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## Retrospective Comparative Study Of Lichenstein's Mesh Repair Vs Modified Bassini's Repair With Lichenstein's Mesh Repair In Tertiary Care Institute – Sri Muthu Kumaran Medical College And Research Institute, Kancheepuram, Tamil Nadu, India.

Rajasekar Selvarajan\*.

Associate Professor, Department of General Surgery, Sri Muthukumaran Medical College Hospital and Research Institute, Chennai, Tamil Nadu, India.

### ABSTRACT

However, the Modified Bassini's Herniorrhaphy procedure, developed by Bassini, is credited as the father of modern hernia surgery, Lichenstein's Meshplasty (LMR), a tension-free mesh repair that has been around since 1984, is thought to be superior to earlier methods. American surgeon Irving Lichenstein provides an introduction. Despite the fact that the Shouldice treatment is referred to as the "gold standard" because of some practical issues, Lichtenstein's process is still preferred over Modified Bassini's Herniorrhaphy (MBR). However, new research indicates that MBR+ LMR is also commonly performed in addition to LMR. There have been discrepancies in the effectiveness of LMR vs MBR + LMR with regard to post-operative complications, length of operation, length of hospital stay, early return to work, and recurrence. Thus, the purpose of this study was to evaluate the same. A retrospective comparable Study between LMR & MBR + LMR, to evaluate ease of combined procedure, Post-op complications (early seroma, haematoma & late recurrence), early return to work & Recurrence rate between these two procedures. Retrospective Comparative Study was conducted in patients with direct & Indirect inguinal hernias who undergone surgery in General Surgery department, Sri Muthukumaran Medical College Hospital and Research Institute Chennai, Tamil Nadu India, during the period April-2021 to March- 2022. Totally sixty patients with inguinal hernias (both direct and indirect) were included in this study. Canceled Romanization of Group A (n=30) includes LMR cases and Group B (n=30) includes MBR+ LMR cases. This study shows that the age distribution of LMR and LMR+MBR groups were (Mean  $\pm$  SD) 49 $\pm$ 13.35 and 51 $\pm$ 13.7 respectively. The patient's undergone LMR procedure had experienced seroma 17%, Hematoma 6% post op infection 6%, Recurrence 3% where as in MBR+ LMR treatment group seroma 10%, Hematoma 3%, none had experienced recurrence and post-op infection. But inguinodynia, duration of the hospital stay & return to work found to be same in both the groups. Combined MBR + LMR procedure would be an advantageous technique over LMR procedure in terms of post-operative complications like Haematoma, seroma & recurrence, which could have be considered as major advantages of combined procedure.

**Keywords:** Modified Bassini's Herniorrhaphy (MBR), Lichenstein's Meshplasty (LMR), haematoma, seroma, Recurrence

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*\*Corresponding author*

## INTRODUCTION

Hernias are a common problem; however, their true incidence is unknown. It is estimated that 5% of the population will develop an abdominal wall hernia, but the prevalence may be even higher. About 75% of all hernias occur in the inguinal region [1]. Two-thirds of these are indirect and the remainders are direct inguinal hernias. Femoral hernias represent only 3% of all groin hernias. In this present study, a comparison between MBR + LMR and LMR, was conducted among the patients in our hospital, with an aim to evaluate the outcome of LMR (Tension-Free Hernioplasty) vs. LMR with MBR (Anatomical Repair) with reference to duration of surgery, post op complications, post-operative stay and recurrence rate for the two techniques.

In General Surgery Department, Hernia surgery is the one of the most commonly practicing procedure, worldwide with increased frequency of incidence with few good result techniques [2]. In the United States, nearly one million hernias are repaired annually, making hernia repair one of the most common operations performed by general surgeons. Despite the frequency of this procedure, no surgeon has had ideal results, and complications such as postoperative pain, nerve injury, and surgical site infection, recurrence remain. Hernia is a alternate word derived from the Latin term, for rupture [3]. A hernia is defined as an abnormal protrusion of an organ or tissue (content) through a defect or weakening in the surrounding wall. Although a hernia can occur at various sites of the body, most commonly involve the abdominal wall, particularly the inguinal region. Inguinal hernia repair was pioneered by Dr. Edoardo Bassini(1844 - 1924), an Italian surgeon, who has practiced Herniorraphy, a pure tissue repair., (1883) in which Conjoint tendon was approximated with inguinal ligament [4]. Later he has modified his initial technique and gave idea to Modified Bassini's Herniorraphy and was considered as Father of Modern Hernia Surgery. Even though Shouldice procedure is considered as Gold Standard, due to certain practical issues new tension free meshplasty namely Lichtenstein's procedure , was introduced by an American Surgeon namely, Irving Lichtenstein's in 1884, which is still now widely practiced. Lichtenstein Mesh repair-Inguinal skin crease incision made [5]. Layered incision made over fascia of Camper, fascia of Scarpa & External oblique aponeurosis ,cremasteric fascia & internal spermatic fascia opened. Sac was separated from cord structures and lateralised. Polypropylene mesh was placed to bridge the defect between conjoint tendon (above) and inguinal ligament (below) and anchored Lichtenstein Mesh Repair with Modified Bassini's Repair. Layered incision made up to dissection/ separation of sac & lateralization of the cord structures. Conjoint tendon was sutured to the inguinal ligament with polypropyrene interrupted sutures, followed by Lichtenstein's procedure [6,7].

## MATERIALS AND METHODS

A comparative retrospective Study was carried out for 12months duration from April 2021 to March 2022 in the Department of General Surgery, Sri Muthukumaran Medical College Hospital & Research Institute, Chennai. Purposive sampling method was considered for the study, the patient who has been admitted in the surgical ward of tertiary care institute after diagnosis on clinical background. Inclusion criteria there were 60 consecutive patients with Direct & indirect inguinal hernias, Age -20 to 70 years from those an informed consent was obtained in their native language after an explanation of nature of the study. The Exclusion criteria were recurrent hernias, complicated hernias (obstructed & strangulated), inflammatory hernia, Obstructed/ Strangulated hernia and Children with hernia. A concealed treatment allocation has been followed for two groups. After diagnosis on clinical background, followed by USG if needed & routine surgical evaluation both groups of patients were undergone procedure under SAB. After Classical skin crease incision (2 cm above & parallel to the medial 3/5 th of inguinal ligament), through layered Incision - fascia of Camper, fascia of Scarpa, External Oblique aponeurosis were opened inguinal canal entered. Cremaster opened, sac with cord structures identified and hooked near pubic tubercle. Cord structures identified, separated from the sac and safeguarded using cord clamps. Herniotomy done for indirect inguinal hernias & sac pushed in to the peritoneal cavity in direct inguinal hernias. Redundant sac excised in indirect type, along with or without trimming already opened cremaster fascicles. Haemostasis secured. In MBR + LMR group, Conjoint tendon approximated with inguinal ligament using 2-0 proline, (which made floor smooth for proline mesh fixation).Above which proline mesh kept and anchored with periosteum of pubic symphysis ( key stitch), inguinal ligament & conjoint tendon using 2-0 proline, interrupted sutures. In LMR group, after dissection ( herniotomy/ sac invagination), proline mesh kept over the defect , and anchored with periosteum of the public symphysis, inguinal ligament & Conjoint tendon using 2-0 proline. Layered closure done for rest in both groups of patients. Dressing applied with scrotal support.

In the post-op period, analgesics/anti-inflammatory medications given for first 72 hours to both groups. Post-operatively patients evaluated for inguinodynia, Haematoma, seroma, wound sepsis, return to work & Recurrence. Suture removal was done on 8<sup>th</sup> POD. Postop follow up done for 1 and half years through periodic physical examination or by telephonic conversation, when physical examination is missing. All patients were followed initially on monthly basis for first 3 months, then once in every two months for next 6 months and finally every 3 months for 9 months. Final outcome of our study were determined by the post-op pain relief, early return to work, seroma, haematoma & Recurrence.

**RESULTS**

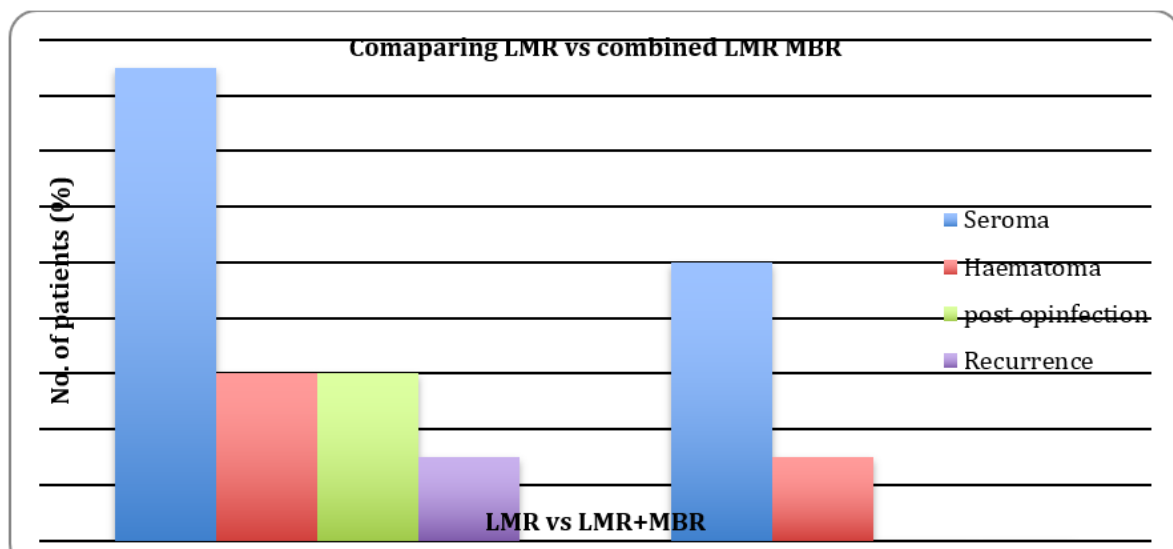
The characteristics of study groups and complications developed after surgery has been depicted in table 1.

**Table 1: Comparing LMR vs Combined LMR & MBR post operative complications**

Variable	LMR	LMR+MBR
Age (Mean, SD)	49,13.35	51,13.7
direct (indirect)	14(16)	19(11)
Duration		
Direct	35- 40 minutes	40-50 minutes
Indirect	45 -50 minutes	50-60 minutes
Seroma	5(17%)	3(10%)
Haematoma	2(6%)	1(3%)
post op infection	2(6%)	Nil
Inguinodynia	Nil	Nil
Recurrence	1(3%)	Nil
Rare complication	Nil	Nil

Comparison of post-op complications the pain score obtained by Visual Analogue Scale used to quantify the post-op pain and the mean of pain score was taken into account on the day of the surgery (0<sup>th</sup> POD) as well as 1 ,3,5& 7<sup>th</sup> post-op days and compared between two groups. The post-op pain experienced by both groups were found to be same, This study shows that the age distribution of LMR and LMR+MBR groups were (Mean ± SD) 49±13.35 and 51±13.7 respectively. The patient’s undergone LMR procedure had experienced seroma 17%, Hematoma 6% post op infection 6%, Recurrence 3% where as in MBR+ LMR treatment group seroma 10%, Hematoma 3%, none had experienced recurrence and post-op infection. But inguinodynia, duration of the hospital stay & return to work found to be same in both the groups. Besides 2 were developed surgical site infection on 5<sup>th</sup> Post op day in LMR procedure, and none were infected in MBR + LMR.

**Figure 1: Proportion of complications LMR vs LMR+MBR**



## DISCUSSION

For hernia, many surgical procedures have been described. Because of the recurrence of hernia, there is no standard treatment for hernia till now. In review of literature, there were recurrences even with the use of mesh. The recurrence rate for inguinal hernias after doing primary repair is about 0.5% - 10% [8]. There are many publications claiming that mesh repair is the best procedure, but non-mesh repair still continues and we are in search of best surgical technique. In present era the indication for Bassini's repair is the conditions where mesh is contraindicated like infection [9]. In our study, we have selected direct inguinal hernias because abdomen muscle is lax and have poor abdominal muscle tone. As people, grow old, the tone of the abdominal muscle becomes lax and weak, which is a major contributing factor for the recurrence. For this reason, a proper strengthening of posterior wall of the inguinal canal is almost importance, especially in big direct hernias. This is the first study, where we compared MBR+LMR v/s LMR. In this study, we made an attempt to give highest possible strength by combining modified bassini's+lichtenstein mesh repair [10]. Generally direct hernia defects in old age are large and in open method, it is not easy to cover the large defect with mesh. So this method was used to cover the defect by modified Bassini's repair and reinforced by lichtenstein mesh repair. Mesh will give additional protection to abdominal muscle [11]. In our study all surgeries were performed by a single surgeon, so that there would not be any difference in the outcome of study. Recurrence rate is considered to be the essential factor in assessing the efficacy of the surgical procedure in hernia repair. The recurrence rate for bassini repair is around 10-40. So, many modifications are done to Bassini's procedure; popular among them are Shouldice repair and cooper's ligament repair [12]. The recurrence rate for repair is about 1-7% In Lichtenstein mesh repair, the recurrence rate is around 0.5-4% [13]. The idea of deciding the best surgical technique for hernia repair using the recurrence rate as a factor is controversial. There are many variations in the incidence of complications, mainly due to age, gender, co-morbid illness, experience of a surgeon, duration of surgery, method of repair, and mode of anaesthesia. So, the choice of surgery should be based on the above factors [14]. Compared with other studies our study shown no recurrence and less postoperative complications [15].

## CONCLUSION

In our study MBR + LMR Vs LMR only, the first one found to be, superior in both direct & indirect hernias, even with large defect, because of low post-op complications rate, Recurrence rate. Even In large posterior wall defect or indirect hernias MBR + LMR helps in approximating the posterior wall & made floor smooth which favours easy mesh fixation without any hindrance, thereby preventing seroma, Haematoma & secondary wound sepsis & also reinforcing with the mesh which prevents Recurrence. These studies we made an attempts to provide better procedure for direct & indirect inguinal hernias repair.

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