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Prospective Study of Open Preperitoneal Mesh Hernioplasty: An Early Experience of 25 Consecutive Cases with Good Short-Term Outcome

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Abstract

Background: **Groin hernia still remains a significant clinical problem. However, current data do not support the recommendation of any available procedures as a gold standard. This study was designed to evaluate the outcome and benefit of open preperitoneal mesh repair.**

Objective: **To evaluate the open preperitoneal mesh repair technique regarding complications, recurrences, safety and benefit.**

Patients and Methods: **Between March 2005 and July 2006, a prospective study of 25 consecutive patients operated for groin hernia using an open preperitoneal mesh technique by a single surgeon was performed. The outcome variables being analyzed included operative time, time to return to normal activity, pain level, complications and recurrence rate.**

Results: **A good short-term outcome was found in this study. Wound infection occurred in only 1 patient. No seroma or recurrence was observed. Moreover, pain and hospital stay were not different from those obtained by other repair techniques.**

Conclusions: **Open preperitoneal mesh repair is a safe procedure and gives a good result similar to those of the commonly used anterior approaches. It is easier to learn than laparoscopic repair and should be the procedure of choice for difficult inguinal hernias.**

INTRODUCTION

Inguinal hernia remains a significant clinical problem despite advances in surgical technique. Recurrence rate of 16%-18% following a variety of repair techniques and re-recurrence rates of over 30% have been reported.[1-4]

Increasing use of prosthetic mesh has improved the recurrence rate.[5,6] However, the anterior approach still has the disadvantages with the risk of damages to the testicular blood supply and sensory nerves especially in the reoperative cases.[7]

The Stoppa operation was developed by placing a large piece of prosthetic mesh in the preperitoneal space.[8] Wantz adapted this operation for the repair of unilateral hernia but this method is not popular among general surgeons.[9]

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The aim of this study was to evaluate the outcome of our early experience of open preperitoneal mesh hernioplasty in 25 patients.

Patients and Methods

Between March 2005 and July 2006, 25 male patients (mean age 46.6 years) with no significant co-morbidity, underwent a unilateral hernia repair. Among 25 patients, 5 patients had a large hernial defect over 5 cm in diameter, 3 patients had recurrent hernias after an anterior repair, 3 patients had combined direct and indirect inguinal hernias, 1 patient had isolated direct inguinal hernia and 2 patients had incarcerated hernias.

Most patients emptied their bladders immediately before operation and thus urinary catheterization was not routinely performed. Four patients were operated under general anesthesia, 21 under spinal anesthesia. Prophylactic antibiotics were given intravenously in all patients. The repair technique was modified from Nyhus[10] and Wantz[11], using a transverse incision just below the level of the iliac crest. Mersilene mesh with size varies from 10×12 to 10×15 cm was shaped to fit properly in each patient. The mesh was attached inferiorly at the pubic symphysis and the superior pubic ramus just medial to the femoral vein with non-absorbable 2/0 polypropylene sutures. The upper portion of the mesh which extended above the incision was picked up with 2 or 3 bites. No vacuum drain was used in these patients. Patients were discharged few days after operation and were followed for at least 6 months in the out-patient department.

Results

There were no major difficulties during the operation. Patients were hospitalized for 1-2 days following the procedure. Mean operative time was 78 (range 50-110) minutes. The most that patients experienced was only mild pain which was evaluated by visual analoque score.

One patient developed urinary retention following spinal anesthesia. No seroma or recurrence was observed in this study. Only one patient had superficial surgical site infection detected 72 hours after operation and was successfully treated conservatively with antibiotics.

Discussion

This prospective study of 25 patients demonstrates good early results and the effectiveness of open preperitoneal mesh repair for inguinal hernia. The low incidence of recurrence, low complication rate and high level of patient satisfaction are in accord with other studies of open preperitoneal repair.[8,9,12-18]

Recurrence after mesh hernia repair is related to technical factors such as inadequate dissection, insufficient prosthesis size and fixation, and surgeon inexperience.[18,19] Prolene mesh was found to be positioned easier than the more flexible Mersilene.[20] The method of mesh attachment was similar to that used by Rives, et al.[21]

The preperitoneal approach for recurrent inguinal hernia which avoids reoperation through distorted anatomy and scar tissue, markedly reduces the risk of damage to the testicular vessels and permits inspection of all potential groin hernia sites. Through an open incision, the dissection is rapid; structures are easily and widely visible. Its benefits have long been proclaimed.[22,23] The operative procedure was done with ease in 3 patients in our series. Although access is excellent via this route, the results of recurrent hernia repair remained poor unless prosthetic mesh was added to the repair.[10,24] Stoppa, et al.[8,25] placed a large sheet of mesh, via a midline incision, in the preperitoneal plane without closing the defect or fixing the mesh. Wantz[11] described a unilateral version of the procedure through a high transverse incision. Even with complex or multirecurrent hernias, this method gave impressive results.

Despite these clear benefits and excellent results, open preperitoneal mesh repair has not been widely adopted, in part because of the unfamiliarity with this approach. In a recent survey of groin hernia repair, 85% of repairs for recurrent inguinal hernia were open anterior procedures and only 15% were preperitoneal approaches (9% laparoscopic and 6% open preperitoneal).[26]

The advent of therapeutic laparoscopic surgery provides a means of entering the preperitoneal space without an open incision. The technique was adopted with widespread enthusiasm, followed by alarming reports of vessel and viscus injury, nerve damage and high recurrence rates when inadequate pieces of mesh were used by inexperienced surgeons.[27-29]

It was clear that there was a considerable learning curve for laparoscopic repair, estimated by some to be at least 50 repairs.[30,31] The UK Medical Research Council study concluded that laparoscopic hernia repair had a lengthy learning curve and should be performed only by individuals who have considerable experience with the technique.[32] The EU Hernia Trial[33] found that the potential for rare but serious complications does not justify the use of laparoscopic repair for uncomplicated unilateral primary hernias although it is now being advocated for bilateral and recurrent hernias.

Two randomized trials have compared laparoscopic with open preperitoneal mesh repair of hernias and found no significant difference in short-term recurrence rates.[29,34] Beets, et al.[35] compared laparoscopic repair with open preperitoneal mesh repair for recurrent hernia; re-recurrence rates were 12% and 2% respectively, and it was also confirmed that open preperitoneal repair is an easier procedure with a shorter learning curve. Furthermore the laparoscopic approach cannot be used in patients with incarcerated, large inguinoscrotal hernias or in patients unfit for general anaesthesia.[34]

In this study, postoperative pain was minimal, only oral analgesia was required and rapid mobility was permitted so that patients could be discharged within 1-2 days after operation. Three comparative studies found more postoperative discomfort and a longer recovery time with the open operation,[29,34,35] although all used a lower midline incision. The present experience accords with that of Rignault,[12] who concluded that a Pfannenstiel incision causes the least discomfort as well as lowest risk of incisional hernia. In two studies[16,17] patients were routinely catheterized, but not in this series.

In conclusion, the open preperitoneal mesh repair for inguinal hernia is highly effective in achieving a low recurrence rate. It is easier to learn and safer than laparoscopic repair, and should be the procedure of choice for all groin hernias.

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