

AS26-6

Long-term prognosis of laparoscopic ventral hernia repair and short-term results of hernia defect closure cases

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We underwent laparoscopic ventral hernia repair for 128 patients from April 2002 to July 2016. 35 men and 93 women, average age 70.2 years old. We conduct transfascial suture with non-absorbable thread and tacking fixation under 3 ports. Conversion to an open repair was required in 7 cases. The mean operation time was 129 minutes. The complications were 5 seromas that needed treatment, four bleeding, two intestinal injury, two ileus, two liver damage, one mesh infection, one severe asthma attack and upper gastrointestinal bleeding and one port-site recurrence. During a median follow up period of 57 months, recurrence was noted on 5 patients (3.9%).

We performed the hernia defect closure for 24 patients for the prevention of a seroma, mesh infection, a recurrence and bulging, for hernia orifice transverse diameter 8cm or less from October 2013. There was one case that fixation of the mesh was not possible enough because working space became small after a hernia defect closure. We experienced another case that oral intake did not advance to by the pain of the defect closure site postoperatively. Other than them, the complications with the hernia defect closure were absent. The observation period is short, up to 33 months, but there is not the recurrence case to date. It is necessary to observe about the long-term prognosis carefully.

AS26-7

Laparoscopic primary ventral and incisional hernia repair - comparison of operative variables and outcomes

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Introduction: The superiority of laparoscopic repair of ventral and incisional hernia over open repair has been validated by many studies but there is paucity of literature comparing the outcomes of primary ventral versus incisional hernia repair by laparoscopic approach. The aim of our study was to review our experience of laparoscopic repair of primary ventral and incisional hernia and compare the operative variables and short-term outcomes.

Materials and Methods: We reviewed the clinical data of 121 patients who underwent laparoscopic ventral and incisional hernia repair from January 2014 to December 2015. Demographics, operative variables and short-term outcomes were compared by using independent sample t test and Chi-square test.

Results: Out of 121 patients, 46 (38%) underwent incisional hernia repair and 75 (62%) had primary ventral and recurrent hernia repair. Both groups were similar in terms of mean age, gender distribution and body mass index. Operating time ($p < 0.017$), extent of adhesiolysis ($p < 0.001$), and length of hospital stay ($p < 0.011$) were significantly higher in patients with incisional hernia. Intraoperative complications were more frequent in patients with primary ventral hernias ($p < 0.264$) while postoperative complications were more frequent in patients with incisional hernias ($p < 0.061$), but the difference was not significant. No recurrence was observed in postoperative period.

Conclusion: Laparoscopic incisional hernia repair was associated with longer operating time, extensive adhesiolysis, and hospital stay as compared to primary ventral hernias. However, there was no significant difference in complications and short-term outcomes in both groups.

AS28-1

Laparoscopic Transabdominal Preperitoneal Herniorrhaphy (TAPP) "How It Becomes the Better One"

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Two revolutions in the inguinal hernia surgery have occurred during the past two decades. The first was the introduction of tension-free open mesh repair (OMR) by Lichtenstein et al in 1989. The second revolution was the application of laparoscopic surgery during the early 1990s. A laparoscopic approach is particularly suited for the repair of bilateral or recurrent hernia. There are two standardized techniques for laparoscopic inguinal hernia repair (LIHR): (1) Trans-Abdominal PrePeritoneal (TAPP) and (2) Totally Extra-Peritoneal (TEP) repair. There are advantages and disadvantages of both TAPP and TEP procedures. The transabdominal preperitoneal (TAPP) approach provides an ideal opportunity to evaluate the contralateral side. Laparoscopic confirmation of normal inguinal anatomy without abdominal wall defects may avoid unnecessary anterior inguinal explorations. In addition, identification and repair of an occult contralateral defect can mitigate the need for subsequent herniorrhaphies should the patient become symptomatic. There is no statistically significant difference regarding postoperative complications, particularly recurrence rates and chronic groin pain. It is generally believed that TAPP is easier to teach and learn, although there is no level 1 evidence in the literature to support this belief. We need to generate more data comparing TAPP and TEP by conducting randomized, controlled trials.

AS28-2

Application of Transabdominal Preperitoneal (TAPP) and Totally Extraperitoneal (TEP) Laparoscopic Techniques for Inguinal Hernia Repair: A Systematic Review and Meta Analysis

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Aim: To evaluate the clinical outcome of Transabdominal Preperitoneal (TAPP) and totally extraperitoneal (TEP) laparoscopic techniques for primary inguinal hernia repair.

Methods: The inclusion and exclusion criteria were made as per the Cochrane Collaboration, then the mean database was searched to find the relevant random control trials (RCTs) about the two laparoscopic inguinal hernia repair methods, TAPP and TEP. Finally, the quality of the including literatures was assessed and a meta analysis was carried out.

Results: Eventually, 7 RCTs including 915 patients are involved in the meta analysis, of which 481 were in TAPP group and 434 in TEP. After the quantitative comparison between TAPP and TEP group, no significant difference between the two group in operation time, postoperative hospital stay, time return to family life, time return to work, pain at 1 hours postoperatively ($P=0.19$), incidence of postoperative complications (wound infection ($P=0.11$); groin paresthesia ($P=0.54$); urinary retention ($P=0.33$); recurrence ($P=0.69$)) and cost ($P=0.51$) has observed. But the pain scores of TEP at 24 hours and 1 week postoperatively ($P=0.04$; $P=0.008$) is significantly lower than TAPP, while the seroma formation ($P=0.0009$) in TEP is significantly more in TAPP.

Conclusions: The pain in TEP is comparatively lesser than TAPP at 24 hours and 1 week postoperatively, while the seroma formation in TEP is more with no statistic difference between the in operation time, postoperative hospital stay, time return to family life and work, pain at 1 hours postoperatively, wound infection, groin paresthesia, urinary retention, recurrence and cost.

AS28-3

MESH FIXATION COMPARED TO NONFIXATION IN LAPAROSCOPIC TOTAL EXTRAPERITONEAL INGUINAL HERNIA REPAIR: A RANDOMISED CLINICAL TRIAL

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Background: In TEP the preperitoneal space is dissected clearly and mesh is placed in between fascia transversalis and peritoneum so that mesh will cover all potential groin hernia defects without entering the abdominal cavity. This study aimed to examine the recurrence rate and postoperative pain in TEP performed without fixation of the mesh and to compare the rates with those for repairs using fixation of mesh.

Methods: A prospective randomized clinical trial was conducted in our tertiary center in BPKIHS, Dharan. In this study 110 patients of inguinal hernia undergoing TEP were divided in $n=55$ in fixation group and $n=55$ in non fixation group. Recurrence rates, chronic pain, operative time, postoperative hospital stay, days to return to normal activity, seroma formation were compared between two groups. The results were analyzed using SPSS 20.

Results: Out of 110 patients, the mesh was fixed in 55 patients and not fixed in 55 patients. The follow up period was 6 months. The two groups did not differ significantly in terms of recurrence rate, chronic pain, operative time, postoperative hospital stay, days to return to normal activity, seroma formation.

Conclusion: This study found no difference in between fixation and non fixation of mesh in hernia repair. Non fixation of mesh is safe and feasible with no recurrence rate.

Keywords: TEP, hernia, inguinal hernia, mesh

AS28-4

The Impact of Titanium Tack and N-Butyl Cyanoacrylate Glue (NBCG) Mesh Fixation versus NBCG Fixation in Totally Extra-peritoneal Hernioplasty with 3-dimensional Configured Polyester Mesh a Comparative Study

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Background: Our aim is to compare 3-dimensional mesh fixation using titanium tacks combine with n-butyl cyanoacrylate glue (NBCG) (TACK group) versus NBCG only (NBCG group) in totally extraperitoneal inguinal hernioplasty (TEP).

Method: This is a retrospectively study of patients diagnosed with unilateral inguinal hernia and underwent TEP with 3-dimensional configured polyester mesh fixation using titanium tacks combine NBCG or NBCG only at the University of Hong Kong Shenzhen Hospital with data prospectively collected. Operative details and outcomes were compared including: operating time, size of defect, total hospital cost, post-operative pain scores and recurrence.

Results: From 08.2013 to 03.2016 a total of 219 patients were included. There was no significant difference between TACK group and NBCG group in mean age (52.5 years versus 48.2 years), mean size of defects (2.4cm versus 2.6cm), and operating time (121 mins versus 111 mins). There were significant differences between TACK group and NBCG group in total hospital cost (3035 USD versus 2022 USD), post-operative pain score on day 2 to day 4 (VAS: 1.4 versus 1.0, 1.0 versus 0.4, 0.5 versus 0.2). There was one recurrence in TACK group ($p=0.276$).

Conclusions: Patients with inguinal hernia underwent TEP with 3-dimensional configured polyester mesh with NBCG fixation only having comparative surgical outcome to TACK group. Tacks fixation may cause more post-operative pain and increase hospital cost. Use of N-butyl cyanoacrylate glue in TEP is safe and effective in our clinical series.

AS28-5

Laparoscopic total extraperitoneal inguinal hernia repair with non fixation of the mesh v/s fixation of mesh: A retrospective study

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Background: This study aimed to review our case series regarding the effectiveness, postoperative pain, recurrence rate and cost of totally extraperitoneal (TEP) procedure for inguinal hernia repair, using an anatomical 3D mesh, without fixation and to compare with those for repairs using fixation of mesh.

Methods: A retrospective analysis was conducted over a 2-year period for 210 patients (406 hernias) who had undergone TEP using anatomical 3D mesh. The recurrence rate, pain scores at 1 week and 1 month, hospital stay, seroma formation, urinary retention rates and cost incurred were noted.

Results: Of the 210 patients (406 hernias), the mesh was fixed for 106 patients (212 hernias) named as group A and not fixed for 104 patients (194 hernias) named as group B. The patients were followed-up for a period of 12 months. The two groups did not differ significantly in terms of mean operating time. There was no difference in proportions of patients reporting pain at the end of 1 month, the incidence of seroma formation, incidence of urinary retention and the hospital stay in both the groups. The cost of surgery in the group A was greater than the cost of surgery in the group B. One patient (0.9%) in the group B had recurrence.

Conclusions: Laparoscopic TEP inguinal hernia repair with an anatomical 3D mesh without additional fixation can be performed safely with minimal long-term postoperative pain and the procedure results are comparable with repairs done using fixation devices.

AS29-1

Learning curve & Training in laparoscopic TEP repair

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Laparoscopic surgery is now increasingly being done for inguinal hernias due to its advantages of decreased pain and early return to daily activities. Inguinal hernias can be repaired either trans-abdominal pre-peritoneal (TAPP) or totally extra peritoneal (TEP). Both repairs are acceptable; however, TEP has some advantages with decrease in incidence of bowel injury and post operative adhesions. TEP repair, however, has a steeper learning curve. This learning curve can be shortened by standardizing the procedure. Appropriate training is extremely important to decrease the learning curve and this can be achieved through mentoring by expert, fellowship in minimal access surgery and attending workshops.

AS29-2

Learning curve in consecutive 100 cases of laparoscopic groin hernia repair performed by a single surgeon

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Background: Few data are available to assess the learning curve in laparoscopic groin hernia surgery.

Objective: The purpose of this present study was to evaluate the learning curve for laparoscopic surgery for groin hernia by a single surgeon.

Method: We analysed a total of 100 consecutive cases of laparoscopic groin hernia repair (TAPP) performed by a single surgeon at the same institute from April 2012 to July 2016. Operative time was divided into three parts, preparation of preperitoneal space, unfolding mesh and suturing of peritoneum. A cumulative sum method (CUSUM) and a moving average method for total operative time and duration of three parts were used to derive the learning curve.

Results: Average total operative time was 89.9±21.9 minutes (mean±S.D.). Preparation of preperitoneal space, unfolding mesh and suturing of peritoneum times were 42.0±16.2, 8.2±3.7 and 19.8±8.1 minutes. The learning curve of total operative time was completed after 70 cases by CUSUM analysis. CUSUM analysis of unfolding mesh and suturing of peritoneum times demonstrated the learning curve completion at 22 and 32 cases. Learning level in preparation of preperitoneal space was strongly correlated to total operative time. No intra-postoperative complications and no recurrence cases were encountered.

Conclusion: At least 70 cases were needed for obtaining the learning peak for laparoscopic groin hernia repair.