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Original Research Article

A comparative study of Desarda technique versus Lichtenstein mesh repair for inguinal hernia at a tertiary care centre

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ABSTRACT

Background: Inguinal hernias are one of the most common surgical maladies of all times. Surgical repair of inguinal hernias remains to be an ever-evolving field. Although Lichtenstein mesh repair is most commonly practiced now it is associated with chronic groin pain and higher cost. Desarda's tissue-based repair is a novel technique which is simple to perform, has low cost of procedure and low recurrence rates. The objective of this study was to evaluate the surgical outcomes in Desarda versus mesh repair of inguinal hernia.
Methods: This was a prospective observational study. Seventy patients were included out of which 35 patients who underwent mesh repair were placed in group A and other 35 who underwent Desarda were placed in group B. Duration of surgery, post-operative pain, surgical complications, duration of hospital stay and time taken to return to normal activity were assessed and compared.
Results: Post-operative complications were significantly less in group B. Most common complications being seroma formation in both the groups. Duration of hospital stay was lesser in group B (5.05±1.1 days) than group A (6.45±2.83 days). Patients in group B also took less time to return to normal work than patients in group A (p=0.00059). There was no recurrence in either group.
Conclusions: Desarda repair is easy to perform and there is no risk of complications associated with a foreign body as in case of Lichtenstein mesh repair. It is better than mesh repair in terms of lesser post-operative complications, shorter duration of hospital stays and earlier return to normal activity. Desarda repair is comparable to mesh repair for inguinal hernia surgery.

Keywords: Inguinal hernia, Hernioplasty, Mesh repair, Desarda repair, Lichtenstein repair

INTRODUCTION

Inguinal hernia is defined as a protrusion of the contents of the abdominal cavity through a defect in the inguinal area.[1] Inguinal hernias form about 75% of all abdominal hernias.[2] Edoardo Bassini first proposed inguinal hernia repair with silk, suturing the conjoint tendon to inguinal ligament in the year 1887.[3-6] This led to the development of Bassini's hernia repair technique which was the first substantial surgery for the repair of hernia. Since then many other tissue based repair techniques have evolved over the years.

It was only in the 1970s that Lichtenstein tension free hernia repair was approved as the gold standard for open hernia surgery.[7] The Lichtenstein polypropylene mesh does, however, have certain drawbacks, such as its high cost, lack of availability in many developing countries, propensity to fold or crumple, movement that could cause the mesh to fail because the groin is a highly mobile area, and chronic groin sepsis, which could necessitate mesh removal.[8]

When compared to mesh, Desarda's 2001 method of employing portion of the external oblique aponeurosis

(EOA) as a patch for healing may lessen difficulties. Moreover, the method is simple to learn and doesn't require any difficult dissection.[9,10] Using a strip of external oblique aponeurosis to reinforce the posterior wall of the inguinal canal, Desarda's technique is a tissue-based approach to hernia treatment. It is inexpensive and has a low risk of poor consequences.

Present study deals with the operative outcome in relation to mesh repair and Desarda repair in open inguinal hernia surgery. We will compare the outcomes of Lichtenstein mesh repair and Desarda repair with respect to post-operative pain, duration of stay in hospital, mobility of patient and cost-effectiveness.

METHODS

It was an institution based prospective observational study conducted in department of general surgery, Nalanda medical college and hospital, Patna from May 2022 to May 2024. The study population consisted of all patients admitted for open inguinal hernia repair at department of general surgery, NMCH, Patna during the study period.

Inclusion criteria

All patients in age group 18-80 years, with unilateral/bilateral inguinal hernia treated by either mesh or Desarda repair, with primary inguinal hernia, uncomplicated inguinal hernia and whose consent to be a part of the study were included.

Exclusion criteria

Patients with congenital hernias, bleeding disorders, complicated hernias and recurrent hernias were excluded.

Sample size

Seventy patients with half repaired by mesh fixation and half by Desarda repair were selected.

Intervention

Patients treated by mesh fixation were put in group A while those with Desarda repair were put in roup B.

The surgery was performed under spinal anaesthesia. The skin and subcutaneous tissue was incised. The external oblique aponeurosis was opened and cord identified. Direct inguinal hernial sacs were reduced back without opening it. The indirect ones were divided, transfixed and excised. Then in patients of group A polypropylene mesh was placed over the posterior wall. The mesh was fixed in an interrupted fashion to the conjoint tendon and inguinal ligament. Whereas in group B a 1 to 2 cm strip of EOA was isolated from the main muscle but left attached both medially and laterally. It was then sutured to the conjoint tendon and inguinal ligament.

In both the groups EOA and subcutaneous tissues were approximated by continuous absorbable sutures. Skin closure was done by non-absorbable sutures.

Post-operatively patients of both the groups were given the same antibiotics and analgesics.

Statistical analysis

Statistical analysis was done for all data and suitable statistical tests of comparison were used. Continuous variables were analysed with the Unpaired test while chi-square test was used for categorical variables. Statistical significance was taken as $p<0.05$. The data was analysed using Microsoft excel 2010.

RESULTS

During the study period a total of 70 patients were included in the study, 35 of which underwent mesh repair and placed in group A and the other 35 underwent Desarda repair and placed in group B.

Age distribution

The mean age group of patients in group A (mesh repair) is 50.51 years with the SD of 15.95 while mean age of Group B is 53.62 years with SD OF 15.26.

Table 1: Age wise distribution.

Age (in years)	Group A (MR)	Group B (DR)
<20	1	1
21-30	5	2
31-40	6	7
41-50	4	1
51-60	9	12
61-70	9	11
71-80	1	1
Mean	50.51	53.62
SD	15.95	15.26

Type of hernia

Majority of the patients in the study population presented with a indirect type of hernia. In group A 85.7% of the patients had indirect hernia while in group B 80% presented with indirect hernia sac.

Table 2: Hernia type.

Types	Group A (MR)	Group B (DR)
Direct	5 (14.28%)	7 (20%)
Indirect	30 (85.7%)	28 (80%)
Total	35	35

Duration of surgery

Time taken for the surgery was noted as the time taken from skin incision to the last suture knotted of the skin closure. Difference between the duration of surgery in group A and B was not found to be significant p=0.24 (>0.05). Mean duration of surgery was 54.97±9.66 minutes in group A and 53.28±9.84 minutes in group B.

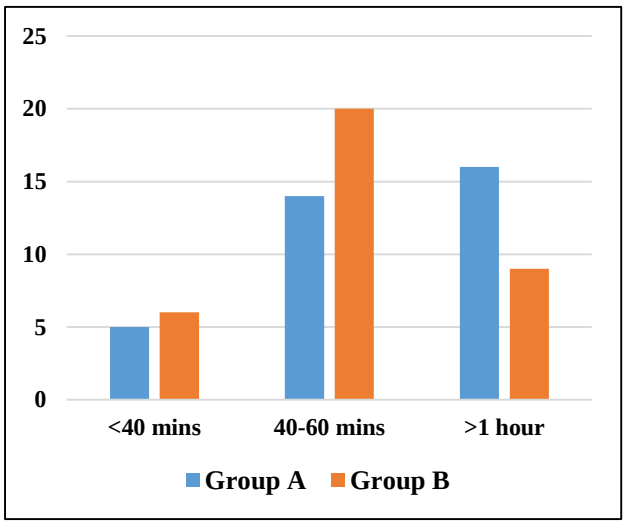

Figure 1: Duration of surgery.

Post-operative pain

Pain was recorded on the post-operative day 1, 3 and 5 using the visual analog scale. All patients were given analgesics twice a day for 3 days and after that as and when required. For this study pain was recorded in the morning before the first dose of NSAIDs were given. The mean VAS score in group A on POD 1 was 4.57±0.65, day 3 was 2.4±0.83 and on day 5 was 1.11±0.9. In group B average VAS score was 4.7±0.59 on POD 1, 2.28±0.71 on POD 3 and 1.17±0.82 on POD 5. The p-value on all days were >0.05.

Table 3: Post-op pain.

Day	Group A (MR)		Group B (DR)		P value
	Mean	SD	Mean	SD	
POD1	4.57	0.65	4.7	0.59	0.09
POD3	2.4	0.83	2.28	0.71	0.22
POD5	1.11	0.90	1.17	0.82	0.37

Post-surgery complications

A significantly higher number of patients in group A faced surgical complication as compared to group B. 11.4% in group A had wound infection, 17.1% reported seroma, 14.2% patients also developed hematoma. 1 out of 35 in group A complained of orchitis. In group B 5.7% had a wound infection, 2.8% complained of seroma and 1 out of 35 also developed hematoma. There was no complain of recurrence in either of the groups.

Table 4: Post-op complications

Complication	Group A (MR)	Group B (DR)	P value
Wound infection	4 (11.4%)	2 (5.7%)	0.03
Seroma	6 (17.1%)	1 (2.8%)	
Hematoma	5 (14.2%)	1 (2.8%)	
Orchitis	1 (2.8%)	0	
Recurrence	0	0	

p=0.03 (<0.05)

Duration of hospital stay

Duration of hospital stay was recorded as the number of days from the day of surgery to the day of discharge irrespective of suture removal. Patients with wound discharge or collection were observed for longer period. The mean duration of hospital stay was 6.45±2.83 days for group A and 5.05±1.1 days for group B. The comparison was statistically significant since the p=0.009.

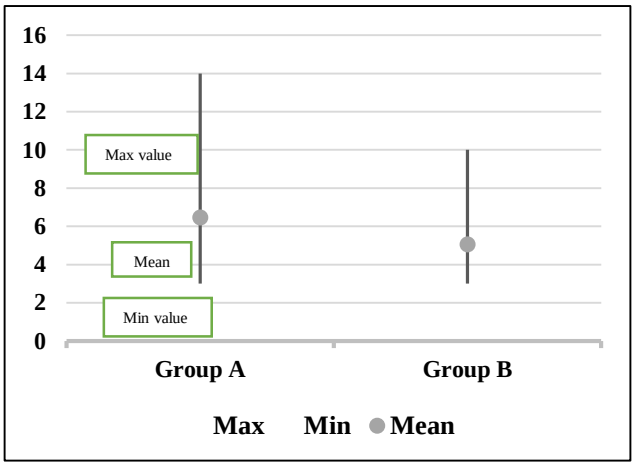

Figure 2: Hospital stay (number of days).

Return to normal work

Patients were asked about their return to non-strenuous activity after a follow-up period of one month. Number of days to return to work was significantly less for patients of group B than that of group A (p=0.00059). In group A the mean number of days for return to non-strenuous work was 16.94±7.61 days while in group B it was 12.25±4.38 days.

Table 5: Return to normal work.

No. of days	Group A (MR)	Group B (DR)
1-7	3	7
8-15	14	25
16-30	18	3
Mean	16.94	12.25
SD	7.61	4.38

p=0.00059 (<0.005).

DISCUSSION

In our study operative time was slightly more in group A with a mean of 54.97 minutes and in group B it was 53.28 minutes. However, this difference was not statistically significant (p=0.24). A similar study conducted by Ahmed et al reported a significantly shorter period of operative time in Desarda repair (45-71 minutes) compared to mesh repair (49-93 minutes).[11]

Comparison in post-operative pain was based on visual analogue pain score as assessed by the patient on POD 1, 3 and 5. Pain was less in group A (mean VAS 4.57 on POD 1, 2.4 on POD 3 and 1.11 on POD 5) in comparison to group B (mean VAS 4.7 on POD 1, 2.28 on POD 3 and 1.17 on POD 5). However, this difference was marginal and not statistically significant.

In our study a significantly higher number of patients in group A faced surgical complication as compared to group B (p=0.03). Most common of these complications was seroma formation followed by hematoma and wound infection. Recurrence was not reported in either of the groups. The assessment of recurrence of hernia was limited by the short period of follow-up.

Ahmed et al reported similar findings in their study with reduced seroma formation in patients with Desarda repair.[11]

In present study 94.2% patients in group B had to stay in the hospital for less than 5 days in comparison of 71.4% patients in group A. The range of hospital stay for group A was 3-14 days while that of group B was 3-10 days. Return to non-strenuous activities was assessed after one month. Patients in group B reported a much shorter period of time (mean 12.25 days) than group A (mean 16.94 days). This difference was significant (p=0.00059).

While most comparative studies between mesh and Desarda hernia repair unanimously concluded that Desarda repair was associated with shorter time to return to work.[12-14] Syed in his comparative study of 200 patients did not find any significant difference in the time to return to work in either group.[15]

Cost of surgery was not statistically compared in our study due to availability of mesh at our government setup. In a private setting reduction in cost of surgery is an undisputable advantage of Desarda repair.

In a study performed by Afzal et al cost of operation was estimated Rupees 250 in Desarda repair and 2500 Rupees in mesh repair.[16]

Some limitations of the present study should be mentioned here. There is no objective assessment supporting the Desarda technique of being tension free and dynamic. Exclusion of patients with weak external oblique apponeurosis and the subjective assessment of the EOA suitability for repair may have an imact on our result.

CONCLUSION

Based upon this study and review of similar work by other authors it is concluded that Desarda repair is comparable to Lichtenstein mesh repair in inguinal hernia surgery. Desarda repair is found to be superior to mesh repair in terms of shorter duration of surgery, lesser post-operative complications, shorter duration of hospital stay, earlier return to normal work and cost-effectiveness.

However, the small sample size and short follow-up period may have been a barrier to achieving full statistical validity. Hence well-designed random control trials with longer follow-up periods are required to provide more reliable evidence.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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