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Case Report

Successful detection of an incidental sigmoid injury during laparoscopic surgery by air saline test in a patient of endometrial carcinoma

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ABSTRACT

Laparoscopy has many advantages over open surgery including less post-operative pain, earlier return of normal bowel function, shorter hospital stay, and earlier recovery. Bowel injury is a serious complication of gynecological laparoscopy. The most common site of bowel injury is the small bowel, followed by the large bowel and stomach. This is in agreement with a recent systematic review which has shown that the incidence of bowel injury in gynecologic laparoscopy is 1 in 769.3. Air saline test performed to check bowel integrity by inserting the rectal probe and filling the cavity with normal saline. After performing total laparoscopic hysterectomy with bilateral salphingoopherectomy with retroperitoneal lymphnode dissection done initially after pushing air from rectal probe into the bowel, no bubble was noted but after pushing sigmoid into the pool of saline, escape of air was seen. After suction, a 2×2 cm incidental sigmoidal injury was detected. Bowel injury is a serious complication in laparoscopic surgeries and routine intraoperative checking of bowel integrity by air saline test with the help of rectal probe is a useful modality of intraoperative bowel repair.

Keywords: Air saline test, Rectal probe, Sigmoidal injury, Total lararoscopic hysterectomy, Retroperitoneal lymph node dissection

INTRODUCTION

Laparoscopy has many advantages over open surgery including less post-operative pain, earlier return of normal bowel function, shorter hospital stay, and earlier recovery.[1] Despite advanced technology and improved surgical skills and knowledge, complication rates, including preventable injuries, are increasing. Definitions of complications vary and they are usually under-reported, overall reported rate ranges from 0.2% to 10.3%. Bowel injury is a serious complication of gynecological laparoscopy. Its incidence depends on the treated pathology and the type of procedure (diagnostic, minor operative or complex operative). Lack of surgeon's experience and presence of previous abdominal surgery increase the risk of bowel injury. The incidence of bowel injury is 0.13% for laparoscopy procedures. The most common site of bowel injury is the small bowel, followed by the large bowel and stomach.[2] This is in agreement with a recent systematic review which has shown that the incidence of bowel injury in gynecologic laparoscopy is 1 in 769.3.[3]

CASE REPORT

The patient named ABC, a 78 years old women, nulligravida with a body mass index of 18.8 (height: 163 cm, weight: 50 kg), presented with postmenopausal bleeding per vaginum for 2 months in gynaecology outpatient department (OPD). Transvaginal ultrasonography showed thickened endometrium (ET-6 mm). Endometrial biopsy (done outside) showed endometroid adenocarcinoma grade 2. Magnetic resonance imaging (MRI) was suggestive of endometroid tumor (3.5×5 cm) in endometrial cavity invading full

thickness of myometrium, serosa intact, figo grade 2. Patient did not have any surgical history or relevant past history.

Patient was posted for laparoscopic radical hysterectomy with bilateral lymph node dissection Patient was put under general anesthesia with endotracheal intubation and with naso-gastric tube suction to minimize bowel distension. The patient was positioned in a modified lithotomy position with the hips flexed 30º and a Foley urinary catheter was placed. Pneumoperitoneum was achieved through a Veress needle. One 10mm blind port at the umbilical and 3 side ports of 5mm created under vision. Anterior leaf of broad ligament and uterovesical fold opened and bladder pushed down. Total laparoscopic hysterectomy with bilateral salphingoopherectomy performed and specimen was removed through the vagina. The course of each pelvic ureter was visualized through the medial leaf of the broad ligament.

The peritoneal incision was extended lateral to the ovarian vessels above the level of the pelvic brim to expose the area for lymphadenectomy. Bilateral pelvic and paraaortic lymphadenectomy was done. Vault closure was done, with intracorporeal suturing.

After checking the haemostasis, air saline test was performed to check bowel integrity by inserting the rectal probe and filling the cavity with saline.

Initially after pushing air from rectal probe into the bowel, no bubble was noted but after pushing sigmoid into the pool of saline, escape of air was seen. After suction, a 2×2 cm incidental sigmoidal injury was detected. Since the adequate bowel preparation had been done, there was no fecal contamination noted. Sigmoid rent was sutured in two layers with 3-0 polyglactin. Abdominal drain was kept. Surgery was completed in total duration of 180 min with the average blood loss of 250 ml.

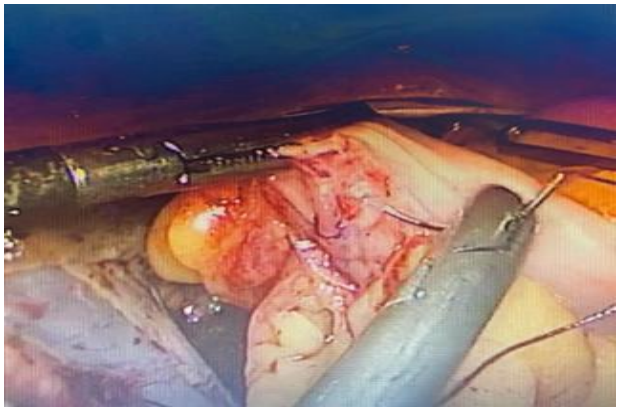

Figure 1: Suturing of sigmoid mucosa.

DISCUSSION

Bowel injury may be encountered at any stage of laparoscopic surgery, beginning from abdominal access until the end of port site closure. It is the third most frequent mortal complication of laparoscopy, following anesthesia and major vessel injuries. Gastrointestinal tract injury during laparoscopy ranged between 0.03 and 0.18% and its incidence was 0.13% in the meta-analysis performed by van der Voort et al.[2]

Before the study performed by Levy et al, energy modalities used in laparoscopic surgery were mistakenly considered to be the leading cause of gastrointestinal injuries. However, 30% to 50% of the bowel injuries occur during Veress needle or trocar insertion into the abdominal cavity. Gastrointestinal injuries occur more often at the small bowel; however, other intra-abdominal organs, including the large bowel and stomach, may also be injured. Preoperative bowel preparation and decompression of the stomach with an orogastric or nasogastric tube may prevent potential injuries occurring during abdominal access.[4]

During the operative phase of laparoscopy, bowel injury may occur as a result of trauma secondary to tissue dissection and manipulation or electrosurgical energy use. It is a serious complication because 50% and 66% of bowel or visceral injuries are undiagnosed at the time of primary surgery. A missed or delayed diagnosis increases the risk of bowel perforation and consequently sepsis and even death.

In the study conducted by Chapron et al, of the 56 patients suffering from gastrointestinal injury, 32 had injuries at the operative phase of the procedures and 26 injuries were due to sharp dissections. Thus, experienced surgeons with advanced surgical skills are expected to have lower complication rates.[5]

Brummer et al compared the incidence of injuries of laparoscopy performed between 1992 and 1999 with the injury incidence of 2000 and 2005, emphasizing the importance of the learning curve in laparoscopic and vaginal hysterectomies. The incidence of all kinds of injuries was significantly lower between 2000 and 2005.[6]

The use of electrosurgical energy during operative laparoscopy causes injury of the target tissue. The injured tissue may become necrotic or heal slowly during the postoperative period. In addition to the target tissue, increased local temperature may cause injury of the nearby vital structures, e.g., the large bowel. Thus, the surgeon should be familiar with the used energy modality.

A rectal probe is extremely helpful for intraoperative detection of bowel damage. Various measures are adopted to identify rectal injury during surgery. Although proctosigmoidoscopy can be performed at the end of surgery to evaluate an intraluminal abnormality or bowel perforation, it requires an endoscopic procedure.

Intraoperative air leak tests are easy and useful for detecting rectal defects. A wet air leak test is considered

positive when air is insufflated through the rectal catheter after filling the pelvis with saline solution and air bubbles are observed. The leakage of blue dye method can also be used. However, a dry test is considered positive when air is insufflated without saline solution and a bulge is observed in the rectal mucosa at the site of injury. Negative results for both wet and dry air leak tests usually indicate no rectal injury or breach of the mucosal layer.

A trained assistant should evaluate rectal stenosis with a rectal digital examination before inserting a rectal probe and operate it gently while carefully observing the course of the rectum to avoid worsening of the injury. Furthermore, the rectal probe helps in assessment of the integrity of rectal repair by straightening the folds of the intestinal wall.

CONCLUSION

Bowel injury is a serious complication in laparoscopic surgeries and routine intraoperative checking of bowel integrity by air saline test with the help of rectal probe is a useful modality of intraoperative bowel repair.

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