



“No Mesh Technique of Inguinal Hernia Repair – Desarda’s Repair”

Gopal Sharma, Shyam Kumar Gupta, Tariq P Azad, Sanjay Bhasin, Nivedita Prashar, Shiv Kumar Sharma, Parveen Sharma

Senior resident, Deptt of Surgery Govt. Medical college Jammu, J. and K.

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ABSTRACT

Background: 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.

Method: A prospective study of 50 hernia patients operated by Desarda technique was conducted in Government Medical College, Jammu during a period from November 2012 to October 2013. Data of intra operative complications, pain, hospital stay, ambulation, time to return to work, and postoperative complications were recorded and analyzed using Microsoft Excel and SPSS software for Windows

Results: The age of the patients varied from 16 to 85 years with a mean age (\pm standard deviation) of 46.7 (\pm 17.8) years. In the present study, majority of operations (48; 96%) were done under spinal anaesthesia. Average time taken was 40 to 120 minutes with a mean of 54.86 minutes. All patients (48; 96%) were ambulatory on the first post-operative day, i.e. 12 to 24 hours. Pain was assessed by Visual Analogue Scale score. Patients who were operated under local anaesthesia (2; 4%) were discharged on the first postoperative day (<24 hours). Out of the rest 48 patients who were operated under spinal anaesthesia, 43 (86%) were discharged on the second postoperative day (24 to 48 hours). Only 5 (10%) patients required to prolong their stay in the hospital beyond 48 hours. In the present study, 45 (90%) patients returned to work within 2 weeks of surgery done. Only 5 (10%) patients prolonged their period of return to work to more than 2 weeks. Minor complications were encountered in the present study 3 (6%) patients developed seroma, 3(6%) developed wound infection, while 1 (2%) developed ecchymosis.

Conclusion: The operating technique is very simple and safe, cost effective, easy to understand and at the same time has shown excellent result.

Keywords: Inguinal hernia repair, Desarda’s repair, physiological repair.

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]

Inguinal hernia repair is one of the oldest operations ever documented. In fact the first record of it dates back to middle ages. Today, hernia surgery is one of the commonest operations being performed. The therapeutic spectrum of hernia covers a multitude of measures starting from truss to the technique of laparoscopic mesh hernia repair. There is a considerable variation in the efficiency of all these procedures 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 surgeon.^[2]

Mesh repair whether open or laparoscopic have their limitations, like long learning curve, costly instruments, use of foreign body *i.e.*, mesh in human beings and complications like chronic groin pain.

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)^[3] and Andrews or Zimmermann.^[4]

The cost of the Desarda's operation is low because a synthetic prosthesis is not needed. The price of composite meshes or even heavy polypropylene meshes, as well as their accessibility, could be important issues in developing countries. Even the inguinoscrotal hernias which are frequently seen in African and Asian countries, can be successfully treated with the Desarda's technique. Data are appearing about the sexual impairment after mesh implantation, and as a result, many surgeons try to avoid prostheses for hernia treatment in young patients. Also, the Desarda method, a tissue-based technique, can be used in a contaminated surgical field, usually seen during operations for strangulated hernias.^[5]

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. The present series of hernia operation uses a strip of external oblique aponeurosis in place of mesh prosthesis and assumes importance because the technique can be performed by any general surgeon without expertise in hernia surgery and it reduces the cost incurred in the use of mesh. The operating technique is very simple and safe; it is easy to understand and at the same time has shown excellent result.

Keeping in view the above stated observations about this technique of groin hernia repair, this study was conducted to analyze the results of such a technique in patients with direct and indirect inguinal hernia admitted in the Department of Surgery, Government Medical College, Jammu.

II. MATERIALS AND METHODS

The present study "No Mesh Technique of Inguinal Hernia Repair – Desarda's Repair" was conducted over a period of one year in the Postgraduate Department of Surgery, Government Medical College, Jammu. Fifty 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. The patients were taken for surgery after obtaining informed consent under spinal anaesthesia and local anaesthesia. No patient selection was used for the surgical procedures and cases with bilateral hernia were operated on both sides.

Operative technique

Skin and fascia were incised through a regular oblique inguinal incision to expose the External oblique aponeurosis (EOA). The thin and glistening, filmy fascial layer covering the EOA was kept undisturbed as far as possible and an assessment made about the strength of the EOA and its thinned-out portion. The thinned-out portion was usually seen at the top of the hernia swelling, extending and fanning out to the lower crux of the superficial ring. The EOA was cut in line with the upper crux of the superficial ring. Thinned-out portion was left in the lower leaf and a good strip was taken from the upper leaf. The EOA, which was thinned out due to aging or longstanding large hernias, was also used for repair if it was able to hold the sutures.

The cremasteric muscle was incised for the herniotomy and the spermatic cord along with the cremasteric muscle was separated from the inguinal floor. Excision of the sac was done in all cases except in small direct hernias where it was inverted. The medial leaf of the EOA was sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using PDS number 1 round body with continuous sutures. The first two sutures were taken in the anterior rectus sheath where the EOA was fused with it; the last suture was taken so as to sufficiently narrow the internal ring without constricting the spermatic cord. Each suture was

passed first through the inguinal ligament, then the transversalis fascia and then the EOA. The index finger of the left hand was used to protect the femoral vessels and retract the cord structures laterally while taking lateral suture.

A splitting incision was taken in this sutured medial leaf of the EOA, partially separating a strip with a width, 1.5 to 2 cm, equivalent to the gap between the muscle arch and the inguinal ligament. This splitting incision was extended medially up to the pubic symphysis and laterally 1 to 2 cm beyond the internal ring. The medial insertion and lateral continuation of this strip was kept intact. A strip of the EOA was now available with the lower border already sutured with the inguinal ligament. The upper free border of the strip of the EOA was now sutured to the internal oblique or conjoint tendon lying close to it with PDS number 1 with continuous sutures throughout its length. The aponeurotic portion of the internal oblique muscle was used for suturing to this strip, wherever and whenever it was possible, avoiding tension. This resulted in the strip of EOA being placed behind the cord to form a new posterior wall of the inguinal canal. At this stage the patient was asked to cough and the increased tension on the strip exerted by the external oblique was clearly visible. This increased tension exerted by the external oblique muscle was the essence of this operation. The spermatic cord was placed in the inguinal canal and the lateral leaf of the EOA was sutured to the newly formed medial leaf of the EOA in front of the cord again using PDS number 1 sutures. Undermining of the newly formed medial leaf of the EOA on both of its surfaces facilitate its approximation to the lateral leaf. The first stitch was taken between the lateral corner of the splitting incision and lateral leaf of the EOA. This was followed by closure of the superficial fascia and the skin as usual. Studied parameters were Duration of surgery, Pain, Ambulation, Duration of hospital stay, Most common complications postoperatively were recorded. Postoperatively, patients were encouraged for ambulation from the day of surgery. Majority of the patients were kept for 1 to 2 days and advised to resume normal activity after a week. 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 and 3 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

Fifty patients admitted with inguinal hernia in the Postgraduate Department of Surgery, Government Medical College, Jammu from November 2012 to October 2013 comprised the subject material for the study. The study excluded children <16 years with congenital hernia in whom no repair or reconstruction was required. Following parameters were recorded:

The age of the patients varied from 16 to 85 years with a mean age (\pm standard deviation) of 46.7 (\pm 17.8) years. Majority of the patients (12; 24%) were in the age group of 41 to 50 years, while least (3; 6%) were in the age group of 20 years or less. It was observed that 34 (68%) cases of inguinal hernia were of indirect type and 14 (28%) were of direct type. There were 2 (4%) cases, wherein both direct and indirect hernias were observed. Right-sided inguinal hernia (34; 64%) was more frequent, followed by left-sided (14; 28%) and bilateral (4; 8%). Type of anaesthesia depended upon the preoperative assessment of the patient, patient's choice and level of cooperation and availability of anaesthetist. In the present study, majority of operations (48; 96%) were done under spinal anaesthesia. It was observed that the surgery for inguinal hernia did not take much operating time. Average time taken was 40 to 120 minutes with a mean of 54.86 minutes. About 80% hernioplasties were completed within 60 mins. Those done under local anaesthesia (2; 4%) were made ambulatory immediately, *i.e.* <12 hours. All other patients (48; 96%) were ambulatory on the first post-operative day, *i.e.* 12 to 24 hours. 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 on the severity. The results were graded as mild (VAS 1 to 3), moderate (VAS 4 to 6) and severe (VAS 7 to 10). Patients who were operated under local anaesthesia (2; 4%) were discharged on the first postoperative day (<24 hours). Out of the rest 48 patients who were operated under spinal anaesthesia, 43 (86%) were discharged on the second postoperative day (24 to 48 hours). Only 5 (10%) patients required to prolong their stay in the hospital beyond 48 hours. In the present study, 45 (90%) patients returned to work within 2 weeks of surgery done. Only 5 (10%) patients prolonged their period of return to work to more than 2 weeks. Although the list of complications following hernia surgery is a large one, yet only minor complications were encountered in the present study – 3 (6%) patients developed seroma, 3(6%) devolped wound infection, while 1 (2%) developed ecchymosis. All patients were closely followed up for a period of three months to one year after hernioplasty. There was no evidence of recurrence in any patient till date even in those who had longest follow up.

IV. DISCUSSION

The present study was conducted on 50 patients suffering from inguinal hernia. Forty-six (92%) patients were having unilateral hernia, while rest 4 (8%) were having bilateral; so a total of 54 hernia repairs were done.

In this study, there were all male patients. All patients were in the range of 16 to 85 years with majority being in the age group of 41 to 50 years (12; 24%). The mean age (\pm standard deviation) of studied patients was 46.7 ± 17.8 years. Mitura et al^[6] in their study observed mean age of 45 years, which is similar to our study. In a study conducted by Desarda MP et al^[7] on 860 patients, mean age recorded was 50.5 years. In the present study, 14 (28%) were having direct hernia, 34 (68%) indirect and 2 (4%) were having both direct and indirect hernia. Desarda MP^[8] reported direct hernia in 25%, indirect in 74% and both direct and indirect in 1% patients in his study. In another study Desarda MP^[9] found direct hernia in 34.57% and indirect hernia in 44.35% patients. In the present study, with regard to side of hernia, 32 (64%) patients had right side hernia, 14 (28%) had left side hernia, while 4 (8%) patients had bilateral. Similar results were obtained by Desarda MP^[8] on 400 patients. He observed right side hernia in 54%, left side in 31% and bilateral in 15% patients. In the present study, majority of the patients (48; 96%) were operated under spinal anaesthesia, while local anaesthesia was given to 2 (4%) patients. No patient was operated under general anaesthesia. In a similar study by Desarda MP^[9] 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 was 54.86 minutes (range 40-120 minutes). About 80% of the surgeries were completed within 60 minutes. In a study by Mitura et al^[6] comparison between Lichtenstein and Desarda's techniques was carried out. Average duration of Desarda's repair was 56.6 minutes, which is comparable to the present study. Total of 48 (96%) patients were ambulatory in 12 to 24 hours, rest 2 (4%) were immediately ambulatory after surgery as local anaesthesia had been given to them. In a study by Desarda MP^[9] on 229 patients, 97.8% were ambulatory within 6 to 8 hours and were freely mobile within 18 to 24 hours after surgery..

In the present study, postoperative pain was assessed by using the Visual Analogue Scale (1 to 10) score. It was observed that majority (44; 88%) of patients had mild pain (VAS 1-3), 4 (12%) patients had moderate pain (VAS 4-6). No patient had severe pain (VAS 7-10) postoperatively. Mitura et al^[6] in his study reported mean VAS score to be 3.3 on the first postoperative day in Desarda's group. Manyilira et al^[10] reported mean pain score based on VAS to be 2.73 ± 1.64 for Desarda's group. In the present study, 2 (4%) patients were discharged within 24 hours of surgery. They were operated under local anaesthesia. Forty-three (86%) patients were discharged on first postoperative day (24-48 hours) and rest 5 (10%) were discharged on second postoperative day (>48 hours). In a study by Desarda^[7], 92% patients had a hospital stay of 1 day. In a study conducted by Mitura et al^[6], patients operated by Desarda's technique were discharged on the 4th day, whereas those operated by Lichtenstein technique were discharged on the 5th postoperative day. In the present study, 45 (90%) patients returned to work within 1 to 2 weeks, while a small percentage (5; 10%) patients took more than 2 weeks to return to work. Similar results were obtained in a study by Desarda^[9] 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 (43; 86%) did not had any complications; 3 (6%) patients presented with seroma, another 3 (6%) presented with wound infection that subsided within one week and 1 (2%) patient had ecchymosis. No other major complications like severe postoperative pain, major infection, testicular atrophy was reported. In a study by Desarda^[8] among 400 patients, hematocele was present in 1 patient, wound edema in 6 and mild skin infection in 4 patients. Similar study conducted by Desarda^[7] 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 at the end of the final presentation of the research work. study conducted by Desarda^[7] on 860 patients with a follow-up of more than 7 years had no recurrence.

V. CONCLUSION

In light of the available results of the present study, with zero recurrence in short term follow-up and review of the immensely successful experience with this technique, it can be confidently concluded that no mesh technique of inguinal hernia repair by Desarda's is safe, surgically viable, economically acceptable in patients above 15years of age and can be done in rural set-up. It is further recommended that more and more studies should be conducted in the regional centre's to train the post graduates and rural surgeons to make this economically viable surgical technique popular and acceptable to the patients.

BIBLIOGRAPHY

- [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]. 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.
- [3]. McArthur LL. Autoplastic suture in hernia and other diatheses. *JAMA* 1901; 37: 1162-1165.
- [4]. Ravitch MM and Hitzrot JM 2nd. The operations for inguinal hernia. I. Bassini, Halsted, Andrews, Ferguson. *Surgery* 1960; 48: 439-466.
- [5]. 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.
- [6]. Mitura K and Romanczuk M. Comparison between two methods of inguinal hernia surgery – Lichtenstein and Desarda. *Pol Merkury Lekarski* 2008; 24 (143): 392-395.
- [7]. 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.
- [8]. 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.
- [9]. 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.
- [10]. 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.