Original paper

Single port laparoscopic mesh rectopexy

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Abstract

Introduction: Traditionally, laparoscopic mesh rectopexy is performed with four ports, in an attempt to improve cosmetic results. Following laparoscopic mesh rectopexy there is a new operative technique called single-port laparoscopic mesh rectopexy.

Aim: To evaluate the single-port laparoscopic mesh rectopexy technique in control of rectal prolapse and the cosmesis and body image issues of this technique.

Material and methods: The study was conducted in El Fayoum University Hospital between July 2013 and November 2014 in elective surgery for symptomatic rectal prolapse with single-port laparoscopic mesh rectopexy on 10 patients.

Results: The study included 10 patients: 3 (30%) males and 7 (70%) females. Their ages ranged between 19 years and 60 years (mean: 40.3 ±6 years), and they all underwent laparoscopic mesh rectopexy. There were no conversions to open technique, nor injuries to the rectum or bowel, and there were no mortalities. Mean operative time was 120 min (range: 90–150 min), and mean hospital stay was 2 days (range: 1–3 days). Preoperatively, incontinence was seen in 5 (50%) patients and constipation in 4 (40%). Postoperatively, improvement in these symptoms was seen in 3 (60%) patients for incontinence and in 3 (75%) for constipation. Follow-up was done for 6 months and no recurrence was found with better cosmetic appearance for all patients.

Conclusions: Single-port laparoscopic mesh rectopexy is a safe procedure with good results as regards operative time, improvement in bowel function, morbidity, cost, and recurrence, and with better cosmetic appearance.

Introduction

Complete rectal prolapse can affect both young and elderly people and can cause faecal incontinence [1]. The best operation for rectal prolapse remains a controversial subject. Operations that correct rectal prolapse can be divided into transabdominal and perineal procedures [2]. Laparoscopic rectopexy has a shorter postoperative hospital stay and lower costs than laparotomic rectopexy, with the same clinical and functional results and without the need for bowel resection; it is the gold standard for the treatment of rectal prolapse [3, 4]. More than half of patients with complete rectal prolapse have coexisting anal incontinence [5–9]. In posterior mesh rectopexy a mesh is inserted behind the completely mobilised rectum and fixed to the sacrum as well as to the sides of the rectum [10].

Aim

The aim of the study was to evaluate the single-port laparoscopic mesh rectopexy technique in the control of rectal prolapse, and the cosmesis and body image of this technique.

Material and methods

The study was a prospective study in El Fayoum University Hospital between July 2013 and November 2014 performed on patients receiving elective surgery for symptomatic rectal prolapse with use of single-port laparoscopic mesh rectopexy technique.

Ten patients underwent single-port laparoscopic mesh rectopexy. Prior to surgery, all patients had undergone either a barium enema or colonoscopy to exclude a proximal colonic lesion. Preoperative evaluation of constipation and incontinence was done for all patients using the Cleveland Clinic Florida (Wexner) faecal incontinence score. Preoperatively, incontinence was seen in 5 (50%) patients and constipation in 4 (40%). Preoperatively, all patients were advised to perform Kegel sphincter exercises. Patients underwent adequate bowel preparation the day before surgery and were on only plain liquids up to the night before surgery. They were

kept nil orally from the night before surgery and were given a dose of antibiotics before surgery. The study included patients with symptomatic rectal prolapse with the ability to understand the study purpose; patients with redundant sigmoid and patients who were unable to understand the study purpose were excluded from the study.

Technique

The technique was under general anaesthesia, a cameraman was to the left of the patient, and the nurse near the right hand of the surgeon. For surgical disinfection of the skin iodopovidone was used.

Single-port laparoscopic mesh rectopexy

A transumbilical straight 20–25 mm skin and fascia incision was performed. The peritoneum was opened and a SILS™PT 12 port was introduced; this port has four openings: one for gas insufflation and three that can accommodate trocars ranging from 5 to 12 mm (Figure 1). The compressibility of the elastic polymer allows the access ports to expand and form fit the space in which they reside as well as enabling the ports to pass through the working channels.

The peritoneum was maintained at 10–12 mm Hg. A 5-mm 30° long scope was introduced into one of the openings in the SILS port (through the 12-mm trocar). The patient was then placed in the Trendelenberg position. A second right port (5 mm), third left port in (5 mm). The dissection was started by opening the peritoneum on the right side of rectum (Figure 2) using a harmonic scalpel, with identification of the right ureter to safeguard it, then dissection of the rectum from the presacral fascia, staying close to the rectum to avoid injury to pre-sacral venous plexus and autonomic nerves. Then dissection was done on left side after identifying the left ureter. Dissection was carried out downwards to the pelvic floor (Figure 3), then the mesh was placed behind the dissected rectum (Figure 4) and the upper end of the mesh was fixed to the presacral fascia using 2-0 Prolene over the sacral promontory. Then another stay suture was made over the lower part

Figure 1. SILS port and trocars 5–12 mm

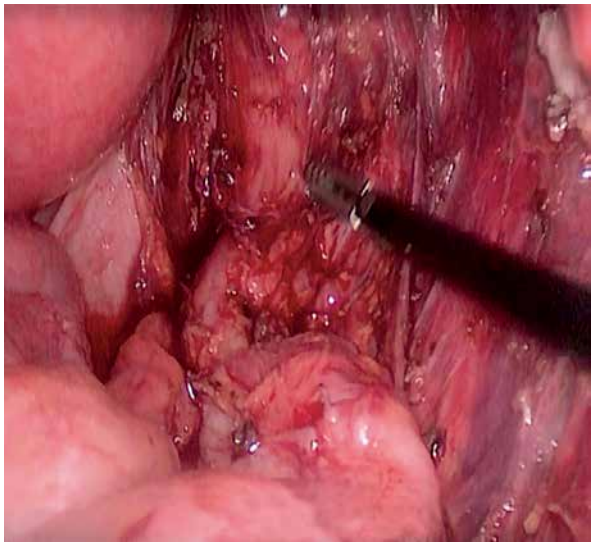

Figure 3. Dissection of rectum up to the pelvic floor

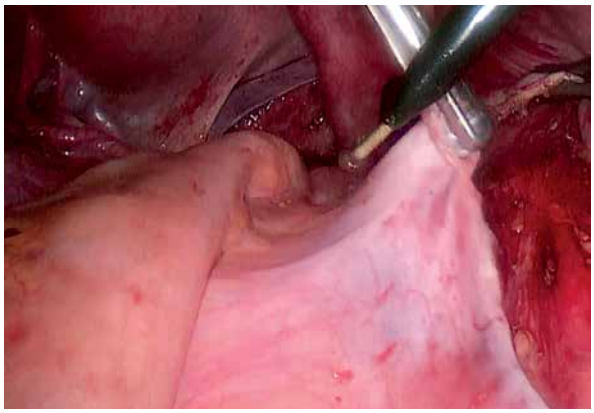

Figure 2. Opening the peritoneum on the right side to enter the holy plane

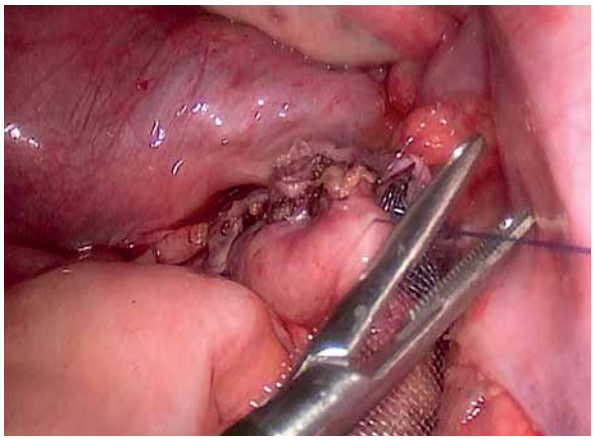

Figure 4. Suturing the rectum to the fixed mesh

of the mesh, and the mesh was fixed on either side of the rectum. A closed suction drain was inserted in the presacral region and reperitonealised with 2-0 Vicryl.

In the post operative period all patients started oral fluids on the second day and took stool softener for 15 days. The drain was removed after 2 days.

Statistical analysis

Results are expressed as means ± SD. Significance is obtained by analysis of variance (ANOVA).

Informed consent was obtained from all individual participants included in the study.

Results

The study was a prospective study in El Fayoum University Hospital between July 2013 and November 2014 performed on patients receiving elective surgery for symptomatic rectal prolapse with use of single-port laparoscopic mesh rectopexy technique.

They were 10 patients: 3 (30%) males and 7 (70%) females. Their ages ranged between 19 and 60 years (mean: 40.3 ±6 years), and they all underwent laparoscopic mesh rectopexy.

There were no conversions to open technique, nor injuries to the rectum or bowel, and there were no mortalities. Mean operative time was 120 min (range: 90–150 min), mean hospital stay was 2 days (range: 1–3 days). Preoperatively, incontinence was seen in 5 (50%) patients and constipation in 4 (40%). Postoperatively, improvement in these symptoms was seen in 3 patients for incontinence and in 3 for constipation. In follow-up for 6 months, no recurrence was found, and better cosmetic appearance was attained for all patients.

Discussion

There are several types of open abdominal surgical procedures for the treatment of complete prolapse of the rectum [11–14].

Laparoscopic operations for complete prolapse of the rectum have become the operations of the choice for complete rectal prolapsed [15].

Constipation and anal incontinence are two complications for the treatment of complete rectal prolapse of the rectum. More than half of patients with rectal prolapse have coexisting incontinence due to impaired rectal adaptation to distention [16].

Improvement in continence post laparoscopic mesh rectopexy in this study was 60%, compared to other studies that showed a figure of 80% [17]. Improvement in constipation post laparoscopic mesh rectopexy in this study was 75%, compared to other studies at (47.3%) [17].

In this study, the mean duration of mesh rectopexy was 120 min (range: 90–150 min), compared to another study with the average operating time of 140 min (range: 105–240 min) as reported by Siproudhis *et al.* [16]. In this study the mean post-operative hospital stay was 4 days (range: 2–6 days) compared to 5 ±0.93 in another study [17]. There were no intraoperative or postoperative complications in this study. In this study, constipation was observed in 4 (40%) of 10 patients preoperatively, in the postoperative period, and 3 of 4 (75%) patients of mesh rectopexy improved as regards their constipation. In this study there was no recurrence after surgery (6 months follow-up) compared to other studies, in which the recurrence ranged from 0% to 6% [14]. Although this study was without a control group the results are satisfactory and single-port laparoscopic mesh rectopexy is an effective and safe minimally invasive procedural alternative to open procedures, with similar success rates and no additional complications.

Conclusions

Single-port laparoscopic mesh rectopexy is a safe procedure with good results as regards operative time, improvement in bowel function, morbidity, cost, and recurrence, and with better cosmetic appearance for patients.

Conflict of interest

The author declares no conflict of interest.

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