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Small Trocar Perforation of the Small Bowel: A Case Report

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ABSTRACT

Although laparoscopy is one of the most common surgical procedures done today, bowel perforations can and do occur during the initial insertion of the Veress needle and/or trocar. Recent advances in microlaparoscopy have reduced the morbidity of this complication when encountered. We report a case of small bowel perforation following insertion of a Veress needle with its 2 mm trocar and our minimally invasive intra-operative and postoperative management of the patient.

Key Words: Laparoscopy, Small bowel perforation, Microlaparoscopy.

CASE REPORT

A 36 year old, para 2 female with a history of chronic right adnexal pain was admitted for a laparoscopic right salpingo-oophorectomy. The patient experienced worsening right ovarian pain which did not improve despite nonsteroidal anti-inflammatory medications. An ultrasound revealed a 4 cm complex ovarian mass which did not change in size with serial ultrasounds. A serum CA-125 was normal. Previous surgeries included an abdominal hysterectomy for a fibroid uterus, laparoscopic left salpingo-oophorectomy and lysis of adhesions for pelvic pain, an appendectomy, two previous cesarean sections, a bilateral tubal ligation and an inguinal herniorrhapy as a teenager.

The patient underwent general endotracheal anesthesia and was prepped and draped in the usual manner after being placed in the dorsolithotomy position. After making a small incision in the umbilicus, a Veress needle with its 2 mm trocar was carefully inserted into the abdomen with the panniculus elevated. The saline drop test revealed patency, and the Veress needle was attached to the CO_2 for the pneumoperitoneum. Initial pressures were normal then quickly elevated to 22 mm Hg. The CO_2 was immediately stopped, the Veress needle removed and a 2 mm microlaparoscope (Minisite Gold; U.S. Surgical Corp., Norwalk, CT) inserted into the trocar, which revealed bowel lumen with stool. A second 2 mm trocar was placed in the right lower quadrant, and the microlaparoscope revealed a perforation into the anti-mesenteric border of the ileum. A 12 mm Step trocar (InnerDyne Inc., Sunnyvale, CA) was inserted under direct visualization lateral to the right rectus muscle at the level of the umbilicus. The 2 mm umbilical trocar was replaced with a new one of the same diameter. At the site of the small bowel entry, a minute amount of stool was present. This was aspirated and irrigated with saline. There was no further leakage of stool nor bleeding at the site of entry. A laparoscopic right salpingo-oophorectomy was performed which revealed endosalpingiosis on histologic examination. After irrigating the pelvic and abdominal cavities with 3 liters of normal saline with no further fecal spillage or bleeding, the decision was made to not suture the site of entry into the small bowel.

Postoperatively, the patient had a nasogastric tube inserted, was placed on famotidine (Pepcid®) 20 mg every 12 hours

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and was given antibiotics consisting of ampicillin, gentamicin and clindamycin intravenously. On the evening of surgery, the patient developed a fever of 101.2 degrees Fahrenheit. White cell count was 10,700. On postoperative day one, she had a single temperature spike of 100.9 after being afebrile. Her nasogastric output was 50 cc and white cell count 9,600. The abdomen was soft, nontender and nondistended with bowel sounds present. On postoperative day two, her abdomen remained soft, nontender and nondistended. She passed flatus, was afebrile and her electrolytes remained normal. Her nasogastric tube was removed and she was started on clear liquids. White cell count was 5,700. On postoperative day three, she had a small bowel movement, was advanced to a regular diet and discharged home in the afternoon on oral cephalexin.

At her one week postoperative visit she remained afebrile, tolerating her diet and with no complaints. The following week she returned to work as a teacher without restrictions. One month after surgery she was symptom free and her chronic right adnexal pain was gone.

DISCUSSION

Complications can and do occur even with the experienced laparoscopist. Most of the current data on laparoscopic complications is based on case reports and small series. Open laparoscopy was developed to reduce the risk of blind entry into the peritoneal cavity.[1] However, injury to the bowel has been reported to occur at the same rate with this technique.[2] Unrecognized bowel injury during laparoscopy is very rare. Recognized accidental bowel perforations occur in less than one percent of laparoscopic procedures.[3] Recent advances in microlaparoscopy have allowed us to perform both diagnostic and operative procedures through 2 mm trocars.[4]

In our patient, bowel perforation was immediately identified. A microlaparoscope inserted through the entry site confirmed the complication. Had we performed traditional laparoscopy using a 10 mm trocar, the site of bowel injury would have required suturing, possibly a laparotomy. In cases where the site of perforation is free of adhesions and in need of repair, the bowel can be sutured externally by withdrawing the bowel through a 12 mm trocar.[5]

Our minimally invasive, conservative approach to this complication was possible because no further fecal material leaked through the site of perforation and the diameter of the injury was small.[6] We felt that suturing in this case was unnecessary because the margins were regular, hemostatic and self-sealing. The stool that was forced through this site probably was a result of the increased intraluminal pressure in the bowel from the CO_2 insufflation. After copious irrigation with normal saline and no further spillage, we felt that the patient's morbidity would be greater with suturing of the bowel if it produced bleeding or further spillage. Except for an initial fever, the patient responded well to conservative management with bowel decompression, antibiotic therapy and close observation. Postoperatively, she exhibited no signs of peritonitis. Conditions requiring a laparotomy following a bowel perforation include any sign of peritonitis, persistent fever, ileus or prolonged vomiting.

CONCLUSION

We believe that some small bowel perforations from 2 mm instrumentation can be managed conservatively without suturing provided that the site of injury is not actively leaking stool nor bleeding. This is another added benefit for microlaparoscopy as compared to macrolaparoscopy.

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