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A SIMPLE MESH FIXATION TECHNIQUE FOR LAPAROSCOPIC GROIN HERNIA REPAIR

General Surgery

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ABSTRACT

BACKGROUND: Laparoscopic approach has become a procedure of choice for most of the groin hernia repairs. It has got a steep learning curve in view of few difficult steps involved in the operation. We developed a simple technique to fix the mesh using a single polyglactin stitch. This technique is cost effective and easy to learn.

METHODS: After creating the preperitoneal space in laparoscopic groin hernia repair, a polypropylene mesh with a polyglactin stitch in the center is placed in the space. The suture thread is pulled out using a suture passer inserted through inguinal region. This helps in spread of the mesh in preperitoneal space and also holds the mesh without migration. A knot is placed in the suture and pushed into the subcutaneous tissue.

RESULTS: A series of 66 patients with groin hernia underwent laparoscopic hernia repair using this new mesh fixation technique over a period of 24 months. There was no peroperative complication or early postoperative infection. None of the patients had chronic inguinodynia or hernia recurrence.

CONCLUSION: The new mesh fixation technique is easy to perform and also cost effective. It will also improve the steep learning curve of laparoscopic hernia repair.

KEYWORDS

Mesh, Fixation, Hernia, Laparoscopy

INTRODUCTION:

Laparoscopic Hernia repair is widely used nowadays for groin hernia and it is mainly considered as gold standard for recurrent and bilateral inguinal hernias. It has got a steep learning curve. One of the difficult part of the operation is mesh fixation in the preperitoneal space. There are various techniques described in fixing the mesh in preperitoneal space. Suture fixation, synthetic tackers and glue fixation are the methods used for fixing the mesh.[1] Suturing is technically difficult and other methods are not cost effective. We have developed a technique of mesh fixation which is easier and cost effective compared to other techniques.

MATERIALS AND METHODS:

In Laparoscopic groin hernia repair, after creating the preperitoneal space, adequate size polypropylene mesh is taken. A polyglactin stitch is sutured at the middle of the mesh and one limb of suture material is left long (Fig. 1). Mesh is introduced into the preperitoneal space through the 10mm umbilical port. A suture passer is passed just above and lateral to deep ring through a stab incision and the thread attached to mesh is pulled out through the abdominal wall (Fig. 2). The polyglactin stitch lifts the mesh towards the anterior abdominal wall and aids in spreading of the mesh. After spreading the mesh, a knot is placed in the thread at the skin level and pushed into subcutaneous tissue through the nick created by suture passer. (Fig. 3) Apart from fixing the mesh, this assists in spreading of mesh in preperitoneal space. This helps in preventing mesh migration postoperatively. This technique is cost effective and easy to learn.

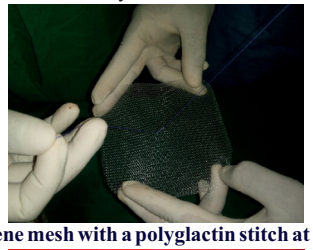

Fig.1 Polypropylene mesh with a polyglactin stitch at the centre

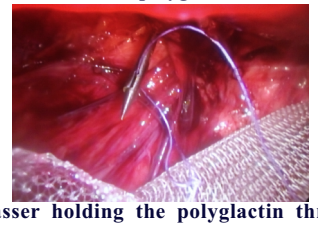

Fig.2 Suture passer holding the polyglactin thread in the preperitoneal space

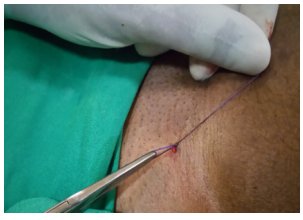

Fig.3 Knot placed in the polyglactin thread at the skin level and pushed into subcutaneous tissue

RESULTS:

A series of 66 patients with groin hernia underwent laparoscopic hernia repair using this new mesh fixation technique over a period of 24 months. There were 64 male patients and 2 female patients. Age ranged from 20 to 70 years with a mean of 42 years. 6 patients had bilateral hernia, 17 patients had direct inguinal hernia and 5 had recurrent inguinal hernia after open repair. Duration of surgery ranged from 57 minutes to 132 minutes with a mean of 76minutes. Follow up period ranged from 3 to 27 months. There was no peroperative complication or early postoperative infection. None of the patients had chronic inguinodynia or hernia recurrence.

Discussion:

Laparoscopic hernia repair has got a steep learning curve. This is due to difficulty in various steps of the operation. They are preperitoneal space creation, sac dissection, spreading of mesh and mesh fixation.There are different types of mesh fixation techniques currently followed. The cost effective method is laparoscopic suturing of mesh to Cooper's ligament. But the laparoscopic suturing has got a steep learning curve. In totally extraperitoneal (TEP) repair, the ports are placed in the midline which makes suturing in the restricted preperitoneal space very difficult. The other easy methods are fixing the mesh with synthetic tackers and glue fixation methods. But these methods are not cost effective. [2] Cyanoacrylate glue can cause allergic reactions in some patients. The new method described above is easy to learn and also cost effective.

Suturing and application of tackers can lead to increased pain posoperatively and also can be a cause for chronic inguinodynia. [2] In our series of 66 patients over 24 months, Chronic pain was not noted in any patient done with this technique. Chronic groin pain is not expected in this new technique since the stitch doesnot go around any nerve. Also the polyglactin stitch doesn't stay permanently to cause chronic pain since it gets absorbed in few weeks time.

Mesh migration in laparoscopic inguinal hernia repair is possible only during the initial few days since the mesh gets fixed by fibrosis over time. So fixation is required only for initial few days which is very well taken care by the polyglactin stitch fixation in this technique.

Chance of vascular injury following laparoscopic hernia surgery is described in literature. [3] There is a chance of injury to inferior epigastric vessels and major vessels in triangle of doom if the suture passer is not inserted with caution in this technique. We have not encountered any vascular injury in our series. Postoperative mesh infection following laparoscopic repair has been described in literature. [4] In this new technique, there is a theoretical risk of infection spreading to mesh from subcutaneous tissue through the polyglactin stitch. Mesh infection was not noted in our series. Abdelhamid described external fixation of mesh using two polypropylene sutures in transabdominal preperitoneal (TAPP) hernia repair and found considerable reduction in cost. [5] In our technique, a single absorbable stitch was used and it was fixed in the subcutaneous tissue.

CONCLUSION:

The new mesh fixation technique is easy to perform and also cost effective. It will also improve the steep learning curve of laparoscopic hernia repair. We recommend further studies to find the long term outcome like incidence of chronic inguinal pain and recurrence of hernia after this new technique.

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