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Original Research Article

Clinical outcomes of patients undergoing Desarda versus Lichtenstein mesh for inguinal hernia repair: our experience in Qazi Hussain Ahmed Medical Complex, Nowshera Pakistan

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ABSTRACT

Background: The objective of this study was to compare the outcome of Desarda versus Lichtenstein mesh for surgical repair of inguinal hernia.
Methods: This randomized controlled trial was done at Qazi Hussain Ahmed Medical Complex, Nowshera from 01 February 2019 to 30 December 2020 with total duration 1 year and 10 months. Study included patients admitted in hospital for inguinal hernia repair. Patients were divided into 2 groups. Group 1 consisted of patients in whom Lichtenstein mesh repair was done while group 2 with patients having Desarda non-mesh repair done. Total time of surgery was noted. Patients were assessed for pain using a visual analog scale (VAS) after 72 hours and for seroma and infection within seven days. Recurrence and resumption of normal gait was assessed after 6 months. Data was analyzed with statistical package for the social sciences (SPSS) 21.
Results: Total of 100 male patients were included in the study. About 45 patients were included in group 1 and 55 in group 2. Mean age of the patients was 53±10.55 years in Lichtenstein group and 50±08.11 years in Desarda group. The mean duration of surgery was 47.57±4.95 min with Lichtenstein while 37.96±4.76 min with Desarda. The mean pain score was 2.5±1.0 after 72 hours with Lichtenstein while 1.72±0.20 with Desarda ($p<0.05$). Seroma was developed in 4 (8.8%) patients, infection in 5 (11.11%) patients and recurrence occurred in 1 (2.2%) patient in group 1 (Lichtenstein) while no patient developed infection in group 2 (Desarda). The rate of normal gait observed in 6 months post operative was in 25 (55.5%) patients with Lichtenstein repair while in group 2, 30 (54.54%) patents resumed normal gate respectively ($p>0.05$).
Conclusions: Both methods for repair are acceptable but the Desarda has less complications and operative time as compared to Lichtenstein repair.

Keywords: Inguinal hernia, Desarda non-mesh repair, Lichtenstein mesh repair, Recurrence, Seroma, Infection

INTRODUCTION

Common surgical problem, inguinal hernia is encountered routinely as daily case. Often these presents with complications like strangulation and obstruction requiring emergency procedure. The incidence of inguinal hernia is directly proportional to the age. A study in Minnesota has shown incidence of 368 and 44 per 100,000 among either gender.[1] Surgical repair can be done to restore the anatomy in the groin. It presents as a bulge out via abdominal wall weakness.[2]

Surgical repair of inguinal hernia is one of the most frequently conducted surgery worldwide but the best method to repair inguinal hernia is still under debate. From surgical point of view, an ideal method should be safe,

easily performed, requiring minimal dissection and free of complications. Also, it should be cost and time-effective with reduced hospital stay and re-do surgery frequency.[3]

The synthetic meshes for hernia repair were first described by Usher and his colleagues. They used synthetic mesh especially in recurrent cases during 1984. Lichtenstein and Shore presented their method in 1974 and published their findings in 1989 and is widely accepted as ideal technique for surgical repair of primary inguinal hernia.[2] Recently, tension-free Desarda method is another alternate method that has been introduced which is accepted less likely.[4]

The objective of this study was to compare Desarda and Lichtenstein mesh for inguinal hernia repair for efficacy, cost effectiveness and hospital stay with complications rate so that local data can be presented for proper technique implementation in our patients.

METHODS

This randomized controlled trial was conducted in Qazi Hussain Ahmed Medical Complex, Nowshera 01 February 2019 to 30 December 2020. Cases were included using 95% confidence level, 80% power of study and magnitude of mean operative time i.e. 17.9±4.52 min with Lichtenstein method and 13.02±3.93 min with Desarda method. Non-probability, consecutive sampling technique was used.

Males aged 18-70 years having inguinal hernia (when fatty or intestinal tissues push through the inguinal canal in the groin area for >3 months, diagnosed on clinical examination and ultrasonography) planned to undergo surgery under general anesthesia. Patients with recurrent or complicated inguinal hernia, diabetes or history of prior abdominal surgery, ASA III and IV were excluded from the study.

Patients fulfilling the inclusion criteria were enrolled from operation theatre of department of surgery, Qazi Hussain Ahmed Medical Complex, Nowshera. A written informed consent was taken. Demographic information was noted. After approval from the ethical committee of the hospital, the patients were randomly divided in 2 groups by using lottery method. In 1st group, Lichtenstein mesh repair was done. In 2nd group, Desarda non-mesh repair was done. All surgeries were performed by a consultant surgeon with assistance of researcher. All surgeries were performed under spinal anesthesia. Duration of surgery was noted from time of incision till stitching of skin. Then patients were shifted in post-surgical ward and were followed-up there for 72 hours. After 72 hours, patients were assessed for pain using a VAS. Then patients were discharged and followed-up in OPD for 6 months. Patients were observed for seroma (there was discharge of serous fluid from operative site within 7 days of surgery) and infection at wound site on 7th postoperative day (if there was pus discharge from wound site, redness, fever >100ºF, bacterium present on culture of pus). After 6 months, recurrence (if inguinal hernia again develops within 6 months follow-up detected on clinical examination and scrotal ultrasound) and resumption of normal gait were evaluated (days required by patient to resume normal gait without support and <4 pain on VAS). All the above information was collected in performa. Data was entered and analyzed by statistical package for the social sciences (SPSS) version 21. Both groups were compared for duration of surgery and pain score by using independent sample t-test. Both groups were compared for recurrence, infection, seroma and resumption of normal gait by using Chi-square test.

RESULTS

Total of 100 patients were included in the study with 50 males. About 45 patients were included in group 1 and 55 in group 2. Mean age of the patients was 53±10.55 years in Lichtenstein group and 50±08.11 years in Desarda group. The mean duration of surgery was 47.57±4.95 min with Lichtenstein while 37.96±4.76 min with Desarda. The mean pain score was 2.5±1.0 after 72 hours with Lichtenstein while 1.72±0.20 with Desarda ($p<0.05$). Seroma was developed in 4 (8.8%) patients, infection in 5 (11.11%) patients and recurrence occurred in 1 (2.2%) patient in group 1 (Lichtenstein) while no patient developed infection in group 2 (Desarda). The rate of normal gait observed in 6 months post operative was in 25 (55.5%) patients with Lichtenstein repair while in group 2, 30 (54.54%) patients resumed normal gate respectively ($p>0.05$) (Table 2).

There were 19 (42.2%) patients who had ASA I while 7 (15.5%) had ASA II in Lichtenstein group while were 20 (66.7%) patients who had ASA I while 8 (14.5%) had ASA II in Desarda group (Table 1).

Table 1: Demographics of patients in study population (n=100).

Demographics	Groups	
	Lichtenstein mesh	**Desarda non-mesh**
N	45	55
Age (years)	53±10.55	50±08.11
Duration of hernia years	6.18±1.12	5.76±2.24
ASA (%)		
I	19 (42.2)	20 (66.7)
II	7 (15.5)	8 (14.5)

Table 2: Comparison of outcome in both groups.

Parameters	Groups		P value
	Lichtenstein mesh	Desarda non-mesh	
Duration of surgery (min)	47.57±4.95	37.96±4.76	<0.001
Pain after 72 hours (VAS)	2.5±1.0	1.72±0.20	<0.05
Seroma in 7 days (%)	4 (8.8)	0 (0)	0.170
Infection in 7 days (%)	5 (11.11)	0 (0)	<0.05
Recurrence in 6 months (%)	1 (2.2)	0 (0)	0.316
Resumption of normal gait in 6 months (%)	25 (55.5)	30 (54.54)	>0.05

DISCUSSION

Inguinal hernias are common, developing in about 3-8% people all over the world. Of all the diagnosed cases, 50% inguinal hernias are indirect, 25% are direct, while 5% are femoral type.[5] Inguinal hernias occur most commonly in males (86%) while females present with femoral as well as abdominal hernias (84%).[6,7] This incidence increases with age.[8] For the treatment of hernias numerous updated techniques are being introduced in daily practice for surgical repair and the success is mostly dependent on surgeon behind the scene.[3] It is found in the literature that Desarda repair method is significantly better than Lichtenstein repair method. This is because morbidities including complications and re-do surgeries due to sepsis were significantly high with mesh. Resumption of normal activity is also significantly less with Desarda method.[9]

Recently updated Desarda's method with tissue-based repair is clinically introduced which covers physiology of inguinal canal and its anatomy. Tissue-based repair method like Bassini and Desarda reduces use of prosthetic material and thus lessens the chances of infection. Desarda method, like Lichtenstein method, is tension-free repair method in which there are less chances of recurrence than Lichtenstein method while also has shorter surgical time. 10 In our trial, the mean duration of surgery was 47.57±4.95 min with Lichtenstein while 37.96±4.76 min with Desarda with significant difference ($p<0.05$). The mean pain score was 2.5±1.0 after 72 hours with Lichtenstein while 1.72±0.20 with desarda ($p<0.05$). Seroma was developed in 4 (8.8%) patients, infection in 5 (11.11%) patients and recurrence occurred in 1 (2.2%) patient in group 1 (Lichtenstein) while none of the patient's developed infection in group 2 (Desarda) which is comparable to other studies. Desarda repair is now increasingly being used all over the world mostly in developing countries due to financial constraints.[11]

Desarda takes more time than Lichtenstein (48 versus 39 min) $p<0.05$ as proved by Rodriguez et al.[6,9] This time is very less as compared to our study. Similar results were also shown in study by Gedam et al with no significant difference in operative time.[12] Comparing it to our study it is evident that it is significantly lower in Desarda repair in our study whereas it is almost equal in Lichtenstein repair. However, in a study conducted in Pakistani by Ahmed et al, it was 55.53±6.81.[13] In our study, it is about 6 minutes more in Desarda repair. An insignificant difference in mean pain score: 3.33±1.75 with Lichtenstein and 2.73±1.64 with Desarda ($p>0.05$), mean days of resumption of normal gait (2.44±1.62 days with Lichtenstein versus 2.06±1.13 days with Desarda) were found in study by Manyilirah et al.[14]

Rodríguez et al found recurrence rate of 0.5% with Desarda method and 0.4% with Lichtenstein method.[9] As Desarda method has no mesh involvement so the complication rate is low. Gedam et al observed recurrence in 1 case after 1.5-year follow-up in both methods ($p>0.05$).[12] They also found less post-operative pain with Desarda method ($p=0.09$) than Lichtenstein method during 1st week postoperatively. Although an insignificant difference was found regarding post-operative complications.[12]

Mitura et al found that there is no significant difference in Desarda and Lichtenstein techniques for surgical repair of primary inguinal hernias for operative time and procedure complexity.[15] The average recurrence rate was about 1% with Lichtenstein method in a private surgical center while it was much higher in public community hospitals (~4%) according to one of the studies.[16]

CONCLUSION

The Desarda method has less complication, pain and operative time as compared to Lichtenstein method for management of inguinal hernia. Therefore, this method can be applied increasingly for management of inguinal hernia.

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