Laparoscopic totally extraperitoneal repair without suprapubic port: comparison with conventional totally extraperitoneal repair

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Purpose: We have treated 24 patients through laparoscopic totally extraperitoneal (TEP) repair without suprapubic port by using reliability and reducing the invasiveness of two surgery. This study is aimed to assess the safety and feasibility of the TEP repair without suprapubic port compared to conventional TEP repair. Methods: From September 2007 to 11 May 2010, we compared two groups that suffer from inguinal hernias. One is comprised of 24 patients who were treated without suprapubic port laparoscopic totally extraperitoneal repair (Group A), and the other is comprised of 100 patients who were treated with conventional laparoscopic totally extraperitoneal repair (Group B). Data regarding patient demographics (sex, age, site of hernia, and the type of hernia), operating time, postoperative hospital stay, the use of analgesics, and complications were prospectively collected. Results: There was no significant difference noted between two groups in relation to sex, age, site, and the type of hernia. The mean operating time and postoperative hospital stay was longer for the Group B (62.9 minutes, 3.55 days) than for the Group A (59.0 minutes, 2.54 days) (P = 0.389, P < 0.001). Postoperative urinary retention, seroma, wound infection were respectively 4.2%, 8.3%, 0% in Group A, and 12.0%, 8.0%, 7% in group B. There was difference between the two groups, but not statistical significance. Group B used more analgesics than Group A (0.33 vs. 0.48), but it wasn't significant statistically (P = 0.234). Conclusion: Although prospective randomized studies with long-term follow-up evaluation are needed to confirm our study between laparoscopic totally extraperitoneal repair without suprapubic-port and conventional laparoscopic totally extraperitoneal repair, our method have some advantages in postoperative pain, urinary retention, operating time, postoperative hospital stay, and cosmetic effect.

Key Words: Inguinal hernia, Laparoscopic surgery, Totally extraperitoneal repair

INTRODUCTION

Inguinal herniorrhaphy is one of surgeries that have been performed most frequently in the department of surgery. Since Bassini described a method in 1887, numerous surgical methods have been introduced [1]. The laparoscopic repair of a inguinal hernia was initiated from the early 1990s, and recently, totally extraperitoneal (TEP) inguinal herniorrhaphy has been applied worldwide. Several studies have reported that pain after surgery is less, the recovery period is short, and mortality rate is low [2-6]. Particularly, with the increase of interests from the...
aspect of esthetics and the improvement of minimal invasive surgery, after 2009, single incision laparoscopic totally extraperitoneal inguinal herniorrhaphy has been reported continuously [7-9]. However, in single incision laparoscopic totally extraperitoneal inguinal herniorrhaphy, periumbilical skin incision reaches 25 to 45 mm. However, in single incision laparoscopic totally extraperitoneal inguinal herniorrhaphy, periumbilical skin incision reaches 25 to 45 mm. Consequently, the possibility of hernia through the incision area [8,9], the crowding phenomenon and collision due to small surgical spaces [9], requirement of additional surgical instruments, and prolonged operation time, etc. have been pointed out to be problems. In conventional laparoscopic inguinal herniorrhaphy, significantly high urinary retention in comparison with open abdominal herniorrhaphy has been reported [10,11]. Therefore, we applied single incision laparoscopic inguinal herniorrhaphy but the length of periumbilical skin incision was limited to 15 mm, and by placing an additional trocar in the area below the umbilicus by 5 cm, the TEP procedure without using suprapubic trocars was attempted. We examined whether the operation time of our procedure was different from conventional procedures, and postsurgical short-term outcomes and clinical features were compared and analyzed.

METHODS

Subjects and methods

Selected from the entire 141 patients who were diagnosed as inguinal hernia, admitted to the department of surgery, and received inguinal herniorrhaphy from September 2007 to May 2010, the subjects were 24 patients who received laparoscopic TEP repair without suprapubic port (Group A) and 100 patients who received conventional laparoscopic TEP repair (Group B). Based on medical records and telephone interviews, the data on operation time, the hospitalization period after surgery, the dose of administered analgesics, postsurgical pain, and complications were collected, compared, and analyzed. Follow-up observation periods were average 19 months (range, 4 to 35 months). For the reduction of the errors on operation time and the pain level, 17 cases who received bilateral herniorrhaphy were excluded. For statistical analysis, chi-square test and t-test were applied. Cases with P value lower than 0.05 were considered to be statistically significant.

Conventional laparoscopic TEP surgical methods

General anesthesia was performed on the entire cases. In the supine position, a skin transverse incision approximately 15 mm in length including the umbilicus was made in the area immediately below the umbilicus, and the anterior rectus sheath of rectus abdominis muscle was opened. Using a balloon trocar (Spacemaker, Autosuture, Norwalk, CT, USA), the extraperitoneal space was secured. A 10 mm 30° laparoscope was inserted, and while assessing macroscopically the balloon was expanded slowly, and the balloon was broken and removed. 20 mL air was added to a trocar, CO₂ gas was added until it reaches 12 mmHg, and a 10 mm 30° laparoscope was inserted. In the area immediately above the symphysis pubis, a 5 mm trocar was inserted, and in the area between the insertion site of laparoscope and the insertion site of 5 mm trocar, another 5 mm trocar was inserted. In the medial side, to the midline and the symphysis pubis, in the lateral side, to the anterior superior iliac spine, in the inferior area, from the area below the Cooper’s ligaments to the psoas muscle, and in the anterior area, the rectus abdominis muscle was exposed sufficiently. The hernia sac was assessed, and after reduction, the posterior wall was strengthened by the use of commercialized polyester mesh 6 x 4 inch in size (Parietex, Sofradim, Formans, France). The mesh was fixed to the vicinity of the inferior epigastric artery using one Tacker (Autosuture), and the vicinity of the Cooper’s ligament was fixed by the use of the Tissel (Baxter AG, Vienna, Austria). For direct hernia cases, the transversalis fascia was fixed to the Cooper’s ligament using 1-2 Tacker (Autosuture) and the Tissel. The mesh was spread sufficiently, CO₂ gas was blocked, and the gas was released slowly through the trocar placed in the suprapubic area, and the trocar was removed while assessing that the artificial mesh maintained the spread state until the gas was released completely.