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ORIGINAL ARTICLE

Comparison of Post-Operative Complications of Desarda Non-Mesh Hernia Repair with Lichtenstein Mesh Hernia Repair

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ABSTRACT

Objective: To compare Desarda non-mesh hernia repair with Lichtenstein mesh hernia repair regarding postoperative pain, seroma and wound healing.

Study Design: Prospective observational study.

Place and Duration of Study: Department of General Surgery, Rashid Lateef Medical College/Hosital Lahore from January 2021 to June 2023.

Methodology: Sixty patients were enrolled and they were randomly divided into 2 groups. Group A patients were offered Lichenstein repair while group B patients were offered Desarda repair. These two surgical techniques were compared for postoperative pain, seroma formation, and wound infection.

Results: Incidence of mild pain as per VAS score in Lichenstein mesh hernia repair group was 60%,46.6% and 10% at 1 POD,7 POD and 14 POD while the incidence of mild pain at these intervals in Desarda non mesh hernia group was 36.6%,13.3% and 0%. The mild form of pain settled with Tablets Panadol. A few of patient needed Diclofenac Sodium to get rule of pain, lesser episodes of pain observed in Desarda group. Incidence of moderate pain as per VAS score in Lichenstein mesh hernia repair group was 23.3%,13.3% and 0% at 1 POD,7 POD and 14 POD while the incidence of moderate pain at these intervals in Desardanon mesh hernia group was 10%,0% and 0%. Incidence of seroma formation in Lichensteinmesh hernia repair at 1, 7 and 14 POD was 10%,6.66% and 0% while incidence of seroma formation in Desarda non-mesh hernia repair at these intervals was 6.66%,6.66% and 0%. Grade 0 wound healing in Lichenstein mesh hernia repair group was (73.3%,90% and 93.3%) vs Desarda non-mesh hernia repair group (66.6%,80%,86.6%) at 1,7 and 14 POD while Grade 1 wound healing in Lichenstein mesh hernia repair group was (26.6%,10% and 10%) vs Desarda non-mesh hernia repair group (16.65,6.6% and 3.3%) at these intervals.

Conclusion: The Desarda's technique may be considered as an alternative to mesh-based repairs to avoid long-term mesh-related morbidity for uncomplicated indirect hernias in the younger population

Keywords: Post-operative complication, Desarda non-mesh hernia repair, Lichtenstein mesh hernia repair, Postoperative pain, Seroma, Wound healing

INTRODUCTION

Abdominal wall hernias are prevalent, occurring in 1.7% of people of all ages and 4% of people over 45. 75% of abdominal wall hernias are inguinal hernias.Lifetime risk of hernia formation is 3% for females and 27% for males.[1] Hernial surgery is most frequently performed general surgical procedure. One of the most frequent procedures in general surgery is the repair of an Inguinal hernia repair is done in 10 per 100,000 people in the United Kingdom and 28 per 100,000 people in the United States.[2] For men, the lifetime risk of an inguinal hernia formation is estimated to be 27%, while for women, it is 3%. There are 100 to 300 inguinal hernia deaths per 100,000 patients per year.[3] Almost usually symptomatic, inguinal hernias are treated surgically.[4] 11% of cases of inguinal hernia repair are predicted to recur. 57% of all inguinal hernia recurs 10 years after surgery reported. Chronic discomfort that lasts longer than three months following inguinal hernia repair is another issue that affects 10-12% of individuals. Require treatment 1-3% of individuals with chronic pain and long-term impairment.[4,5]

Lichtenstein's approach, a mesh based repair is gold standard for inguinal hernia according to European Hernia Society Guidelines (EHS).[6] Lichtenstein repair being tension free repair has minimum chances of recurrence. The recurrence rate reported in literature is less than 1%. Although it lacks a movable, physiologically dynamic posterior wall, mesh functions as a mechanical barrier. The synthetic prostheses most frequently used in the inguinal region can lead to new clinical issues, including soreness, rigidity in the abdominal wall, and a foreign body perception at operative site, which can interfere with the patient's during daily activity.[7] After mesh hernia repair, surgical site infections which frequently manifest clinically years late rare more common.[8,9]

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Meshoma or plugoma tumours may develop around the mesh prosthesis due to an intense, continuous inflammatory process that is usually linked to foreign body reactions. Treating these tumours presents a new surgical challenge.[10] Many researchers have been motivated to search for novel hernia repair procedures or to improve established ones due to the known rates of complications and postoperative dysfunction. Presented in 2001 as a new surgical alternative for tissue-based groin hernia repair, the Desarda approach is an example of such initiatives.[10]

MATERIALS AND METHODS

This is the prospective observational study conducted at Rashid Lateef Medical College/Hospital Lahore from January 2021 to June 2023. This study included 60 patients.These patients were randomly divided into 2 groups.There was no differences between two groups regarding demographic profile.Group A patients were offered Lichenstein repair while group B patients were offered Desarda repair. Informed consent was taken from both group of patients. These two surgical techniques were compared for postoperative pain, seroma formation and wound infection. All elective patients with inguinal hernia between age group 18-60. Emergency patients with sign and symptoms of strangulation or obstruction noted were excluded from current study. The data was entered and analyzed through SPSS-20.

RESULTS

Both groups were alike regarding age, gender ratio, hernia type, location and mean body mass index were presented in Table 1.

Incidence of mild pain as per VAS score in Lichenstein mesh hernia repair group was 60%,46.6% and 10% at 1 POD,7 POD and 14 POD while the incidence of mild pain at these intervals in Desarda non-mesh hernia group was 36.6%,13.3% and 0%. Incidence of moderate pain as per VAS score in Lichenstein mesh hernia repair group was 23.3%,13.3% and 0% at 1 POD,7 POD

and 14 POD while the incidence of moderate pain at these intervals in Desarda non-mesh hernia group was 10%, 0% and 0% (Table 2).

Incidence of seroma formation in Lichenstein mesh hernia repair at 1,7 and 14 POD was 10%,6.66% and 0% while incidence of seroma formation in Desarda non-mesh hernia repair at these intervals was 6.66%,6.66% and 0% (Table 3).

Grade 0 wound healing was Lichenstein mesh hernia repair group (73.3%,90% and 93.3%) vs Desarda non-mesh hernia repair group (66.6%,80%,86.6%) at 1,7 and 14 POD while Grade 1 wound healing was Lichenstein mesh hernia repair group (26.6%,10% and 10%) vs Desarda non-mesh hernia repair group (16.6%,6.66% and 3.3%) at these intervals (Table 4).

Table 1: Patients demographics (n=60)

Variable	Group A	Group B	P value
Age	45.24.18	39.15.1	0.345
Gender ratio	3:1	2:1	-
Hernia			
Direct inguinal	17	19	0.213
Indirect inguinal	13	11	
Site			
Left	10	8	0.186
Right	20	22	
BMI(kg/m^2)	25.3 3.1	23.1 4.1	0.267

Table 2: Comparison of visual analogue scale (VAS) between two groups

Variable	Group A	Group B	P Value
Postoperative day 1			
0-4 (Mild)	18 (60%)	11 (36.6%)	0.001
5-7 (Moderate)	7 (23.3%)	3 (10%)	
8-10 (Severe)	-	-	
Postoperative day 7			
0-4 (Mild)	14 (46.6%)	4 (13.3%)	0.003
5-7 (Moderate)	4 (13.3%)	0	
8-10 (Severe)	-	-	
Postoperative day 14			
0-4 (Mild)	3 (10%)	-	0.001
5-7 (Moderate)	-	-	
8-10 (Severe)	-	-	

Table 3: Comparison of seroma formation between two groups

Seroma formation	Group A	Group B	P Value
Postoperative day 1			
Yes	3 (10%)	2 (6.7%)	0.178
No	27 (90%)	28 (93.3%)	
Postoperative day 7			
Yes	2 (6.7%)	2 (6.7%)	0.341
No	28 (93.3%)	28 (93.3%)	
Postoperative day 14			
Yes	-	-	0.167
No	30 (100%)	30 (100%)	

Table 4: Wound comparison using Southampton wound classification

Wound classification	Group A	Group B	P Value
Postoperative day 1			
Grade 0	22 (73.4%)	20 (66.6%)	0.912
Grade 1	8 (26.6%)	10 (33.3%)	
Postoperative day 7			
Grade 0	27 (90%)	24 (80%)	0.716
Grade 1	3 (10%)	6 (20%)	
Postoperative day 14			
Grade 0	28 (93.3%)	26 (86.6%)	0.819
Grade 1	2 (6.4%)	4 (13.4%)	

DISCUSSION

Now-a-days, the most common general surgery operation is the surgical correction of an inguinal hernia. A tension-free closure of the hernia defect is intended for the effective surgical repair of an inguinal hernia in order to achieve the lowest possible recurrence rate.[11] Desarda presented a new approach for treatment of inguinal hernias. The technique was introduced both for economical reasons and to minimize complications simultaneously maintaining the surgical standards.

During Desarda repair and rectangular strip of external oblique aponeurosis is raised from its medial end while the lateral end of strip remained attached. This aponeurotic strip than stitched with both incurved fibres of inguinal ligament and conjoin tendon. The strengthened posterior wall minimized the chances of recurrence. As a result, a robust and active posterior wall is produced. The greatest substitute for the mesh is a tendo-aponeurotic strip of the external oblique since the ageing process is minimal in tendons and aponeurosis.[12]

In the current study, which used a visual analogue scale, postoperative pain was more common in the Lichenstein group compared to Desarda hernia repair. It has been discovered that, in the case of mesh repair, postoperativepain is caused by a fibrous reaction to a foreign body, which encompasses the patient's nerves and spermatic cord and lowers their quality of life.[13] Because Desarda's method is a pure tissue repair, there won't be a fibrous reaction to cause postoperativepain. Patients in the current study were divided into three groups based on the length of their operativepain: 0-4 days, 5-7 days and 8-10days.

In the current investigation, the Lichensteingroup's pain persisted longer than that of the Desarda hernia repair. Our results are consistent with those of Prakash et al[14] who found that 70% of patients in the Desarda group only experienced pain for less than three days, as compared to 46.7% and 33.3% of patients using Lichtenstein's approach who experienced pain for three to seven days and more than seven days, respectively. It was shown by Khairy et al[15], that mild to moderate pain was only felt during the first week. Less severe postoperative pain following Desarda's repair was noted on the second day following surgery, with a VAS score of 3.12. Patients reported much less severe pain one week following hernia surgery (VAS: 1.28). After a month following surgery, no one in the Khairy et al[15], study reported having chronic pain. In a research published by Gedam et al[16], the Desarda group experienced less discomfort. This study disproved the idea that the substantial dissection required to implant mesh would result in higher pain scores after Lichtenstein repair. There was no discernible difference in pain severity between the Lichtenstein and Desarda groups at six, twenty-four, seven, one, and three months by Emile et al[17] and Youssef et al[18] reported similar outcomes.

Foreign body reaction by prolene mesh leads to more seroma formation. It is well known that prolene has no mesh effect on the surrounding tissue, which reduces the production of seromas. Furthermore, out of 180 patients, only one developed seroma formation. Desarda et al[13] stated that there was 1.1% seroma formation in the Lichtenstein repair. Iftikhar et al[19] demonstrated that there was no statistically significant difference between Lichtenstein and Desarda. Additionally, according to Abbas et al[20], there was no discernible difference between the two techniques.The results of our study also correlate.

In Desarda's approach, there was decreased seroma production and wound infection, according to a 2012 study by Szopinski et al.[3] The prosthetic mesh helps to explain why the Lichtenstein repair has a greater percentage of wound infections. According to Ge et al[21], there was a tendency towards an increased risk of wound infection and seroma in the Lichtenstein group, but there was no statistically significant difference in sequelae like hematoma, seroma, or wound infection in two of approaches, Desarda approach being economical. It has comparative outcome to Lichtenstein repair. Postoperative complications like pain seroma formation are more likely in Lichtenstein repair.

CONCLUSION

Desarda's tissue repair was found comparable to Lichtenstein's mesh repair in terms of recurrence and postoperative morbidity, immediate postoperative pain, chronic groin pain, wound infection and the time taken to return to ADL. Desarda's technique may be considered as an alternative to mesh-based repairs to avoid long-

term mesh-related morbidity for uncomplicated indirect hernias in the younger population.

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