

COMPARISON BETWEEN MESH REPAIR LICHTENSTEIN WITH NO MESH REPAIR DARN IN INGUINAL HERNIA IN TERMS OF MEAN OPERATIVE TIME

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ABSTRACT

Background: Inguinal hernia is among the most common problems encountered by general surgeons and may have significant complications. Inguinal hernia mesh repair, although probably providing superior results with regards recurrence rate.

Objective: To compare mean operative time between mesh repair (LHR) with no mesh repair Darn in inguinal hernia.

Material and Methods: This randomized controlled trial of 15 months duration has been conducted at Surgical Department, Hayatabad Medical Complex, Peshawar from January, 2016 to April, 2017. In this study a total of 286 patients were observed (143 in each group). The diagnosis of inguinal hernia was based upon on clinical examination. Complete history was taken from all patients followed by complete physical examination and routine pre operative baseline investigations. Mean operative time between mesh repair (LHR) with no mesh repair darn in inguinal hernia was observed and was recorded in proforma.

Results: Mean age was 39 year \pm 2.37SD in group A and in Group B mean age was 40 year \pm 3.12SD. In Group A, 97.91% patients were male and 2.09% patients were female and in Group B, 98.60% patients were male and 1.40% patients were female. More over mean operative time was significantly low in group A as compare to group B {35 minutes \pm 17.03SD vs 50 minutes \pm 19.76SD; P= 0.0001}.

Conclusion: Mesh repair (Lichtenstein technique) is more effective and had less operative time as compare to no Mesh repair (Darning technique) in the treatment of inguinal hernia repair.

Key Words: Lichtenstein, Darning, inguinal hernia repair.

INTRODUCTION

Inguinal hernia is a common surgical problem encountered by general surgeons and may have significant complications in terms of chronic pain, strangulation, intestinal obstruction and refrains from daily routine heavy work. The recurrence rate in inguinal hernia with mesh repair is less and provide superior results¹ and Lichtenstein et al described the tension-free hernioplasty in 1989. By using prosthetic mesh, Lichtenstein repaired inguinal hernias without distortion of the anatomy and, most importantly, without any tension along the suture line. In spite of various modifications over the last two decades, Lichtenstein hernia repair (LHR) is still considered the gold standard in the management of inguinal hernia by open technique.²

The Darning technique of inguinal hernia described by Moloney et al, repair is a tissue-based

technique based on the principles of strengthening or reconstructing the posterior inguinal wall with documented low recurrence rate⁵. The darn repair originally is an effective technique for repairing inguinal hernia, and is a cheap and effective way of repair. The recurrence rate from original series has been reported as 0.8%⁶. The ideal operation to treat inguinal hernia is still far to define.

Different studies has compared Moloney Darn repair (MDR) and Lichtenstein hernia repair (LHR) regarding recurrence, post operative pain, mean operative time and hospital stay.^{6,7} a recent study in 2014⁸ has reported recurrence rate of 0.44% after LHR and Visual Analog Scale showed significant more early and late postoperative pain after LHR. The mean operative time was significantly shorter for LHR [72.99 \pm 19.90 min] compared to MDR [78.53 \pm 12.76 min]. There was no significant differences regarding hospital stay [1.04 \pm 0.19 days vs. 1.09 \pm 0.28 days], time to return to domestic activity [1.18 \pm 0.43 days vs. 1.15 \pm 0.36 days], time to return to work activity [6.84 \pm 1.09 vs. 6.67 \pm 0.94 days], early and late postoperative complications in MDR and LHR.⁸

The Rationale of this study was to compare Mesh repair (LHR) with no mesh repair Darn in Inguinal hernia in term of mean operative time. There are still many controversies to answer which technique is better for

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repair. So this research may ultimately provide us important information and may prove useful for improving the management of open hernia repair especially where time factor is important. The results of this study may be shared in order to reduce the mean operative time and decrease patient anxiety, stress and dissatisfaction.

MATERIAL AND METHODS

This randomized controlled trial was conducted at surgical department, Hayatabad Medical Complex, Peshawar during the period of 15 months from January, 2016 to April, 2017 recruiting total of 286 patients. All patients presenting with inguinal hernia to the surgical OPD of either gender between 18-60 years of age were included in this study while patients having hernia defect less than 4 cm, recurrent hernia, with obstructed/strangulated hernias on clinical examination, with debilitating diseases like COPD and chronic liver, renal or cardiac impairment (diagnosed on the basis of medical records and history) were excluded from this study.

The study was conducted after getting approval from hospitals ethical and research committee. The patients meeting the inclusion criteria were included in the study through OPD of general surgery department. The diagnosis of inguinal hernia was based on clinical examination. The purpose, risks and benefits of the study were explained to all included patients, they were assured that the study was purely conducted for research and data publication and a written informed consent was obtained from all included patients.

The patients were randomly allocated in two groups by lottery method. Patients in group A was subjected to Lichtenstein hernia repair (LHR) repair group and patients in group B was subjected to Meloney Darn repair (MDR) procedure for inguinal hernia repair after informed consent about the type of procedure. Complete history was taken from all patients followed by complete physical examination and routine pre-operative baseline investigations. All the patients were put on OT list for the next OT day. The respective surgical repair procedure (LHR mesh repair for group A and no mesh MDR repair for group B) was applied to patients of relevant group under the supervision of single expert general surgeon fellow of CPSP / Royal College of Surgeons United Kingdom. A co-researcher was appointed to record time between skin incision and skin closure using a standard stop watch. All the above mentioned information including name, age, gender and address was recorded in a predesigned proforma. The operating surgeon was not being informed about inclusion of patient in the study to avoid selective bias. Exclusion criteria was strictly followed to control confounders and bias in the study results.

The data was analyzed with SPSS version 15. Frequency and percentages were computed for categorical variables such as gender while numerical variables such as age and operative time was presented with Mean \pm

standard deviation (SD). T test was used to compare the mean operative time between the two groups. $P \leq 0.05$ was considered significant. Stratification of age and gender were analysed and observed the outcome. T-test was also applied to compare mean operative time between groups. All results were presented in the form of tables and graphs.

RESULTS

Mean age was 39 year \pm 2.37SD 40 year \pm 3.12SD in Group A (Lichtenstein Hernia Repair) and Group B (Meloney Darn repair) respectively. Age distribution in Group A was; 14(10%) patients in age group of 21-30 years, 33(23%) patients were in age group of 31-40 years, 43(30%) patients were in age group of 41-50 years and there were 53(37%) patients in age group 51-60 years. While in group B, 11(8%) patients were in age group 21-30 years, 34(24%) patients were in age group 31-40 years, 46(32%) patients were in age group 41-50 years, 52(36%) patients were in age group 51-60 years. T Test was applied and p value was for age groups for both groups was 0.0025. Mean operative time in Group A was 35 minutes \pm 17.03SD While in Group B mean operative time was 50 minutes \pm 19.76SD. Mean operative time was significantly low in group A compared to group B with a $P=0.0001$.

Stratification of mean operative time with respect to age distribution was analyzed as mean operative time

Table 1: Stratification of mean operative time with regard to age distribution in group a (Lichtenstein Hernia Repair) and group B ((Meloney Darn Repair (n=286)

Age	Group A n=143 (mean and SD)	Group B n=143 (mean and SD)	P Value
21-30 years	32 min \pm 6.01	48 min \pm 10.83	0.0001
31-40 years	33 min \pm 6.22	49 min \pm 11.16	
41-50 years	36 min \pm 7.34	51 min \pm 11.93	
51-60 years	37 min \pm 7.88	53 min \pm 12.23	

Table 2: Stratification of mean operative time in group a (Lichtenstein Hernia Repair) and group B (Meloney Darn Repair) with regard to gender distribution (n=286)

Gender	Group A n=143 (mean and SD)	Group B n=143 (mean and SD)	P Value
Male	34 min \pm 6.59	49 min \pm 11.16	0.0001
Female	35 min \pm 7.12	51 min \pm 11.93	

in age 21-30 years was significantly low ; 32 min \pm 6.01 vs 48 min \pm 10.83 with $P=0.0001$, mean operative time in age 31-40 years was significantly low in group A as compare to group B; 33 min \pm 6.22 vs 49 min \pm 11.16 with $P=0.0001$, mean operative time in age 41-50 years was in group A as compare to group B; 36 min \pm 7.34 vs 51 min \pm 11.93 with significant p value = 0.0001}, mean operative time in age 51-60 years was significantly low in group A as compare to group B i.e. 37 min \pm 7.88 vs 53 min \pm 12.23; $P=0.0001$. The p value for all age groups of both groups was 0.0001. (Table 1)

Stratification of mean operative time with respect to gender distribution was analyzed as mean operative time in male was significantly low in group A as compare to group B {34 min \pm 6.59 vs 49 min \pm 11.16; $P=0.0001$ }, mean operative time in female was significantly low in group A as compare to group B {35 min \pm 7.12 vs 51 min \pm 11.93; $P=0.0001$ }. The p value for both Groups was significant and 0.0001. (Table 2)

DISCUSSION

An ideal inguinal hernia repair procedure is the one which effectively deal with all range of pathologies encountered in all types of inguinal hernias⁹. The various inguinal hernia repair techniques can be broadly classified into two methods i.e. tissue-based and prosthetic methods. The major drawback of the tissue based repairs is the amount of tension on posterior wall which is an important factor implicated in recurrence¹⁰. Though tissue based, the Darning technique is believed to have relatively tension free as the posterior wall is repaired without forcefully apposing the tissues and thus with less recurrence rate.¹¹

In our study, mean age was 39 year \pm 2.37SD 40 year \pm 3.12SD in Group A (Lichtenstein Herinai Repair) and Group B (Meloney Darn repair) respectively. The male to female ratio was 46.6:1 and 70.5:1 in group A and B respectively. In a study by Al-Saiegh AM et al¹² the male to female ratio is reported to be 51:1. Similarly different studies has reported the similar ratio conducted in Pakistan with male to female ratio of 49:1, 66:1 and 37:1 reported by Zafar¹³, Memon¹⁴ and Khan¹⁵ respectively. This shows that the occurrence of inguinal hernia has not been changed in Pakistan in the last few decades.

In our study, the mean operative time in Group A was significantly less as compared to group B with $P=0.0001$. This short operating time may be attributed to the fact that less time is required in fixation of mesh as compared to darning technique. Similarly Al-Saiegh AM et al¹² has shown that mean operative time was 44.7 minutes in group A with Lichtenstein repair and 50.9 minutes in group B with Darn repair and this difference in operating time was statistically significant between the groups ($p < 0.05$). Olasehinde O et al¹⁶ compared Lichtenstein and darning technique in 67 patients with uncomplicated, primary inguinal hernia and found that

Lichtenstein repair was superior to Darning technique in respect to post-operative pain, analgesic requirement, and shorter time of return to work activities and these were all statistically significant ($p < 0.05$). R Swaminathan et al⁶ in their study has reported that mean duration of surgery was Mesh repair was 50 minutes \pm 0.89SD and for Darn was 59 minutes \pm 0.92SD and this difference was highly significant ($P < 0.0001$). They concluded that mesh repair was superior in terms of operating time, hospital stay, post operative pain and return to daily routine work. On the other hand, Kaynak B et al⁹ compared the Moloney darn repair and Lichtenstein mesh hernioplasty in 651 patients from a total 732 and found that the mean operative time were shorter in group A of Darn repair i.e 36.8 \pm 5.3 and 37.3 \pm 6.7 respectively but this difference was insignificant with a p value of 0.298.

The results of our study are consistent with previously published trials of mesh repair technique, where most of the studies had concluded that mesh repair is the best. Now a days, the most commonly performed repairs are mesh repair and laparoscopic repair but keeping in view the economical status of our population, where income of the people is less and the fact that inguinal hernia affects the labour class, less cost on operation should be the priority with maximum efficacy. The fact that darn repair is more economical than Lichtenstein repair as it saves the cost of the mesh, further extensive studies should be conducted to establish the long term effectiveness and complications of Darn and Mesh repairs to know the best treatment option of hernia repair in our set up.

CONCLUSION

Our study concludes that Lichtenstein technique of mesh repair is more effective and had less operative time as compare to Darning technique in the treatment of inguinal hernia.

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