

Laparoscopic Reduction of Incarcerated Meckel's Diverticulum Following Abdominal Hysterectomy

K.J. Molloy, MBChB, A. Nasim, MD, D. Payne, D.M. Lloyd, MD

ABSTRACT

Background: Laparoscopic techniques are increasingly being utilized to diagnose and successfully manage intestinal obstruction.

Case Report: We describe a patient who presented with intestinal obstruction following a recent abdominal hysterectomy. The obstruction was caused by entrapment of a segment of small bowel containing a Meckel's diverticulum within a pouch formed by the peritoneal layer following mass closure of the abdominal wound.

Discussion: We discuss the literature on the abdominal wound closure technique. The role of laparoscopy in dealing with intestinal obstruction is reviewed briefly. We have also summarized the management of an incidental Meckel's diverticulum found at laparoscopy.

Key Words: Hysterectomy, Intestinal obstruction, Laparoscopy, Meckel's diverticulum.

INTRODUCTION

Intestinal obstruction is an uncommon but recognized complication following total abdominal hysterectomy.¹ Most cases are due to the formation of adhesions.² We present a case where the obstruction was caused by incarceration of a portion of small bowel containing a Meckel's diverticulum in the Pfannenstiel incision. This case highlights one of the potential hazards of the above incision. It also demonstrates that small bowel obstruction can be dealt with by experienced laparoscopists without resorting to a laparotomy.³

CASE REPORT

A 43-year-old female underwent a total abdominal hysterectomy and removal of left ovarian remnant for irregular bleeding and severe premenstrual tension (PMT). She had undergone a bilateral salpingo-oophorectomy for severe PMT five years previously. Her recovery was uneventful, and she was discharged home on the third postoperative day.

On the eighth postoperative day, she was readmitted with upper abdominal pain, distension and vomiting. Her abdominal X-ray showed small bowel obstruction. This was initially treated conservatively by means of intravenous fluids and nasogastric aspiration. She failed to improve, and a decision was made to proceed to laparoscopy.

At laparoscopy, she was found to have a defect in the peritoneal layer of the Pfannenstiel incision. This had resulted in incarceration of the small bowel between this layer and the rectus muscle. As the loops of small bowel were reduced from her incisional defect, it was noted that a Meckel's diverticulum had been trapped in it (**Figure 1**). The anterior rectus sheath was intact. The peritoneum was closed with continuous 2-0 prolene. A serosal defect was noticed in a loop of small bowel, adjacent to the Meckel's. The defect had possibly been caused by a traction injury, and it was oversewn with 3-0 vicryl. The whole procedure was performed laparoscopically. The Meckel's diverticulum was left alone. The patient recovered well and was discharged home on the third postoperative day.

Senior House Officer (Dr. Molloy).
 FRCS, Specialist Registrar (Dr. Nasim).
 FRCS, Senior House Officer (Dr. Payne).
 FRCS, Consultant Surgeon (Dr. Lloyd).
 Department of Surgery, Leicester Royal Infirmary NHS Trust, Leicester, LE1 5WW (all authors).

Address reprint request to: Mr. A. Nasim, Department of Surgery, Robert Kilpatrick Clinical Sciences Building, Leicester Royal Infirmary, Leicester, LE2 7LX, UK. Telephone: 44-116-2523140, Fax: 44-116-2523179, E-mail: nasim90@hotmail.com

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Figure 1. Laparoscopic image of wide-based Meckel's diverticulum (arrow) in our patient.

DISCUSSION

This case report highlights three contentious surgical issues: the management of asymptomatic Meckel's diverticulum, the role of laparoscopic surgery in the management of acute small bowel obstruction, and the closure of Pfannenstiel incisions.

The management of a Meckel's diverticulum found incidentally at the time of surgery remains a controversial issue. Meckel's diverticulum was first described early in the 19th century by Johann Friedrich Meckel⁴ and is the most common congenital anomaly of the small intestine.⁵ It is a true diverticulum, containing all layers of the gut wall and is usually found on the antimesenteric border about 50 cm from the ileocecal junction in 0.6 to 2.3% of the population.⁶ Complications of Meckel's diverticulum include perforation, bleeding and obstruction, commonly due to ectopic gastric mucosa or pancreatic tissue. Leijonmarck et al⁷ found that the lifetime risk of complications from Meckel's was 3.7% at 16 years of age, 3% at 30 years of age and almost zero in old age. Factors increasing the risk of complications include male sex,⁸⁻¹⁰ the length of diverticulum⁹ and the presence of ectopic tissue.⁹⁻¹¹ The Meckel's diverticulum found in our patient was not excised as it was wide-based and the patient was over 40 years of age. This decision is supported by an editorial in the *Lancet* which proposed guidelines in the

management of asymptomatic Meckel's.¹² These guidelines are based on studies that have shown the major postoperative complication rate following excision to be greater than the lifetime risk from complications of Meckel's diverticulum in this patient group.⁷

Laparoscopic techniques are being utilized increasingly in the management of acute small bowel obstruction.^{3,13-15} Bailey et al³ demonstrated that in the hands of experienced laparoscopic surgeons, laparoscopy had a useful role in the surgical management of acute small bowel obstruction.³ They performed an initial laparoscopy in 80% of cases, managed to complete the procedure laparoscopically in 45%, and found laparoscopy to assist in the decision to make an appropriately placed small incision in 22%. The in-patient hospital stay following laparoscopic surgery was significantly shorter (median stay three days) than that following open surgery (median stay eight days); however, the unplanned reoperation rate was higher (14.3% vs 4.5%). With increasing expertise and improvements in instrumentation, laparoscopy is likely to play an increasing role in the management of acute surgical conditions.

There has been much discussion amongst gynecologists as to whether the peritoneal layer should be sutured when closing Pfannenstiel incisions. Previous studies have shown no difference in early and late postoperative complication after abdominal closure with or without peritoneal suturing.^{16,17} Therefore, the current consensus appears to be that there is no need to include the peritoneal layer in abdominal wound closure.¹⁷ Al-Took et al¹⁸ showed that of all the cases of small bowel obstruction caused by adhesions post-hysterectomy, only 15% of them related to the anterior abdominal wall, with the remaining 85% involving the pelvic peritoneum. Usually, suturing of the abdominal incisions utilizes a mass closure technique, which in the upper abdomen incorporates the peritoneal layer. The absence of the posterior rectus sheath in the lower part of the abdomen means there is a potential for bowel loops to become trapped in a pouch behind the rectus muscle but outside of the peritoneal layer. This was the case in our patient, where a defect in the peritoneum remained, either because the layer had not been closed or because the sutures had cut through. Surgeons should be aware of this potential complication, and peritoneal layer closure may be advisable, particularly in cases where the peritoneal layer has been stripped off from the rectus muscle in the lower part of the abdomen leaving a pouch-like defect.

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