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A comparative study between Desarda's technique and Lichtenstein's mesh repair for the treatment of inguinal hernia

Shubham Kumar[1], Snigdha Sarkar[2], Avijit Bakshi[3], Madhumita Mukhopadhyay[4]

[1]Senior Resident, [2]Assistant Professor, Department of Surgery, Calcutta National Medical College and Hospital, Kolkata, [3]Assistant Professor, Department of Surgery, Prafulla Chandra Sen Government Medical College and Hospital, Arambag, [4]Professor, Department of Surgery, Diamond Harbour Government Medical College and Hospital, Diamond Harbour, West Bengal, India

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ABSTRACT

Background: Even after Lichtenstein method of tension free mesh repair became the gold standard, the myriad of new complications prompted surgeons to look for newer methods or revisit and modify the older ones. Just as history repeats itself, tissue repair started being considered again. Back home Desarda's method of tissue repair was presented which used autologous tissue. This study was done to compare the gold standard with a cheaper method in the developing world. **Aims and Objectives:** The aim of this study was to compare the outcomes between patients undergoing Desarda's repair and Lichtenstein Hernioplasty. **Materials and Methods:** Patients getting admitted for inguinal hernia surgery were divided into two groups (40 each), Desarda and Lichtenstein. The seven outcome measures analyzed were recurrence of hernia, post-operative pain, seroma formation, surgical site infection, operating time, post-operative hospital stay, and time to return to normal work. **Results:** In our study, there was significantly shorter operating time in the Desarda group. The post-operative pain scores were slightly higher in the Desarda group. During the follow-up period, there was one recurrence in each group. Seroma formation, surgical site infection, postoperative hospital stay, and time to return to normal work were all lower in the Desarda group but not clinically significant. **Conclusion:** Desarda's method of hernia repair is as effective as the standard method even without mesh implantation. The lower cost (no mesh) and absence of mesh related complications are added benefits.

Key words: Desarda's hernia repair; Lichtenstein's hernia repair; Autologous tissue repair

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INTRODUCTION

In the history of hernia repairs, tissue repairs were in vogue until the Lichtenstein method of tension free mesh repair became the gold standard and was advocated by different hernia societies all over the world.[1] In this procedure, repair is accomplished by covering the opening of the hernia with a patch of mesh. The surgical mesh acts as a bridge or scaffolding for ingrowth of new tissue to reinforce the posterior abdominal wall. But even the gold standard had its side effects. Incidences of foreign body sensation in the groin, discomfort, abdominal wall stiffness, and chronic pain have plagued this procedure right from the beginning.[1-4] More dreaded complications are surgical-site infections, mesh migration, mesh rejection, and "meshoma" tumors due to chronic inflammation and foreign body reactions. To add to it all, sexual function is also hampered.[2,5] The mesh is costly and not available in many parts of the developing world.[6-8]

This myriad of new complications prompted surgeons to look for newer methods or revisit and modify the older

Address for Correspondence:
Dr. Madhumita Mukhopadhyay, Professor, Department of Surgery, Diamond Harbour Government Medical College and Hospital, Diamond Harbour, West Bengal, India. **Mobile:** +91-8584012725. **E-mail:** drmmukherjeekol@gmail.com

ones. Just as history repeats itself, tissue repair started being considered again. Back home Desarda's method of tissue repair was presented in 2001.[9,10] in which a bilaterally pedunculated strip of the external oblique aponeurosis is used to strengthen the posterior wall of the inguinal canal (Figure 1). Desarda's technique uses one's own tissue, requires no complicated surgical technique, and is easy to learn with almost negligible recurrence rates.[2,8] This study was done to compare the gold standard with a cheaper method in terms of post-operative pain, complications, and recurrence.

Aims and objectives

To compare Desarda's method with Lichtenstein's mesh repair in terms of recurrence, postoperative pain, seroma formation, surgical site infection, operating time, postoperative hospital stay and time to return to normal work.

MATERIALS AND METHODS

This comparative interventional study was done over a period of 18 months in a teaching hospital in Kolkata. The study subjects were patients getting admitted for inguinal hernia surgery. They were divided into two primary groups, Desarda's (Group A) and Lichtenstein's (Group B). The first two patients were placed in the Desarda's arm and the next two patients were placed in the Lichtenstein's arm and continued subsequently until the sample size was reached. Written consent was taken from all the patients. Exclusion criteria included patients not willing to participate in the study, patients aged below 18 and over 65 years, immune-compromised patient and patients undergoing chemotherapy/radiotherapy/ Immunotherapy/corticosteroid use, and pregnancy and females requiring any other gynecological or obstetrical intervention simultaneously. All patients were subjected to pre-operative evaluation including careful history taking, clinical examination, and laboratory investigation.

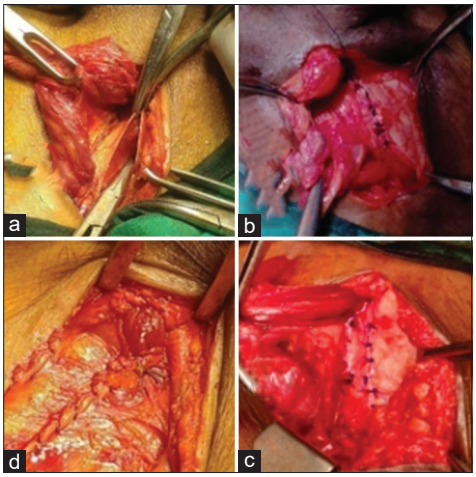

Figure 1: Steps of Desarda's operation. (a) Inguinal canal exposed, (b) The median leaf of the external oblique aponeurosis (EOA) sutured to the Inguinal ligament, (c) Undetached strip of EOA forming the posterior wall of the inguinal canal, (d) New lips of the EOA closed over the spermatic cord

Data were collected on regular basis with inspection of wounds in the immediate post-operative period and follow-ups after discharge. It was done for both groups simultaneously to avoid bias and any scope for error. The final data were analyzed after 1 year based on the cumulative data collected over the study period. The collected data were sorted and analyzed over seven basic headings recurrence of hernia, postoperative pain, seroma formation, surgical site infection, operating time, postoperative hospital stay, and time to return to normal work.

For statistical analysis, data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. P≤0.05 was considered statistically significant.

RESULTS

In this study, 80 cases of inguinal hernias were operated during the study period, 40 in Desarda and 40 in Lichtenstein arm. The baseline characteristics such as comorbidities and

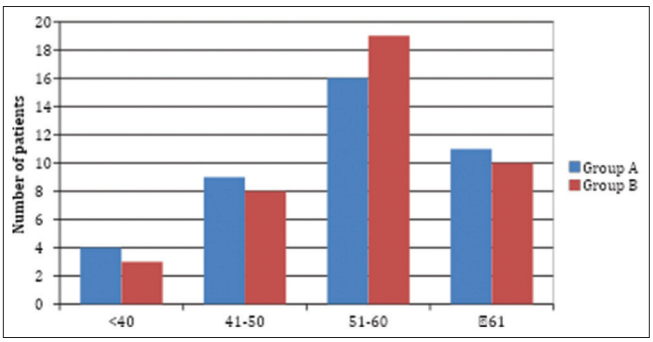

Chart 1: Age distribution

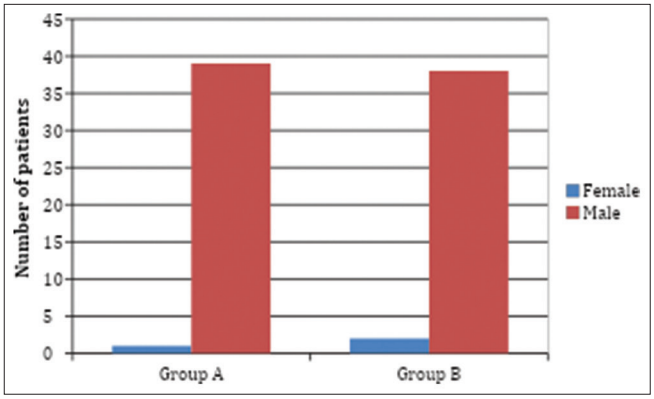

Chart 2: Sex distribution

demographic profile on comparison were similar in both the groups (Charts 1 and 2). Distribution of mean age was not statistically significant (P=0.5736). Similarly association of sex with Group was not statistically significant (P=0.5562). Clinical characters and hernia features were compared with no statistical differences.

In Group A, 3 (7.5%) patients had infection. In Group B, 5 (12.5%) patients had infection. In Group A, 3 (12.5%) patients had seroma. In Group B, 7 (17.5%) patients had seroma. Although both the infection rate and seroma formation was higher in Group B, none was clinically significant implying that both Lichtenstein and Desarda have comparable complication rates. Recurrence (one each) rate was same in both the groups.

In Group A, the mean operating time (mean±SD) of patients was 41.1020±4.0393. In Group B, the mean operating time (mean±SD) of patients was 47.8000±4.4040. Distribution of mean operating time with Group was statistically significant (P<0.0001) (Chart 3). It was observed that the pain scores in Desarda group were slightly higher in the first 7 post-operative days compared to the Lichtenstein group (Chart 4), though none of them were clinically significant except on day 3. In Group A, the mean duration of hospital stay in days (mean±SD) of patients was 3.5750±0.6360. In Group B, the mean duration of hospital stay in days (mean±SD) of patients was 3.7500±0.7071. Distribution of mean duration of hospital stay in days with Group was not statistically significant (P=0.2481). This was not clinically significant. Time to return to normal work though slightly higher in Group B was not statistically significant (P=0.6570).

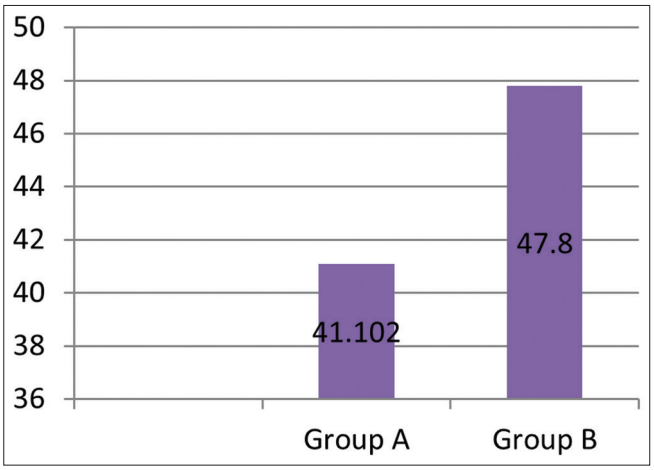

Chart 3: Mean operating time

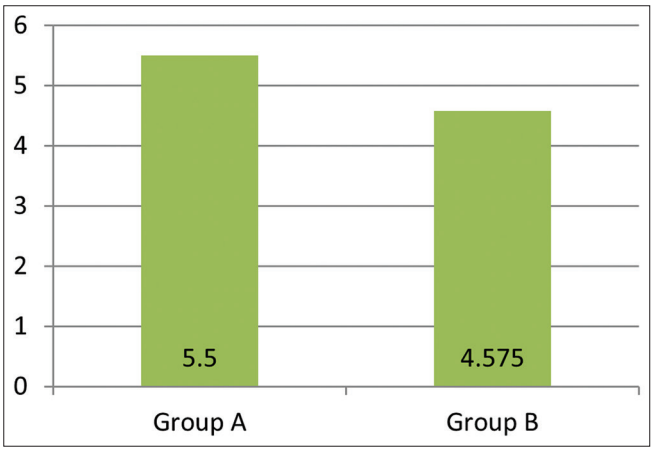

Chart 4: Mean pain score on day 2

DISCUSSION

Studies show that for a male person, there is a 27% lifetime risk for developing an inguinal hernia.[4] Inguinal hernia repair being one of the most common operation done, requires an ideal surgical method. The consensus is that it should be easy to learn, have low complication and recurrence rates with the early return to normal activities.[2] In the developing world, cost is also an important factor to be considered. The Desarda technique satisfies most of the above. Desarda uses external oblique aponeurosis for strengthening the posterior wall of inguinal canal. The technique claims results, which are superior or equal to Shouldice and Lichtenstein repairs, with 1.8% complication rate and 0.2% recurrence.[2]

In our study, it was found that, more number of patients had Infection ([12.5%] in Lichtenstein Group compared to Desarda Group (3 [7.5%]) but this was not statistically significant (P=0.4560). It was found that, higher number of patients had seroma (17.5%) in Lichtenstein Group compared to Desarda Group (12.5%)] but this again was not statistically significant (P=0.5311). In a similar study,[11] LT group had significantly higher rates of seroma formation and surgical site infection (OR=2.17; P=0.007) and (OR=2.17; P=0.029), respectively.

In our study, post-operative pain was slightly more in the first 7 post-operative days in Desarda group compared to Lichtenstein group. This finding was seen in another study by Youssef et al.,[12] though in most of the other studies,[1,2,4,13] the pain was more in the Lichtenstein group. The reason for this may be due to many confounding factors such as nerve traction, tissue handling, and manipulation during the operation.[2] In our study, follow-up was for a maximum period of 18 months to a minimum period of 6 months. Longer follow-up with a larger sample size is required to come to a conclusion.

We found that operating time was higher in Group B compared to Group A, and this was statistically significant

(P<0.0001). We observed that the duration of hospital stay in days was higher in Group B (Lichtenstein) compared to Group A, but this was not statistically significant (P=0.2481). Data of our study showed that the time to return to normal work was higher in Group B compared to Group A, but this was also not statistically significant (P=0.6570).

The drawback of this technique as pointed out by some is that the process of aging weakens the aponeurosis. Another opinion is that since hernia is due to abnormal collagen metabolism and connective tissue defect, this tissue should not be used for repair. However, studies have shown that the aponeurosis of the external oblique muscle was least affected by the aging process or defect in collagen synthesis. The external oblique muscle gives additional strength to the weakened internal oblique muscle.[14] According to Gedam et al.,[2] the most evident indications for use of the Desarda technique include use in young patients, strangulated inguinal hernias, and financial constraints and when patient disagrees with the use of mesh.

Limitations of the study

The study period was short. A longer follow up period with a larger number of patients is required for better assessment of the complications.

CONCLUSION

Desarda's method of hernia repair is as effective as the standard method even without mesh implantation. The lower cost (no mesh) and absence of mesh related complications are added benefits. The strip of aponeurosis is an excellent alternative to mesh. It is physiological, natural, and universally available for reinforcing the posterior wall of inguinal canal.

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REFERENCES

1. Szopinski J, Dabrowiecki S, Pierscinski S, Jackowski M, Jaworski M and Szuflet Z. 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. https://doi.org/10.1007/s00268-012-1508-1
2. Gedam BS, Bansod PY, Kale VB, Shah Y and Akhtar M. A comparative study of Desarda's technique with Lichtenstein mesh repair in treatment of inguinal hernia: A prospective cohort study. Int J Surg. 2017;39:150-155. https://doi.org/10.1016/j.ijsu.2017.01.083
3. Das A, Bhuiyan MM, Rahman MM and Choudhuary MI. Evaluation of Desarda technique in inguinal hernia repair. Int Surg J. 2023;10(10):1572-1576. https://doi.org/10.18203/2349-2902.isj20232975
4. Ge H, Liang C, Xu Y, Ren S and Wu J. Desarda versus Lichtenstein technique for the treatment of primary inguinal hernia: A systematic review. Int J Surg. 2018;50:22-27. https://doi.org/10.1016/j.ijsu.2017.11.055
5. Uzzo RG, Lemack GE, Morrissey KP and Goldstein M. The effects of mesh bioprosthesis on the spermatic cord structures: A preliminary report in a canine model. J Urol. 1999;161(4):1344-1349.
6. Mohamedahmed AY, Ahmad H, Abdelmabod AA and Sillah AK. Non-mesh Desarda technique versus standard mesh-based Lichtenstein technique for inguinal hernia repair: A systematic review and meta-analysis. World J Surg. 2020;44(10):3312-3321. https://doi.org/10.1007/s00268-020-05587-y
7. Ndong A, Tendeng JN, Diallo AC, Diao ML, Diop S, Dia DA, et al. Is Desarda technique suitable to emergency inguinal hernia surgery? A systematic review and meta-analysis. Ann Med Surg (Lond). 2020;60:664-668. https://doi.org/10.1016/j.amsu.2020.11.086
8. Jain SK, Bhatia S, Hameed T, Khan R and Dua A. A randomised controlled trial of Lichtenstein repair with Desarda repair in the management of inguinal hernias. Ann Med Surg (Lond). 2021;67:102486. https://doi.org/10.1016/j.amsu.2021.102486
9. Desarda MP. Inguinal herniorrhaphy with an undetached strip of external oblique aponeurosis: A new approach used in 400 patients. Eur J Surg. 2001;167(6):443-448. https://doi.org/10.1080/110241501750243798
10. Desarda MP. New method of inguinal hernia repair: A new solution. ANZ J Surg. 2001;71(4):241-244. https://doi.org/10.1046/j.1440-1622.2001.02092.x
11. Emile SH and Elfeki H. Desarda's technique versus Lichtenstein technique for the treatment of primary inguinal hernia: A systematic review and meta-analysis of randomized controlled trials. Hernia. 2018;22(3):385-395. https://doi.org/10.1007/s10029-017-1666-z
12. Youssef T, El-Alfy K and Farid M. Randomized clinical trial of Desarda versus Lichtenstein repair for treatment of primary inguinal hernia. Int J Surg. 2015;20:28-34. https://doi.org/10.1016/j.ijsu.2015.05.055
13. Abbas Z, Bhat SK, Koul M and Bhat R. Desarda's no mesh repair versus Lichtenstein's open mesh repair of inguinal hernia: A comparative study. J Evol Med Dent Sci. 2015;4(77):13279.
14. Desarda MP. Desarda repair versus other inguinal hernia repairs: A review of global data of 35578 patients. Int Surg J. 2022;9(2):514-519. https://doi.org/10.18203/2349-2902.isj20220356

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SK and SS- Statistical analysis and interpretation, review of manuscript; **AB-** Statistical analysis and interpretation, review of manuscript; **MM-** Definition of intellectual content, literature survey, prepared first draft of manuscript, data collection, data analysis, manuscript preparation and submission of article.

Work attributed to:
Calcutta National Medical College and Hospital, Kolkata, West Bengal, India.

Orcid ID:
Madhumita Mukhopadhyay - https://orcid.org/0000-0002-4864-701X
Shubham Kumar - https://orcid.org/0009-0001-3435-6799

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