

Original Research Article

Evaluation of Desarda technique in inguinal hernia repair

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ABSTRACT

Background: Mesh repair for inguinal hernia is the most commonly carried out procedure spherical the world. In recent years inguinal hernia surgery has gone through numerous advances. Desarda technique offers a new thought of hernia repair based on physiological principle that uses an undetached strip of external oblique aponeurosis which gives a complete understanding about basic aetiopathology of inguinal hernia. The aim of this study was to evaluate inguinal hernia repair by Desarda technique.

Methods: This observational study was carried out at the department of surgery, Mugda medical college hospital included 50 male patients with uncomplicated inguinal hernia during August 2019 to July 2021. Data was collected by researcher himself with using a prepared structured questionnaires & checklist and analyzed on statistical packages for social science (SPSS) 24.

Results: Among 50 male patients 60% belong to low-income status, mean age was 44.09 ± 10.93 years. The mean operative time was 46.31 ± 12.27 mins. In the first postoperative day 22 patients reported mild pain and on third postoperative day majority (42) reported no pain. The mean duration of hospital stay was 18.16 ± 11.24 hours. No severe postoperative complication, one recurrence was reported. The mean time of return to basic activities 2.3 ± 1.33 days.

Conclusions: The results of inguinal hernia treatment with the Desarda technique are similar to the results after standard Lichtenstein operations. Patients after Desarda's operative procedure get ambulatory sooner as compared to the standard Lichtenstein mesh repair. Less Postoperative pain, complications similar to standardized technique.

Keywords: Inguinal hernia, Desarda technique, Mesh repair

INTRODUCTION

Over the year, numerous variations in inguinal hernia repair have been historically described and scientifically established. Now a days there has been advance modification of inguinal hernia surgery. Recent worldwide guidelines based on meta-analyses and randomized control trials (RCTs), still controversial and inconclusive.¹ The minimally invasive approach (laparoscopic hernia repair) and mesh-based repair (Lichtenstein hernia repair) receive a strong recommendation regardless of sex, age, or other factors. Despite guideline recommendations, the pure tissue repair of the inguinal canal has never lost popularity,

especially in low-resource countries where mesh implants are still expensive for a group of people, as well as availability is limited.² Nevertheless, even in high-income countries, there are still arguments for a renaissance of pure tissue repair, especially when addressing the problem of chronic pain and the disadvantages of foreign body implants.^{3,4} In 2001 a novel approach for mesh-free inguinal hernia repair was introduced by M. P. Desarda.⁵ His innovative technique has been characterized by the use of only autologous external oblique fascia and long-term absorbable sutures to stabilize the posterior inguinal wall in order to avoid chronic pain. However, in the available studies, systematic reviews and meta-analyses, Desarda is

usually compared with Lichtenstein.^{6,7} Most of these documents have no longer positioned any difference between these two techniques in phrases of quick effectiveness for easy inguinal hernia. Desarda does not require prosthetic mesh, complicated dissection or suturing and is easy to learn. The significant advantage is that the sutures lines are tension-free and no synthetic foreign-body materials are used, as utilized in mesh repairs. The mobility and dynamic nature of posterior inguinal wall are not compromised as the degree of fibrosis is decreased to minimum.⁸ Additionally, this technique does not use already weak abdominal wall muscles or transversalis fascia for repair. This learn evaluates the effects of inguinal hernia repair with Desarda's approach as regards perioperative parameters next to patient-reported outcomes measures in the context of quality of life after two years of follow-up.

METHODS

This observational study was carried out at the department of surgery, Mugda medical college hospital, Dhaka, Bangladesh. The duration of the period from August 2019 to July 2021. A total of 50 male patients with uncomplicated inguinal hernia underwent hernia repair according to Desarda. All cases were performed as elective surgery. Inclusion criteria were male patients with uncomplicated inguinal hernia. Exclusion criteria were bilateral inguinal hernia, recurrent inguinal hernia, complicated inguinal hernia, patient having uncontrolled diabetes mellitus and uncontrolled hypertension, patients taking drugs like anticoagulant, digoxin, systemic steroid and alcohol, unacceptable home support, ASA score more than 2 and those who did not agree to participate.

Operative technique

The technique was adapted from Desarda's description using non-resorbable sutures only.^{9,10} Following a conventional approach to the inguinal canal, an indirect hernia sac was ligated using Vicryl 2/0, preferably hiding the stump under the internal oblique muscle. A direct defect was minimized by gathering the transversal fascia using Vicryl 2/0. The medial leaf of the external oblique aponeurosis is sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using 2/0 monofilament polypropylene (Prolene) continuous sutures. A 2 cm wide strip of external oblique fascia was incised and left attached medially and laterally, thus forming a new posterior wall of the inguinal canal. This splitting incision is extended medially up to the pubic symphysis and laterally 1 cm beyond the abdominal ring. The upper free border of the strip is now sutured to the internal oblique or conjoint muscle lying close to it with 2/0 polypropylene continuous sutures throughout its length, meticulously avoiding the hypogastric nerve. The spermatic cord is placed in the inguinal canal and the lateral leaf of the external oblique is sutured to the newly formed medial leaf of the external oblique in front of the cord. This is followed by closure of the superficial fascia

and the skin as usual. The data for this study about had been accumulated from patients' medical information using a prepared structured questionnaires & checklist. Statistical evaluation of the results used to be got via the use of a window-based computer software program devised with statistical packages for social sciences (SPSS-24).

RESULTS

The (Table 1) shows that age distribution of the population where 5 (10%) were 18 to 24 years, 4 (8%) were 25 to 34 years, 12 (24%) were 35 to 44 years, 20 (40%) were 45 to 54 years, and 9 (18%) were 55 to 60 years.

Table 1: Distribution of the study population according to demographic data (n=50).

Parameters	N	%
Age group (year)		
18-24	5	10
25-34	4	8
35-44	12	24
45-54	20	40
55-60	9	18
Mean±SD	44.09	±10.93
Economic status		
Upper middle income (>28000)	5	10
Lower middle income (7,400-28,000)	15	30
Low income (<7,400)	30	60
BMI (kg/m²)		
Underweight (<18.5)	7	14
Normal (18.5 to 24.9)	36	72
Overweight (25 to 29.9)	5	10
Obese (≥30)	52	4

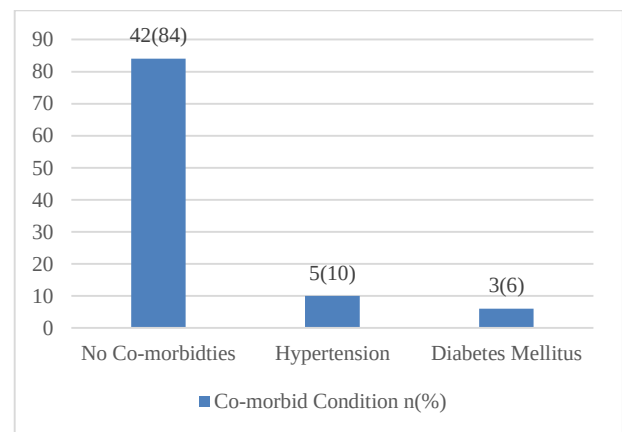


Figure 1: Distribution of study population according to co-morbid conditions (n=50).

Most of the patients belong to 45-54 years age group. The mean age was found 44.09±10.93 years with range from 18 to 60 years. The economic status of the patients where most of the patients (60%) belong to low-income status,

30% were lower middle-income status and 10% were upper middle-income status. According to BMI 14% patients had underweight, 72% patients had normal, 10% patients had overweight and 4% patients had obese. The (Figure 1) show distribution of the study population according to co-morbid condition where 6% patients had diabetes mellitus and 10% had hypertension. The (Table 2) shows distribution of the study population according to the total operative time where 18% took 30 min, 70% took 31 to 60 min and 12% took 61-90 min.

Table 2: Distribution of study population according to total operative time (n=50).

Duration (min)	N	%
30	9	18
31-60	35	70
61-90	6	12
Mean±SD	46.31	±12.27

The mean operative time was 46.31±12.27. The (Table 3) shows distribution of the study population according to duration of hospital stay where most of the patients stayed at hospital for 12-18 hours (58%) and only 6 (12%) patients could not be discharged on same day of surgery, get unanticipated admission after surgery. The mean duration of hospital stay was 18.16±11.24 hours.

Table 3: Distribution of study population according to duration of hospital stay (n=50).

Operation time (hour)	N	%
10-12	13	26
12-18	29	58
18-24	2	4
24-72	6	12
Mean ±SD	18.16	±11.24

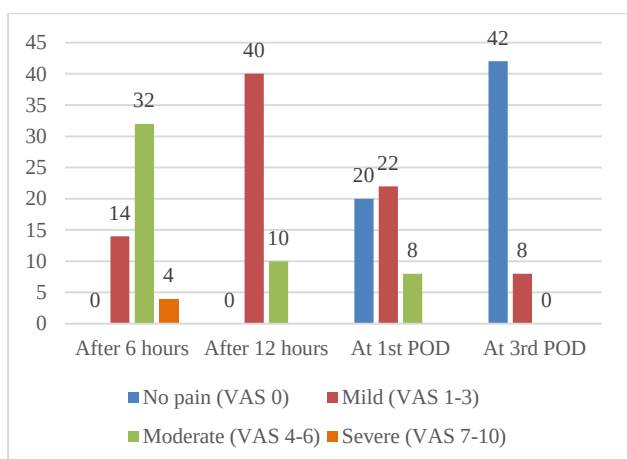


Figure 2: Distribution of study population according to postoperative pain (n=50).

The (Figure 2) show distribution of the study population according to postoperative pain where after 6 hours only 4 patients reported severe pain and most of the patients

reported moderate pain (32 in number); 12 hours later 40 patients reported mild pain. In the first POD 22 patients reported mild pain and on the third POD majority that is 42 patients reported no pain. The (Figure 3) shows distribution of the study population according to postoperative complication where 1 (0.5%) had scrotal oedema, 1 (0.5%) had inguinal hematoma, 1 (0.5%) had seroma, 4 (2%) had difficulty in movement, 2 (1%) had retention of urine and 1 (0.5%) had surgical site infection.

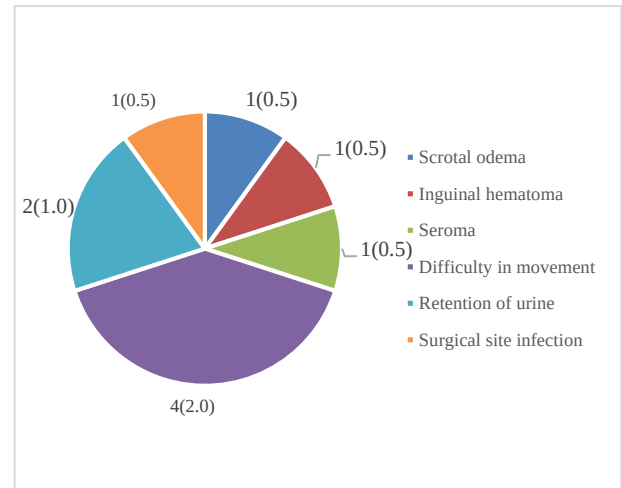


Figure 3: Distribution of study population according to postoperative complications (n=50).

The (Figure 4) shows distribution of the study population according to time to return of basic activities, where 30% was day1, 40% was 2 days, 14% was 3 days, 6% was 4 days, 6% was 5 days and 4% was 6 days.

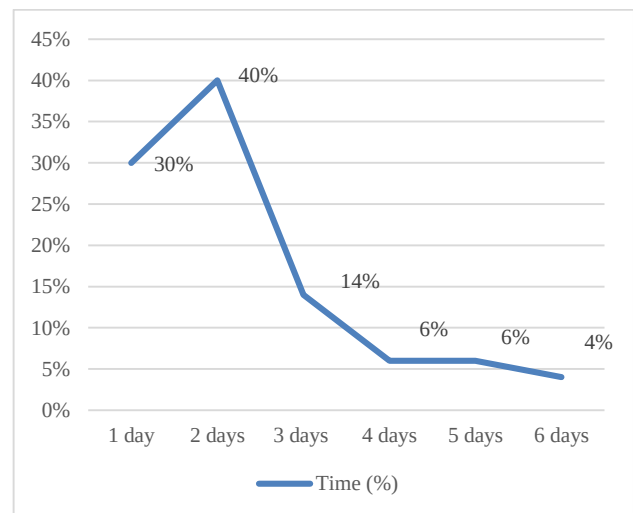


Figure 4: Distribution of study population according to time to return of basic activities (n=50).

Most of the patients (40%) returned to their daily activity within 2 days. The (Table 4) shows distribution of study population according to recurrence within 2 years where one case of recurrence (2%) was observed.

Table 4: Distribution of study population according to recurrence (n=50).

Recurrence (2 years)	N	%
Present	1	2.0
Absent	49	98.0

DISCUSSION

The evidence-based research of optimizing hernia surgery and lowering the number of complications is still in progress. There are pros and cons associated with all types of inguinal hernia repairs. Historical tissue repairs like Bassini or MacVay repairs could not become popular due to tension on sutures even at rest and complicated and complex inguinal floor excision. Existing non prosthetic repair (Shouldice) is blamed for causing tissue tension and offers recurrence rate ranging from 0.7 to 17% depending on experience.¹¹ There are persisting concerns associated with implanted hernia meshes regarding chronic post herniorrhaphy pain, visceral complications following minimally invasive and mesh-based techniques, as well as long-term uncertainties toward later surgical procedures, e.g. radical prostatectomy.¹²⁻¹⁴ The gold standard Lichtenstein technique is blamed for known complications of foreign body, high incidence of chronic groin pain range of 28.7-43.3%, mesh migration, mesh rejection, chronic groin sepsis, recurrence rates of around 4% in long term follow up.¹¹⁻¹⁵ Laparoscopic hernia repairs have a long learning curve, costly, general anaesthesia dependent, technically complex and lack of experience make these repairs unattainable for the general surgeon practicing outside specialized centers. Desarda seems to eliminate above mentioned disadvantages and technical difficulties, which are superior or equal to shouldice and Lichtenstein repairs with 1.8% complication rate and 0.2% recurrence.¹¹ Desarda postulated that a physiologically dynamic protection gave much better results after hernia repair than static protection given by mesh. Compared to other tissue repair desarda uses strong and physiologically dynamic strip of the external oblique muscle. Internal oblique muscle may get weakened due to the aging process or as per the collagen theory. But the aponeurosis of the external oblique muscle was least affected by the aging process or the defect in collagen synthesis. The external oblique muscle gives additional strength to the weakened internal oblique muscle and kept the strip strong, physiologically dynamic to give the lifelong protection against the recurrences.¹⁶ This study demonstrates outcome of uncomplicated inguinal hernia repair by Desarda technique for adult male at Mugda Medical College Hospital. In this present study, age distribution of the patient ranges from 18 to 60 years. Maximum number of patients was in the age group 35-44 years (20, 40%), followed by age group 25-34 years (12, 24%). Mean age of patient was 44.09 with SD (± 10.93). Most of the patients (60%) belong to low-income status, 30% were lower middle-income status and 10% were upper middle-income status. Among these 50 patients 45 (90%) were smoker, 3 (6%) patients had diabetes mellitus and 5 (10%) had

hypertension. Almost two third of the cases (72%) had normal BMI, 7% were underweight, 10% were overweight and 4% were obese. As regard to the operative time (calculated from skin incision to skin closure), many studies reported less operative time for Desarda repair attributed to the lack of extensive dissection needed in the repair. The mean operative time in this study was 46.31 ± 12.27 mins which is comparable with the other studies like Gurgendize and Datuashvili had 42.43 ± 2.8 min, Khairy et al had 45.25 ± 12.55 min, Bansod et al had 60 mins, Youssef et al had 66 mins, Gedam et al had 73 mins.^{11,17-20} The mean duration of hospital stay was 18.16 ± 11.24 hours. Perception of post-operative pain was observed and measured by VAS score. In our study after 6 hours only 4 patients reported severe pain and most of the patients reported moderate pain (32 in number); 12 hours later 40 patients reported mild pain. In the first POD 22 patients reported mild pain and on the third POD majority that is 42 patients reported no pain. Desarda reported total of 620 (72%) patients had mild pain locally for 2 days, 206 (24%) for 4 days and 34 (4%) had mild pain for 7-15 days among 860 patients. No patient had severe or very severe pain.¹⁰ Gurgendize and Datuashvili also reported majority among 118 patients felt mild pain on first postoperative day. The quantum of pain reduced significantly and patients complained of a slight discomfort rather than any pain by third postoperative day except one patient.¹¹

According to postoperative complication where 1 (0.5%) had scrotal oedema, 1 (0.5%) had inguinal hematoma, 1 (0.5%) had seroma, 4 (2%) had difficulty in movement, 2 (1%) had retention of urine and 1 (0.5%) had surgical site infection. Not a single patient had a chronic groin pain and foreign body sensation in this study similar to other studies.^{10,11,15,17,18} The current studied also shows that, the meantime taken to return to basic activities 2.3 ± 1.33 days. Early return to home activity in desarda repair may be attributed to less tissue handling, fewer dissections and less postoperative pain. One recurrence (2%) among 50 patients has been reported were observed over a period of 2 years where as other studies like Bansod et al had 0.83%, Youssef et al had 1.4%, Gedam et al had 1.08% recurrence rate.¹⁸⁻²⁰ However, long-term follow-up is needed to know more about the long-term recurrence. The material cost added to the surgical charge adds burden to the patients. The Desarda technique is more physiologic and cost effective too. The low cost of Desarda technique is due to non-utilization of synthetic prosthesis, shorter hospital stay, low morbidity and early return to routine work in 1-2 weeks, thereby reducing sick leave from 4-6 weeks to 1-2 weeks. Financial constraints are the major issue to adopt Desarda technique.

Limitations

The present study had the following limitations. These should be kept in mind while deciding on the implications of the study. Study period was short, so long term result like late recurrence rate beyond 2 years could not be assessed. Study results could not be correlated with similar

studies due to lack of large volume research on hernia surgery by Desarda technique in our country.

CONCLUSION

The results of the study reveal that Desarda technique for inguinal hernia repair appears promising. This technique does not use any prosthesis and has small incidence of complications with less recurrence or chronic inguinal pain. So that patient compliance was good with minimum morbidity. The dream of every surgeon for recurrence-free inguinal hernia repair without leaving any prosthesis inside may become a reality in the future. Despite some methodologic inadequacies in the present article, Desarda technique deserve more attention and further evaluation.

Recommendations

On the basis of the results of the present study, day case inguinal hernia surgery by Desarda technique is easy to perform, reduces out pocket expenditure, require less logistic support and improve postoperative quality of life. Possible implications of this study in clinical practice may be applied and to do so large-scale long term multi-centric trials need to be conducted widely in our country.

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Conflict of interest: None declared

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