REVIEW ARTICLE

MANAGEMENT OF INGUINAL HERNIA - A COMPARISON OF LAPAROSCOPIC MESH REPAIR WITH OPEN METHOD

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ABSTRACT

Inguinal hernia was repaired laparoscopically soon after the establishment of laparoscopic cholecystectomy. Inguinal hernia repair using mesh is one of the most frequently performed operations in general surgery. The mesh can be placed using an open technique or by laparoscopic approach. A large number of studies have tinted the qualities and risks of laparoscopic approach for the repair of inguinal hernia, the last verdict still leftover to be written because preponderance of trials are too petite to show clear benefits of one technique over the other. Unlike laparoscopic cholecystectomy, which was very rapidly established by the surgical community, laparoscopic hernia repair has remained a controversial subject since its beginning. The early laparoscopic techniques of plugging the internal ring with mesh or simply closing the ring with staples were surgically unsafe and swiftly discarded when early trends showed a high recurrence rate. The intention of this review was to compare laparoscopic mesh techniques with open technique for inguinal hernia repair.

KEY WORDS: Inguinal hernia; Laparoscopy; Herniorrhaphy.

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INTRODUCTION

Inguinal hernia repair is one of the most widespread procedures in general surgery.[1] An inguinal hernia occurs when a fatty intra-body substance, or the small intestines, protrudes all the way through a weaken part of muscle creating a considerable protuberance which can grow up if left untreated. Inguinal hernias grounds embarrassment or a sharp pain sensation of weakness or pressure in the groin or a burning, aching feeling at the bulge.[2] There are several methods of acquiring an inguinal hernia or worsening a current hernia, which are unforeseen twist, pulls, or muscle strains, lifting heavy objects, straining on the toilet because of constipation, weight gain, or chronic coughing.[3] The procedure involved in repairing an inguinal hernia is quite safe and complications are uncommon, but understanding about the possible risks helps patients report postoperative symptoms. Complications including cellulitis, chronic pain due to nerve damage, recurrence, or damage to the testicles or other male organs may occurs.[3] The methods concerning the surgical repair of inguinal hernias are evaluated concerning time to complete revival, recurrence rate, and complications. It is hypothesized that the laparoscopic inguinal hernia repair technique results in both shorter time to full recovery and shorter time to return to work at the price of substantially increased costs.[3] The early laparoscopic techniques of plugging the internal ring with mesh or simply closing the ring with staples were surgically in poor condition and were quickly discarded when early trends showed a high recurrence rate. The later technique of reinforcing the inguinal floor with a mesh placed preperitoneally was based

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on the open procedure introduced by Stoppa et al.[4] This laparoscopic method of tension-free mesh repair appeared to be gaining in reputation in the early 1990s among the enthusiasts. Early uncontrolled studies claimed that laparoscopic repair was superior to the conventional open repairs regarding postoperative pain, resumption of normal activities, and return to work. In 1987, Lichtenstein et al[5] coined the term "Tension-Free Hernioplasty" and broke the convention by advocating routine use of mesh for hernia repair, thereby making tissue repair a thing of the past. Genuine debate started in 1990, when laparoscopic Tension-Free repair came into trend and was characteristically advocated and uncompromisingly marketed by promising less pain and shorter recovery period, but the things in the small prints were completely ignored.[6] The most scientific way to come to end over dominance of one method over other is on the foundation of evidence-based medicine. The best evidences are in the form of randomized controlled trials or meta-analysis. Laparoscopic mesh repair cannot be compared with open tissue repair. Rather laparoscopic mesh repair and open mesh repairs can be compared. Few of the initial trials (Liem et al[7], Stoker et al[8], and Grant[9]) compared laparoscopic mesh repair with open tissue repair and came to conclusions, which are not convincing. The intention of this review was to compare laparoscopic mesh techniques with open technique for inguinal hernia repair.

DISCUSSION

For this review article a database search for randomized controlled trials was conducted using Embase, Medline, and The Cochrane Central Controlled Trials Registry. We have analyzed the accessible data and randomized controlled trials comparing laparoscopic mesh repair versus open mesh repair of inguinal hernia. We had not analyzed those trials, which compared lap mesh repair and open tissue repair, because there would be inherent superiority of lap mesh repair in the form of low recurrence rate by virtue of placement of mesh. Accessible literature was analyzed with regards to: recurrence rate, complications, operating time, cost effectiveness, post-operative pain and return to work and activity. Hernias can cause discomfort or pain, and may even lead to death if the hernia is strangulated. There are currently two commonly practiced methods of inguinal hernia repair: Laparoscopic and Open. Laparoscopic inguinal hernia repair is the newest technique, during which four smaller incisions are made and a small lighted-camera called the laparoscope is positioned inside the body to illuminate the surgery site for the surgeon. Only one larger incision is made during an open inguinal hernia repair and the hernia is repaired by hand.[9,10] A synthetic mesh-like material is used for both methods, and the goal of this research is to establish which method is more effective. In an extensive review by Cochrane group in conjunction with European Hernia trials group, found serious vascular and visceral injuries more often in laparoscopic group. A higher rate of postoperative urinary retention was found in the TEP group (6.3%) than in the open group (1.7%). This complication was successfully managed by urinary catheterization during the night in a randomized controlled trial by Vidovic et al.[11] In a meta-analysis by Schmidt et al[12] in 2005 involving 34 trials the incidence of urinary bladder injuries in laparoscopic repairs was significantly higher at 0.1% versus zero after open mesh repairs. Also, the overall incidence of vascular injury during laparoscopic repairs was 0.09% as against no reported cases during open operations.

Recurrence rates in various series were different. Vale L and Grant A trial 4 or VA trial 4 concluded in 2004 involving 2164 patients in 14 centers in USA measured recurrence of hernia at two years as the primary outcome. Recurrence was found to be 10.1% in the laparoscopic group and 4.1% for open group in the repair of primary inguinal hernias, but rates of recurrence were similar in two groups after repair of recurrent hernias (10% and 14.1% respectively).[13] MRC Laparoscopic Hernia Trial group found 1.9% recurrence rate in laparoscopic group and zero percent recurrence rates in open group at one year. This study involved 928 patients with inguinal hernias from 26 hospitals in UK and Ireland.[14] Memon et al found a trend towards an increase in the relative odds of short-term recurrence of 50% after laparoscopic repair compared with open repair.[15] Champault et al found recurrence rate of 6% in laparoscopic group versus 3% in open group in a series of 100 patients in a randomized trial.[16] In a technology appraisal guidance 83 published by National Institute for Clinical Excellence, UK in 2004, showed recurrence rate of 2.3% after TEP repair and 1.3% after open repairs.[17]

Lawrence et al[18] conducted a study which there were 125 men randomized to either open or laparoscopic repair of their inguinal hernias. Two specific questions concerning the study; what percentage difference is there between the complication rates of laparoscopic and open hernia repair and what is the average cost difference between the laparoscopic technique and the open technique? The results stated that there were greater complications in the laparoscopic technique, one vascular complication in

the open technique group and seven complications in the laparoscopic technique group (difference of 10% in complication rate). The amount of pain and quality of life after the procedure in short term analysis showed that there was a considerable advantage to the group who underwent laparoscopic hernia repair. The average costs were higher, however, in the laparoscopic group ($ 965 to $ 1673) compared to average cost of the open hernia repair group ($ 380 to $ 453). Because of the substantial difference in complication rates and average cost, the laparoscopic technique's outcome effectiveness should be taken into account before proceeding with this method of inguinal hernia repair.[18]

Tanphiphat et al[19] conducted a randomized organized experiment during which 120 qualified patrons were selected for an inguinal hernia repair at a local university hospital. The patients were indiscriminately placed in one of the two groups, 60 experienced the laparoscopic repair while the other 60 experienced the open technique. During the procedure there was an increased operative time for laparoscopic hernia repair, (95 minutes compared to the 67 minutes). Accomplishing gentle tasks for the patients of laparoscopic repair without tenderness or soreness was considerably earlier, average of 8 (5-14) days versus 14 (8-19) days for patients who underwent open technique.

Majority of patients are able to perform normal activities at one week whether after open or laparoscopic surgery. Data regarding time to return to activity are rather subjective. Type of employment or profession, to which patient is returning will influence how long he needs to be away from work. Patient who is doing desk job in office will return to work earlier than a patient with a job that entails heavy lifting. Some patients will be getting paid sick leave, so they will have less incentive to go back to work early.[19] Time to return to daily activities was found to be one day shorter for laparoscopic group than those undergoing open repair of hernia in a VA hernia trial group, but the time to resumption of sexual activity was similar in the two groups. However at three months of follow up, there was no difference in the activity level between the laparoscopic and open group.[20-25] Lawrence et al[18] did not find any significant difference in return to normal activities in two groups.

CONCLUSION

It is a fact that inguinal hernia repair using whichever the laparoscope technique or the open technique is still a contentious insight in the general surgery. We can presume by studying literature that using the laparoscope technique for an inguinal hernia repair can consequence in a faster recovery time with less postoperative embarrassment at the cost of a higher expenses and risk of more complications and recurrent hernias.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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