



OUTCOME OF OPEN PRE PERITONEAL MESH REPAIR AND LICHTENSTEIN'S S MESH REPAIR

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ABSTRACT Groin hernias are the most common conditions referred to surgeons all over the World. This is a prospective study done in Osmania General Hospital from 2015 October to September 2016. The aim of the present study was to compare the open pre peritoneal mesh repair to Lichtenstein procedure, in patients with unilateral inguinal hernia with respect to operative time, duration of hospital stay, as well as incidence of wound complications, chronic groin pain and hernia recurrence post-operatively. Patients in open pre peritoneal repair group had less incidence of wound infection, wound seroma collection and chronic groin pain. Though the average operating time was slightly more, the duration of hospital stay was same in both groups. On 12 months follow-up both groins did not have any recurrence. Therefore the open pre peritoneal technique offers a better outcome when compared to Lichtenstein's technique for open repair of unilateral inguinal hernias.

KEYWORDS : Inguinal hernia, Pre peritoneal mesh repair, Lichtensteins mesh repair, Groin pain.

INTRODUCTION

The word hernia is derived from the Greek word 'Hernias' meaning a bud or an off shoot. Hernia is defined as an abnormal protrusion of a viscous or part of a viscous through a normal or an abnormal opening in the walls of its containing cavity [1]. No disease of human body, belonging to the province of the surgeon, requires in its treatment a better combination of accurate, anatomical knowledge with surgical skill than Hernia in all its varieties [2].

Sir Astley Paston Cooper's statement in 1804 still reverberates in the minds of surgeons. Groin hernias are the most common conditions referred to surgeons all over the world and over five lakh hernia repairs are performed annually [3]. The lifetime risk for men is 27% and for women is 3 percent [4]. Since Bassini published his landmark paper on the technique of tissue repair [5] in 1887, numerous modifications have been proposed. There has been a revolution in surgical procedures for groin hernia repairs after the introduction of prosthetic material by Usher [6] in 1958. Open Pre-peritoneal mesh repair by Stoppa [7] was found to significantly reduce recurrence rate for multi-recurrent groin hernias. However, it was associated with significant postoperative pain and morbidity. The concept of Tension Free Open Mesh Repair was first described by Lichtenstein in 1989 [8]. In today's scenario, the Lichtenstein technique has achieved marquee status as the procedure of choice for open repairs. It is a tensionless repair, easy to learn and perform, with very low recurrence rates [9]. However, patients undergoing hernioplasty by Lichtenstein procedure can have wound complaints and chronic groin pain which is often underreported [10]. These problems can be avoided by placing the mesh in the pre peritoneal plane by the open pre peritoneal mesh repair. Preperitoneal repairs are usually performed by the laparoscopic approach but are generally restricted to bilateral and recurrent hernias. In addition, the laparoscopic approach is hampered by a long learning curve [11], increased cost and higher recurrence and complication rates. Open pre peritoneal mesh repair avoids all these problems while retaining the benefits of pre peritoneal mesh placement.

The aim of the present study was to compare the open pre peritoneal mesh repair to Lichtenstein procedure, in patients with unilateral inguinal hernia with respect to operative time, duration of hospital stay, as well as incidence of wound complications, chronic groin pain and hernia recurrence post-operatively.

MATERIAL AND METHODS

It is a prospective study done in Department of General Surgery, Osmania General Hospital Hyderabad, from October 2015 to September 2016. About 30 patients (15 patients in each group) all males were included.

INCLUSION CRITERIA

1. Subjects having uncomplicated unilateral inguinal hernias.
2. Age of patients between 20 years and 75 years will be included.

EXCLUSION CRITERIA

1. Cases of complicated inguinal hernias (irreducibility, obstruction, inflammation and strangulation).
2. Patients below the age of 20 years and above 75 years.
3. Cases of recurrent inguinal hernias.
4. Cases of bilateral hernias.
5. Medically unfit for surgery.

METHODS:

All the patients were admitted after investigations and Pre Anesthetic Checkup and a detailed history and clinical examination was carried out as per written proforma. Preoperatively the patients were allotted alternatively into Open pre peritoneal mesh repair and Lichtenstein's mesh repair for inguinal hernia, and will be educated about the advantages, disadvantages, type of anesthesia for each of the procedure.

Both the groups were operated under spinal anesthesia. Lichtenstein repair was done according to established techniques as per standard protocols and precautions. In case of Open pre peritoneal mesh repair, patients were catheterized pre-operatively, to prevent any injury to the bladder and aid in pre peritoneal dissection. The catheter was removed after 48 hours post-operatively. Incision of Open pre peritoneal mesh repair is same as that of Lichtenstein technique [12]. After dissection of the sac, the transversalis fascia is incised to enter the pre peritoneal space. The pre peritoneal space is developed by dissection with index finger. The space extends from rectus muscle medially, arcuate line cranially, a little beyond the anterior superior iliac spine over the psoas muscle laterally and the iliopubic tract caudally. A 15 cm x 15 cm polypropylene mesh, cut into dimension 15 cm x 12 cm, the inferior medial angle of the mesh is trimmed in a semicircular fashion to prevent trauma to the bladder neck. The mesh is placed in the pre peritoneal space and anchored to the Cooper's ligament with a single 2-0 interrupted prolene suture.

Various intra operative (operation time and injury to cord structures) and postoperative (wound infection, seroma collection, chronic groin pain, recurrence) parameters are noted in proforma. Patients are followed to note complications.

All subjects included in the study were followed up in OPD, at the interval of one month, six months and twelve months for chronic groin pain and recurrence.

All the data were collected and tabulated. Statistical analysis in terms of mean, standard deviation and P value were calculated for both the groups.

OBSERVATIONS AND RESULTS

This study includes 15 patients who underwent open pre peritoneal mesh repair and 15 patients who underwent Lichtenstein's mesh repair in Osmania General Hospital, Hyderabad during October 2016 to September 2017.

Out of 15 cases in each group maximum cases were seen in the age group 41-60 in both the groups. 11(73.33%) out of 15 cases in open pre peritoneal mesh repair and 10(66.66%) out of 15 cases in Lichtenstein's mesh repair group were seen in the age group 41-60. Indirect inguinal hernia is the most common hernia operated in both the groups. 11(73.33%) cases out of 15 in open pre peritoneal mesh repair group and 10(66.66%) cases out of 15 in Lichtenstein's mesh repair group were indirect inguinal hernia. Out of 15 cases which underwent open pre peritoneal mesh repair injury to cord structures was seen in 0 cases. Out of 15 cases which underwent Lichtenstein's mesh repair injury to cord structures was seen in 0 cases Out of 15 cases which underwent open pre peritoneal mesh repair average operative time was 90.53 minutes. Out of 15 cases which underwent Lichtenstein's mesh repair average operative time was 73.93 minutes. Out of 15 cases which underwent open pre peritoneal mesh repair wound infection was seen in 0 cases. Out of 15 cases which underwent Lichtenstein's mesh repair wound infection was seen in 1 (6.67%) case. Out of 15 cases which underwent open pre peritoneal mesh repair seroma collection was seen in 1 (6.67%) case. Out of 15 cases which underwent Lichtenstein's mesh repair seroma collection was seen in 2 (13.33%) cases. Out of 15 cases which underwent open pre peritoneal mesh repair chronic groin pain was seen in 0 cases.

Out of 15 cases which underwent Lichtenstein's mesh repair chronic groin pain was seen in 3 (20%) cases at 1 month, 2 (13.33%) cases at 6 months and in 0 cases at 12 months. Recurrence was not seen both groups.

DISCUSSION

This prospective clinical study was conducted at General surgery department, Osmania General Hospital to compare the outcome between open pre peritoneal mesh repair and Lichtenstein's mesh repair in inguinal hernia. 15 cases from each group were studied for a period of one year. In Rubik Ray et al 53 maximum cases (66.2%) were in the age group 41-60 years. which was similar to the present study (70%). In Rubik Ray et al maximum cases operated were indirect inguinal hernia (73.2%) as Similar to present study (70%). In the present there was no injury to cord structures occurred in both the study groups. In Rubik ray et al injury to cord structures has been occurred in 1 case of open pre peritoneal mesh repair group. No injury to cord structures has been occurred in Lichtenstein group. In Rubik Ray et al 53 the duration of operation was more in the open pre peritoneal mesh repair group and this was statistically significant. ($p < .006$). The mean duration of operative time was 49.5 minutes in open pre peritoneal mesh repair group while the mean duration of operative time was 37.9 minutes in Lichtenstein's mesh repair group. In the present study the mean duration of operative time was 90.53 minutes in open pre peritoneal mesh repair group while the mean duration of operative time was 73.93 minutes in Lichtenstein's mesh repair group. The p-value was <0.001 which was statistically significant as similar to other study. In Berrevoet et al [13] study, in total, 142 patients have been analyzed with the TIPP technique (group I) versus 136 patients operated in the previous 2 years with a 44Lichtenstein repair (group II).The mean operative time for a TIPP procedure was statistically shorter than for a Lichtenstein repair, 33 versus 44 min, respectively ($p = 0.04$). In Koning GG et al[10]study a total of 496 patients were included in this study; 225 TIPP and 271 Lichtenstein anterior inguinal hernia operations were analyzed. In TIPP group 10 patients (4.4%) experienced chronic pain. Persisting sensation loss occurred in 0.9%. 11 Lichtenstein patients (4.1%) experienced chronic pain. Persisting sensation loss occurred in 2.2%. In Berrevoet et al [13] study, in total, 142 patients have been analyzed with the TIPP technique (group I) versus 136 patients operated in the previous 2 years with a Lichtenstein

repair (group II).After 24 h, 1 week and 1 month post-surgery, there was significantly less post-operative pain observed in the TIPP group than in the Lichtenstein group.

At the end of 12 months of follow up, recurrence is seen in neither of the groups. In Rubik Ray et al there was no recurrence in either groups after follow for 12

Months. In Berrevoet et al [13] study, in total, 142 patients have been analyzed with the TIPP technique (group I) versus 136 patients operated in the previous 2 years with a Lichtenstein repair (group II). In total, four recurrences were observed in the TIPP group (2.8%), of which one laterally and three medially. In group II, seven recurrences were observed in total (5.1%), of which five were detected within 2 years of follow-up (3.7%).

CONCLUSIONS

This prospective clinical study was conducted at General surgery department, Osmania General Hospital, over a period of One year. This study is done to compare the outcome between open pre peritoneal mesh repair and Lichtenstein's mesh repair in inguinal hernia. 15 cases were alternatively allotted in both groups. Preoperatively patients were investigated and operated and various factors were recorded. All patients were males in this study. Overall there were 11 indirect hernias, 4 direct hernias in open pre peritoneal group and 10 indirect hernias, 4 direct hernias and 1 pantaloon hernia in Lichtenstein's group. In both groups injury to cord structures was not seen. The mean operative time was 90.53 minutes in open pre peritoneal group and 73.93 minutes in Lichtenstein's group respectively. Which was statistically significant (p -value <0.001). The average hospital stay was 7.2 days in open pre peritoneal group and 7.4 days in Lichtenstein's group respectively which was not statistically significant.

Wound infection (purulent discharge) was seen 1 (6.67%) case of Lichtenstein's group. This was treated conservatively by antibiotics and regular dressings. Wound seroma collection was seen in 1 (6.67%) case of open pre peritoneal group and 2 (13.33%) cases in Lichtenstein's group. Chronic groin pain was seen in Lichtenstein's group. At the end of 1 month, 6 months, 12 months chronic groin was seen in 3 (20%) cases, 2(13.33%) cases and 0 cases respectively. In neither groups recurrence was seen after follow up for 12 months. Limitations of this study include a smaller sample size as well as incomplete follow-up on long term.

This study shows that open pre peritoneal repair provides significant advantages over the Lichtenstein technique in repair of unilateral inguinal hernias.

Patients in open pre peritoneal repair group had less incidence of wound infection, wound seroma collection and chronic groin pain. Though the average operating time was slightly more, the duration of hospital stay was same in both groups. On 12 months follow-up both groups did not have any recurrence. Therefore the open pre peritoneal technique offers a better outcome when compared to Lichtenstein's technique for open repair of unilateral inguinal hernias.

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