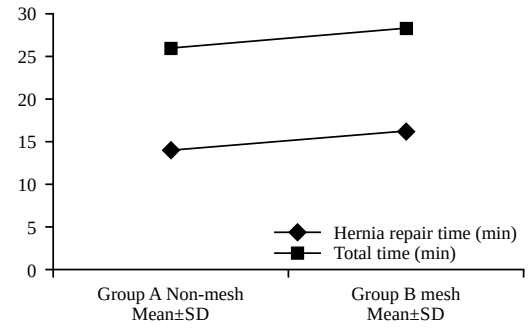

Fig. 1: Operating time

Table 2: Location of Hernia

Parameters	No. of patients	Percentage
Location of Hernia		
Right	32	64
Left	16	32
Bilateral	2	4
Nyhus class (Type of inguinal hernia)		
I	12	24
II	22	44
III a	11	22
III b	5	10
III c	0	0

Table 3: Pain score (VAS)

Pain score (Vas)	Group A (Non-mesh)	Group B (Mesh)	p-value
1-2 hrs	1.4±0.50	1.4±0.58	0.99
3rd day	2.36±0.63	2.6±0.64	0.1923
7th day	0.64±0.64	0.88±0.66	0.199
1 month	0.08±0.27	0.12±0.33	0.6455
3 month	0.04±0.20	0.08±0.27	0.560

Table 4: Complication

	Group A Non-mesh		Group B Mesh		Total		
Complications	No.	%	No.	%	No.	%	*p-value
Scortal Oedema	2	8	2	4	4	8	0.945
Scrotal Hematona	0	0	0	0	0	0	
Seroma	1	4	1	2	2	4	
Wound Sepsis	0	0	1	2	1	2	
Goin Pain	1	4	2	4	3	6	
Meshoma	0	0	1	2	1	2	
Recurrence	0	0	0	0	0	0	

of time between the two intervention groups (p>0.05). A noticeable, but not statistically significant difference was observed with lower mean pain scores among the non-mesh subjects (Table 3 and Fig. 1).

Hernia repair time in mesh group was ranging 14-19 min, whereas Hernia repair time in non mesh group was ranging 11-18 min (p<0.05).

General overall morbidity was 22% in this study. However, the morbidity was higher (24%) in the mesh group as compared to the non mesh group (16%). These were not significantly different statistically (Table 4).

The commonest complication in this study was scrotal edema [four(8%), two (8%) in non mesh group and three (8%) in mesh group]. Wound sepsis in suture line was present in one patient in mesh group which was managed conservatively using antibiotics. There was no recurrence at three months follow up however longer follow up is required. These complications were successfully managed conservatively.

DISCUSSION

In this study there was no statistically significant difference between Desarda's tissue repair and Lichtenstein methods in regard to acute postoperative pain scores and perioperative complications. However, a significant difference with regard to operative time was observed in this study (p<0.05) as more time was taken in Lichtenstein technique as compared to Desarda's technique.

The mean age of study population was 44.78±15.68 years. It was 41.36±11.59 years in non-mesh group and 50.96±18.44 years in mesh group. Present study correlates with Manyilirah[6].

Inguinal hernia is more common in males (97%) than female (3%)[1]. Present study also corroborate with this.

Hernias are more common on right side with 60% occurring on the right side, 30% on left side and 10% are bilateral. Present study correlates with this[7].

Approximately 75% of all hernias occur in the inguinal region. Two thirds of these are indirect and the remainders are direct inguinal hernias[1]. Present study correlate with this.

In present study hernia repair time were 14.08±2.04 min for non-mesh group and 16.2±1.35 minutes for mesh group [effect size (95% CI): 2.2 (1.136 to -3.104)]. This was found to be statistically significant (p<0.05). These results were comparable with Manyilirah[6].

The Total operative time were 25.88±2.71 min for non-mesh group and 28.16±1.43 min for mesh group [effect size (95% CI): 2.28 (1.046 to 3.514)]. Mitura[8] calculated the same.

In present study the mean pain scores 2 hrs after surgery were 1.44±0.50 for non-mesh group and 1.4±0.58 for mesh group. This was comparable with Manyilirah *et al*.[6] The mean pain scores on the 3rd postoperative day were 2.36±0.63 for non-mesh group and 2.6±0.64 for mesh group. This was comparable with Manyilirah *et al*.[6] Mean pain scores on the 7th postoperative day were 0.64 ±0.64 for non-mesh group and 0,88±0.66 for mesh group This was comparable with Manyilirah *et al*.[6].

The summarized frequency of postoperative complications reported in the available literature is between 15 and 28% , Bittner *et al*.[9], Schmedt *et al*.[10] and Rodríguez *et al*.[11] observed 5% overall morbidity However, the morbidity was higher (7.5%) in the Lichtenstein group as compared to the 3.4% in Desarda group[11]. In present study there was no statically significant difference between the two study arms with

regard to intra-operative and postoperative complications. General overall morbidity was 20%. However, the morbidity was higher (24%) in the mesh group as compared to the non-mesh group (16%).

In present study 4(8%) cases developed scrotal oedema, 2 (8%) in non-mesh group and 2 (8%) in mesh group. These results were comparable with Szopinski *et al*.[12] and Manyilirah *et al*.[6].

Wound sepsis was observed in one patient of mesh group in this study. Similar results were found in study conducted by Gedam.

Present study correlates with studies by Ghosh and Jacek *et al*. as one patient (4%) in non mesh group and two patients (8%) in mesh group reported neuropathic type of pain (due to nerve injury or entrapment), at one month postoperatively and it was persist at same intensity at 3 month follow up (VAS≥1).

Thus we can sauy that Desarda repairis cost effective and easy to learn. The most evident indications for use of Desarda's technique include use in young patients, in contaminated surgical fields, in the presence of financial constraints or if a patient disagrees with the use of mesh. In patients with Nyhus class IIIB hernias, judicious and meticulous approach to the mobilisation and resection of the sac should be observed irrespective of the technique of hernia repair used. It is wise to recommend Desarda's tissue repair as a reasonable option to Lichtenstein inguinal hernia repair.

CONCLUSION

The efficacy of Desarda's technique in respect of influencing the short-term outcomes of hernia repair is comparable to those of Lichtenstein method.

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