

“Desarda’s No Mesh Technique of Inguinal Hernia Repair Verus Bassini’s Technique – A Comparative Study”

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Abstract

Background: Although tension free inguinal hernia repair with mesh are standard technique for hernia, the tissue-based techniques are still acceptable for primary inguinal hernia repair according to the European Hernia Society guidelines. Desarda’s no mesh technique, introduced in 2001, is a method of hernia repair using an undetached strip of external oblique aponeurosis. This study compared outcomes after hernia repair with Desarda (D) and Bassini (B) techniques.

Method: This study was conducted in the Department of Surgery, Government Medical College, Jammu. Eighty patients with primary inguinal hernia were randomly distributed to two groups of hernia repair i.e. Bassini and Desarda’s. Data of intra and post operative complications, pain, hospital stay, ambulation, time to return to basic activities and recurrence were recorded and analysed.

Results A total of 80 patients were randomly assigned to the D or B group (40 each). The primary outcomes measured were post-operative pain (on Day1 and Day 7), mean hospital stay (in days), return to basic activity (in days) and recurrence.

Average duration of the Desarda’s repair was 30.66 minutes, while the Bassini repair lasted for 32.40 minutes. Mean VAS on 1st post-operative day was significantly less in Desarda’s repair (2.80) than Bassini’s repair (3.20), (p value =0.034). Mean VAS on 7th post-operative day was significantly less in Desarda’s repair (1.86) than Bassini’s repair (3.00) [p =0.001]. All patients (100%) were ambulatory on the first post-operative day in Desarda’s group while (90%) patients were ambulatory on 1stPOD in Bassini group. Mean hospital stay was less in Desarda’s repair (2.60 days) versus Bassini’s repair (3.00 days) [p =0.030]. Return to basic physical activities was earlier in Desarda’s repair (7.60 days) than Bassini’s repair (10.20 days), [p =0.001]. There was no recurrence in Desarda’s group while there was one recurrence in Bassini’s group. Minor complications were encountered in both the groups.

Conclusion The Desarda and Bassini’s methods of primary inguinal hernia repair do not differ in paramaters like surgery time and complications. However they differ with regard to post operative pain, ambulation, hospital stay and return to basic activities.

Keywords Inguinal hernia , Desarda’s repair, Bassini repair, VAS, Hospital stay.

I. Introduction

A hernia is abnormal protrusion of a viscus or a part of viscus through an opening in the wall of cavity containing it. It tends to occur at natural areas of weakness, where muscles are not strong and are vulnerable to intra-abdominal pressure. Because of their frequency, inguinal hernias remain an important surgical problem. The estimated lifetime risk for inguinal hernia is 27% for men and 3% for women.^[1]

Hernia repair is one of the commonest operations done and the therapeutic spectrum of hernia covers a multitude of measures starting from truss to the technique of laparoscopic mesh hernia repair, the choice of a method depends on the surgeon as there were no written surgical guidelines for hernia treatment till 2009⁽²⁻⁴⁾. There is a considerable variation in the efficiency of all these procedures which is calculated by the rate of recurrence , complications which is also influenced not only by the different techniques but also by experience and the technical skills of the surgeons⁽⁵⁾. However, the ideal method for modern hernia surgery should be simple, cost effective, safe, tension free and permanent. The Lichtenstein operation to a great extent achieves all these goals⁽⁶⁾. The Lichtenstein mesh, however has its shortcomings which include its initial cost, non-availability in small cities of the developing countries, tendency to fold and wrinkle, movement that may lead to mesh failure, since the groin is a very mobile area and chronic groin sepsis, that requires mesh removal. Non mesh repairs are recommended in these situations^{7,8}.

Pure tissue repair as described by Bassini in 1887 has been a standard for pure tissue inguinal hernia repair. Many modifications have been done on this repair technique as described by Halsted, McVay and Shouldice. These pure tissue repair methods had their own drawbacks like tension on suture line, require expertise to do the complicated and risky dissection of inguinal floor and use of already weakened posterior wall muscle of inguinal canal. The recurrence rate in hernia surgery which is performed by expert surgeons is less than 2% but in the hands of junior surgeons, the reported recurrence rate is 5 to 10% primarily and 10 to 35% for recurrent hernia⁽⁹⁾.

Desarda has described a new method of hernia repair that satisfy above criteria and does not require mesh nor this technique uses already weakened muscles of posterior wall of inguinal canal for repair⁽¹⁰⁾. The Desarda’s technique for inguinal hernia repair is a new tissue-based method. Application of the external oblique muscle aponeurosis in the form of an undetached strip (which makes the posterior wall of the inguinal canal stronger) has been established as a new concept in tissue-based hernia repair. The technique is original, new and different from the historical methods using the external oblique aponeurosis, proposed initially by McArthur (1901)⁽¹¹⁾ and Andrews or Zimmermann⁽¹²⁾.

The requirement of surgeons is not to find a operation that converts recurrence rates from 2% to 1% in the hands of experts but to find an operation that is simple, easy to perform, does not require extensive dissection or use of a foreign body such as mesh, which also gives recurrence rate of <2% without any major complication during and after surgery because they all are operated in less than ideal condition.

II. Materials And Methods

The present study “DESARDA’S NO MESH TECHNIQUE OF INGUINAL HERNIA REPAIR VERUS BASSINI’S TECHNIQUE – A COMPARATIVE STUDY” was conducted in the Postgraduate Department of Surgery, Government Medical College, Jammu from October 2013 to January 2015. Eighty patients, above 16 years of age, admitted for groin hernia were worked preoperatively as per the proforma. The diagnosis of hernia was on the basis of history and examination. They were randomized into two groups depending upon whether the patient registration was odd or even. The patients were taken for surgery after obtaining informed consent. No patient selection was used for the surgical procedures and cases with bilateral hernia were operated on both sides. All the operations were carried out by same surgeon on operative list under spinal anesthesia. Duration of the repair was started at the beginning of a particular repair technique after herniotomy had been performed, and ends when the last stitch of the repair is knotted, before closing the other layers of the wound.

The standard procedure of opening in layers and subsequent herniotomy was followed for all the patients. The difference only arose during repair of the defect. Group D patients were operated by technique as described by Desarda in 2001⁽¹⁰⁾.

Group B patients were operated as per standard Bassini’s technique of inguinal hernia repair.

Studied parameters were Duration of surgery, Pain, Ambulation, Duration of hospital stay, return to basic activities, most common complications postoperatively and recurrences. Postoperatively, patients were encouraged to resume normal activities as soon as possible. Antibiotics and analgesics were routinely prescribed to the patients post operatively, for varying periods depending upon the requirement of each and every patient. Sutures were removed on day 7. Follow-up was done at 1 week, 4 weeks, 3rd month and at 6 months. During follow-up visits, complete physical examination was undertaken.

Statistical Analysis was conducted with the help of Microsoft Excel and SPSS software for Windows. Variables were presented as mean and standard deviation for quantitative and percentages for qualitative or as deemed appropriate

III. Observations

Eighty patients admitted with inguinal hernia in the Postgraduate Department of Surgery, Government Medical College, Jammu from October 2013 TO December 2014 comprised the subject material for the study. The study excluded children <16 years, with congenital hernia in whom no repair or reconstruction was required. The patients were divided into two groups Desarda (D) and Bassini(B); each group having 40 patients. Following parameters were recorded:

The age of the patients varied from 16 to 85 years and all were male patients . The mean age of patients in Desarda’s group was 41.25±10.90 whereas mean age in Bassini was 46.60±9.25 years. Demographic and other characteristic of patients in the two groups B (= Bassini operation) and D (= Desarda technique) were comparable.

Variables	Desarda(D)	Bassini(B)	p-value
Age(years)	41.25±10.90	46.60±9.25	
Duration on Surgery(minutes)	30.66±7.50	32.40±5.50	0.240
Mean VAS Score			
Day 1	2.80±0.76	3.20±0.90	0.034
Day 7	1.86±0.80	3.00±0.20	0.001
Mean hospital stay(Days)	2.60±0.76	3.00±0.86	0.030
Return to basic activities(Days)	7.60±0.76	10.20±0.80	0.001
Complications			
Ecchymosis	1	0	
Wound infection	1	2	
Testicular edema	0	1	
Inguinal hematoma	0	1	
Seroma	2	2	
Reccurence	0	1	

Table-1

All patients were operated under spinal anaesthesia in both groups. The mean duration of surgery in Desarda’s group was 30.66±7.50 minutes and in Bassini group it was 32.40±5.50 minutes. Pain was assessed by Visual Analogue Scale score. Patients were explained that pain may be represented by a straight line 10 cm long. The extremes of which corresponds to ‘0’ indicating ‘no pain’ at one end and ‘10’ indicating ‘worst pain’ on the other end. Patients were asked to rate the pain depending upon the severity. In Desarda’s group, mean VAS score on first post operative day was 2.80±.76 while it was 3.20±.90 in Bassini group(p value =0.034, which is statistically significant). The mean VAS score on 7th post operative day in Desarda’s was 1.86±0. 80 while in Bassini it was 3.00±0.20 (p value = 0.001, significant). All 40(100%) patients in Desarda’s group were ambulatory on first post operative day while in Bassini group 36(90%) patients were ambulatory on first post operative day. Mean hospital stay in Desarda’s group was 2.60±0.76 days while in Bassini group, mean hospital stay was 3.00±0.86 days (p value =0.030,statistically significant) . Return to basic work activities in Desarda’s group was 7.60±0.76 days while in Bassini group it was 10.20±0.80 days (p value=0.001 which is significant). Although the list of complications following hernia surgery is a large one, yet only minor complications were encountered in the present study . There were six complications in Bassini group. Two patients had seroma, one had haemotoma one had testicular edema and two patients had wound infection. In Desarda’s group two patients had seroma, one had ecchymosis and one had wound infection. There was one recurrence in Bassini group while there was no recurrence in Desarda’s group.

IV. Discussion

Inguinal hernia is a very common condition afflicting mankind. Newer techniques are developed as the complication rate of older ones became unacceptable. The present study was conducted on 80 patients suffering from inguinal hernia. In this study, there were all male patients. The mean age (± standard deviation) of studied patients in Desarda’s group was 41.25±10.90 years while in Bassini group it was 46.60±9.25 years. **Mitura et al**⁽¹³⁾ in their study observed mean age of 45 years, which is similar to our study. There was no significant difference in the age and co morbid condition in both the groups. In the present study, all the patients in both the groups were operated under spinal anaesthesia. No patient was operated under local or general anaesthesia. In a study by **Desarda MP**⁽¹⁴⁾ on 229 patients, 84% patients were operated under spinal anaesthesia, 14.8% under local and 0.43% under general anaesthesia.

It was observed that mean time duration for surgery in Desarda’s group was 30.66±7.50 minutes while in Bassini group, mean time duration for surgery was 32.40±5.50 minutes. **Bhatti IA et al**⁽¹⁵⁾ in their study observed mean duration of surgery in Desarda group to be 28.90±5.57 minutes which is similar to our study. Similarly **Prior MJ etall**⁽¹⁶⁾ in their study showed mean duration of surgery for Bassini technique of 27.50 minutes. All the patients under Desarda’s group were ambulatory on 1st post operative day while in Bassini group, 90% of patients were ambulatory on 1st POD. In a study by **Desarda MP**⁽¹⁴⁾ on 229 patients, 97.8% were ambulatory within 6 to 8 hours and were freely mobile within 18 to 24 hours after surgery..

It was observed that mean VAS score on 1st post operative day for Desarda’s group was 2.80±0.76 while it was 3.20±.90 for Bassini’s group (p value=0.034). The VAS score on 7th post operative day for Desarda’s was 1.86±.80 while for Bassini group, VAS score on 7th postoperative day was 3.00±0.20 (p value=0.001). **Manylirah et al**⁽⁸⁾ reported mean pain score based on VAS to be 2.73±1.64 on 1st POD and 1.13±1.34 on 7th POD for Desarda’s group. Similarly **Situma SM et al**⁽²⁾ in their study reported mean VAS score of 4.24 and 2.27 respectively on 1st and 7th POD for Bassini repair. The mean hospital stay in Bassini group was 3.00±0.86 days while mean hospital stay in Desarda’s group was 2.60±0.76 days (p value=0.030). In a study by **Desarda**⁽¹⁷⁾, 92% patients had a hospital stay of one day. The mean time to return to basic physical activities in Desarda’s group was 7.60±0.76 days while in Bassini group it was 10.20±0.80 days (p value=0.001). Study

done by **Liem et al**⁽¹⁸⁾ showed return to basic activities in 10 days in Bassini’s group. Similar results were obtained in a study by **Desarda**⁽¹⁴⁾ wherein 96.4% patients returned to work within 6 to 14 days (mean 8.62 days).

With regard to postoperative complications, majority of the patients (90% in Desarda’s group and 85% in Bassini group) did not have any complications; 4 (10%) patients in Desarda’s group had minor complications. 2 patients had seroma, 1 had wound infection and 1 had ecchymosis whereas in Bassini group, 6(15%) patients had complications, 2 had seroma, 2 had wound infection, 1 had testicular edema and 1 had inguinal hematoma. **Elsebae M et al**⁽¹⁹⁾ in their study showed 11.1% complications in Bassini group. In a study by **Desarda**⁽¹⁰⁾ among 400 patients, hemocele was present in 1 patient, wound edema in 6 and mild skin infection in 4 patients. Similar study conducted by **Desarda**⁽¹⁰⁾ showed that out of 860 patients who underwent inguinal hernia surgery, only 7 patients had wound oedema, 5 patients had mild skin infection and 1 patient had hematoma. In the present study, there was no recurrence noted in patients on whom inguinal hernia repair by Desarda’s technique was done while in Bassini group there was one recurrence. Study conducted by **Desarda**⁽¹⁷⁾ on 860 patients with a follow-up of more than 7 years had no recurrence. Similarly study conducted by **Liem et al**⁽¹⁸⁾ showed recurrence of 6% in Bassini group.

V. Conclusion

The Desarda and Bassini’s methods of primary inguinal hernia repair do not differ in parameters like surgery time and complications. However they differ with regard to post operative pain, ambulation, and hospital stay and return to basic activities. In light of the available results of the present study, short term follow-up and review of the immensely successful experience with Desarda’s technique, it can be concluded inguinal hernia repair by Desarda’s is safe, surgically viable, economically acceptable with easy learning curve. This method does not require extensive dissection of the inguinal floor as in Bassini. Therefore we recommend training of surgeons in this technique in hospitals.

References

- [1]. Primates P and Goldacre MJ. Inguinal hernia repair: incidence of elective and emergency surgery, readmission and mortality. *Int J Epidemiol* 1996; 25: 835-839.
- [2]. Situma SM. Comparison of Desarda versus modified Bassini inguinal Hernia repair: a randomized controlled trial. *East Cent Afr J Surg* 2009;14:70-6
- [3]. Szczesny W, Szopinski J, Reslinski A. Early postoperative pain after Lichtenstein and Desarda hernioplasty. *Polish Surg* 2010;12:67-75.
- [4]. Genc V, Ensari C, Ergul Z. A very late-onset deep infection after prosthetic inguinal hernia repair. *Chirurgia* 2010; 105: 555-7.
- [5]. Subwongcharoen S. Outcome of inguinal hernia repair. Total extraperitoneal laparoscopic hernia repair versus open tension-free hernia repair Lichtenstein technique. *J Med Assoc Thai* 2002; 85: 1100-1104.
- [6]. Simons MP, Aufenacker T, Bay-Nielsen M. European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. *Hernia* 2009;13:343-
- [7]. Szopinski J, Dabrowiecki S, Pierscinski S, et al. Desarda versus Lichtenstein technique for primary inguinal hernia treatment: 3-year results of a randomized clinical trial. *World J Surg* 2012; 36 (5): 984-992
- [8]. Manyilirah W, Kijjambu S, Upoki A, et al. Comparison of non-mesh (Desarda) and mesh (Lichtenstein) methods for inguinal hernia repair among black African patients: a short-term double-blind RCT. *Hernia* 2012; 16 (2): 133-144.
- [9]. Nyhus LM and Condon RE. *Hernia*, 3rd edition. Philadelphia: JB Lippincott, 1989: 263-264.
- [10]. Desarda MP. Inguinal herniorrhaphy with an undetached strip of external oblique aponeurosis: a new approach used in 400 patients. *Eur J Surg* 2001a; 167 (6): 443-448.
- [11]. McArthur LL. Autoplastic suture in hernia and other diatases. *JAMA* 1901; 37: 1162- 1165.
- [12]. Ravitch MM and Hitzrot JM 2nd. The operations for inguinal hernia. I. Bassini, Halsted, Andrews, Ferguson. *Surgery* 1960; 48: 439-466.
- [13]. Mitura K and Romanczuk M. Comparison between two methods of inguinal hernia surgery – Lichtenstein and Desarda. *Pol Merkury Lekarski* 2008; 24 (143): 392-395.
- [14]. Desarda MP. No-mesh inguinal hernia repair with continuous absorbable sutures: a dream or reality? (a study of 229 patients). *Saudi J Gastroenterol* 2008; 14 (3): 122-127.
- [15]. Bhatti IA, Ishaqu H, Ahmed Z et al. Desarda’s versus Lichtenstein technique of hernia repair. *P J H M S* 2015;9(4):1331-33.
- [16]. Prior MJ, William EV, Shukla HS et al. Prospective randomized controlled trial comparing Lichtenstein with modified Bassini repair of inguinal hernia. *Journal of royal college of surgeons of Edinberg* 1998;43(2):82-86.
- [17]. Desarda MP and Ghosh A. Comparative study of open mesh repair and Desarda’s no-mesh repair in a district hospital in India. *E C Afr J Surg* 2006; 11 (2): 28-34.
- [18]. Liem M. S., van der Graaf, Y., van Steensel, C. J., Boelhouwer, R. U., Clevers, G. J., Meijer, W. S., ... & van Vroonhoven, T. J. (1997). Comparison of conventional anterior surgery and laparoscopic surgery for inguinal-hernia repair. *New England Journal of Medicine*, 336(22), 1541-1547.
- [19]. Elsebae M, Magdy MA, Nasr M, Said M. (2008). Tension-free repair versus Bassini technique for strangulated inguinal hernia: A controlled randomized study. *international journal of surgery*, 6(4), 302-305.