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Laparoscopic Meckel’s diverticulum resection in adults: Experience at the Texas Endosurgery Institute

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Abstract
Reports have demonstrated the feasibility and safety of laparoscopic procedures in large series of children and adults as well, mostly in symptomatic patients. A total of six patients were approached laparoscopically between 1993 and 2004, two with symptoms attributable to the diverticulum itself, and four with incidental diverticula during procedures for other reasons. The sex distribution was three males and three females, with median age 53 years (between 19-86 years). In all of the patients the resection was only of the diverticulum, not small bowel resections. The mean hospital stay was 6 days, with a range of 2-15 days. No malignancies were reported. All of the patients had follow up, and had no perioperative complications related to the resection, especially recurrent bleeding in the symptomatic cases. Our results show only adult patients, with mean age above 50 years, something different from the rest of the series revised. No complications were found in our series, this shows that laparoscopy is safe and efficient in the diagnosis and treatment of Meckel’s diverticulum, and that treatment in adult asymptomatic patients can be equally safe.

Key words: Diverticulum, Meckel, laparoscopic, Texas, endosurgery, institute.

BACKGROUND

Meckel’s diverticulum represents a true diverticulum of the ileum containing all 3 layers of the bowel wall. It is the most frequent congenital anomaly of the small bowel, occurring in approximately 2% of the general population. Its first description was made by Hildanus in 1598 and described in detail by Meckel in 1809. It is located on the antimesenteric border of the ileum usually two feet proximal to the ileocecal valve, and results from an incomplete closure of the omphalomesenteric duct. The majority are incidentally discovered during laparotomy, autopsy or imaging studies. Symptomatically the abnormalities present as gastrointestinal bleeding, intestinal obstruction and diverticulitis. GI bleeding is the most frequent complication in children, and diverticulitis is the most common presentation in adults. Hemorrhage is usually due to erosion of adjacent ileal mucosa by acid produced by the ectopic gastric mucosa. Intestinal obstruction is most often due to volvulus or intussusception about the Meckel’s diverticulum. The rare herniation of the diverticulum in the inguinal canal is called a hernia of Littre. Rarely, benign and malignant tumors may both occur within a Meckel’s diverticulum (adenocarcinoma, carcinoids and polyps).

Indications for treatment include all symptomatic conditions, and according to recent studies, treatment in asymptomatic patients may be safer than originally reported. Traditional management varies according to the manifestations of the diverticulum. For non bleeding diverticula, resection of the diverticula alone can be accomplished either with hand-
sewn or stapled techniques. For bleeding diverticula, segmental intestinal resection is sometimes required because of profuse bleeding of the ileum adjacent to the diverticulum; although controversy exists regarding this and many resects the diverticulum alone, as it is the original cause of the bleeding. Reports have demonstrated the feasibility and safety of laparoscopic procedures in large series of children and adults as well, mostly in symptomatic patients. Others found that adverse outcomes after incidental diverticulectomy were seen in 1% to 9% of patients, and recommend that symptomless Meckel’s diverticulum should be left in place. The Mayo Clinic series accurately approaches the controversy of the prophylactic removal of incidentally discovered Meckel’s diverticulum. They conclude that Meckel’s diverticula discovered incidentally at operation should be removed for most patients, regardless of age. The risk of complications of a Meckel’s diverticulum has not been found to decrease with age so the benefits of incidental diverticulectomy outweighed its morbidity and mortality. With this, aided by the minimally invasive procedures, we decided to resect the diverticula found during surgery for other reasons.

The purpose of this article is to show our experience in the laparoscopic management of Meckel’s diverticulum in the adult population at the Texas Endosurgery Institute, and outline the feasibility of this procedure in symptomatic as well as incidental cases.

MATERIAL AND METHODS

A total of six patients were approached laparoscopically between 1993 and 2004, two with symptoms attributable to the diverticulum itself, and four with incidental diverticula during procedures for other reasons. The sex distribution was three males and three females, with median age 53 years (between 19-86 years).

The two patients with a symptomatic Meckel’s diverticulum presented with acute gastrointestinal bleeding. The patients with incidental resection were operated for intestinal obstruction by Spigelian hernia (mesh repair), intestinal obstruction by adhesions (adhesiolysis and small bowel resection), acute appendicitis (laparoscopic appendectomy) and gastric cancer (subtotal gastrectomy). In this last group of patients, the diverticulum was not involved at all in the disease processes.

RESULTS

In all of the patients the resection was only of the diverticulum, not small bowel resections, and was performed with Endo GIA® (US Surgical, Norwalk, CT). Only one load of 60 mm staples was needed for the base of the diverticulum. In the last of the patients, the line of resection was closed with a 60 mm cartridge reinforced with Seamguard® (W.L. GORE & Assoc, Flagstaff, AZ) to prevent bleeding and leakage. In the two symptomatic patients, appendectomy was performed prophylactically using endoloops for the base (Table 1).

The estimated blood loss was in the range of 10-25 cc, excepting for the patient with the gastrectomy, in which the blood loss was estimated in 300 cc. The mean hospital stay was 6 days, with a range of 2-15 days. The reason for this was the complexity in two of the procedures (strangulated small bowel resection and gastrectomy). The final pathologic report found abnormal gastric mucosa in one patient, acute inflammation in the other and normal intestinal mucosa in the remaining four patients. No malignancies were reported. All of the patients had follow up, and had no perioperative complications related to the resection, especially recurrent bleeding in the symptomatic cases.

DISCUSSION

Previous publications have addressed the laparoscopic management of Meckel’s diverticulum, either for symptomatic or asymptomatic causes. The largest laparoscopic series describe the approach mostly in children, and complications vary according to studies. Largest series have been published in adult population as well with varied results. Our results show only adult patients, with mean age above 50 years, something different from the rest of the series revised. No complications were found in our series, in either

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group of patients, emergent or incidental. All our cases were accomplished by resection of the diverticulum itself, sparing a small bowel resection. The hospital stay was short excepting for one case, and the follow up showed no further bleeding in symptomatic cases. This shows that laparoscopy is safe and efficient in the diagnosis and treatment of Meckel’s diverticulum, and that treatment in adult asymptomatic patients can be equally safe.

REFERENCES


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