An unusual case of intestinal obstruction caused by a Meckel’s diverticulum

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ABSTRACT: Meckel's diverticulum is a persistent remnant of the omphalomesenteric duct. It resents the most common congenital anomaly of the small intestine (1-4%). The vast majority of the persons with a Meckel's diverticulum remain asymptomatic throughout life. Estimates of the frequency, with which the symptoms develop range from 10-20%. We present an unusual case of intestinal obstruction caused by a Meckel's diverticulum.

A 24-year old man with no previous medical or surgical history presented with a 24-hour history of intermittent abdominal pain, nausea and vomiting. Abdominal x-rays demonstrated multiple dilated loops of small bowel with air-fluid levels, while the white blood cell count was elevated. An exploratory laparotomy revealed a Meckel's diverticulum, at about 80 cm proximal to the ileocecal valve, the inflamed end of which adhered with the corresponding mesentery, forming a loop, which had clasped the distal part of the ileum, resulting to a closed-loop obstruction. Meckel's diverticulum was resected. The postoperative recovery of the patient was uncomplicated.

We emphasize that a Meckel's diverticulum is an uncommon cause of intestinal obstruction, which should be taken into account in the differential diagnosis, especially in the absence a patient’s surgical history.

Key Words: Meckel's diverticulum, Intestinal obstruction, Loop formation.

INTRODUCTION

Meckel's diverticulum of the small intestine is the most common congenital anomaly of the gastrointestinal tract, occurring in 1-4% of the general population. The vast majority of the patients with a Meckel’s diverticulum remain asymptomatic throughout life. Estimates of the frequency, with which the symptoms develop range from 10-20%. In those patients who develop symptoms, a variety of presentations have been reported, including hemorrhage, inflammation, intestinal obstruction, hernial involvement (Littre hernia), umbilicus sinus or fistula and tumors. Small bowel obstruction is the most common presentation in adults, accounting for one third of all symptomatic cases. We present an unusual case of small bowel obstruction caused by a Meckel’s diverticulum.

CASE REPORT

A 24-year-old man with no previous medical or surgical history presented with a 24-hour history of intermittent abdominal pain, nausea and vomiting. Physical examination revealed mild distention of the abdomen, as well as generalized tenderness. The white blood cell count was 15500/mm³ (84,8% neutrophiles); all other laboratory parameters were within normal limits.

Abdominal x-rays demonstrated multiple dilated loops of small bowel with air-fluid levels and a minimal amount of air in the ascending colon, suggesting small bowel obstruction (Figure 1).

At exploratory laparotomy, a Meckel’s diverticulum was identified at about 80 cm proximal to the ileocecal valve. The inflamed end of the diverticulum adhered with the corresponding mesentery, forming a loop, which had clasped the distal part of the ileum,
resulting to a «closed-loop» obstruction (Figure 2). The obstructed loops proved to be non ischemic and functional. Meckel’s diverticulum was resected and the small intestine closed at the basis of the diverticulum in two layers technique. A typical appendectomy was also performed. The postoperative recovery of the patient was uncomplicated.

Pathology confirmed the presence of a Meckel’s diverticulum, 8cm in length, with heterotopic gastric metaplasia of its mucosa.

**DISCUSSION**

Meckel’s diverticulum, embryologically, results from an incomplete closure of the omphalomesenteric duct. The eponym describes a true diverticulum derived from the intestinal end of the yolk stalk. It generally arises from the antimesenteric border of the small bowel in the terminal ileum. The site of origin is usually 40-60 cm proximal to the ileocecal valve in the adult and usually appears as a finger like pouch about 3-6 cm long, although the size varies with regard to both length and diameter. The blood supply is derived from a remnant of the primitive vitelline artery arising from the superior mesenteric artery, or less commonly from the ileocolic artery. Most persons with a Meckel’s diverticulum remain asymptomatic throughout life. In those patients who develop symptoms, a variety of presentations have been reported. The clinical manifestations of complicating Meckel’s diverticulum are frequently non specific and can mimic other pathologic conditions such as appendicitis, Crohn’s disease, cholecystitis and peptic ulcer. Symptoms are more frequent during childhood, and the frequency of complications decreases with age.

Intestinal obstruction is the most common clini-
An Unusual Case of Intestinal Obstruction Caused by a Meckel’s Diverticulum

57

usually non-specific obstruction, but the aggravation of this clinical condition led us to an emergency exploratory laparotomy, with no other diagnostic imaging technique being performed.

Surgical treatment of a Meckel’s diverticulum generally consists of diverticulectomy, either by simple excision in the transverse axis of the ileum to avoid luminal stenosis, or by resection of the adjacent ileal wall or a segment of ileum with anastomosis. The latter is reserved for patients with complicated diverticula. We performed a diverticulectomy, followed by a two-layer closure of the small intestine at the base of the diverticulum.

In an overall review of the statistical probability of complications of Meckel’s diverticulum, Soltero and Bill, presented data indicating a 2% or less risk in adults of complications of these diverticula and an estimated 12% risk of surgical morbidity resulting from the elective treatment of asymptomatic diverticula. This study provided a solid background for the surgical philosophy of not removing normal-appearing diverticula in the adults. However, in a more recent review, Cullen and associates reported that diverticulectomies for complications carry an operative mortality and morbidity of 2% and 12%, respectively, and a cumulative risk of long-term postoperative complications of 7%. Incidental diverticulectomies, Cullen et al continued reporting, are safer, with corresponding rates of only 1%, 2% and 2%, respectively. Therefore, Meckel’s diverticula discovered incidentally should be removed from most patients regardless of their age, with emphasis on lengthy narrow-based lesions and those with nodularity, obvious mass effect or serosal indurations and thickenings.

Although uncommon, many cases of Meckel’s diverticulum may be quite suitable for laparoscopic diagnosis and treatment. A recent study15 confirmed the efficacy of Meckel’s diverticulectomy with laparoscopic techniques in infants and children. In a 1996 report, Fansler reviewed the laparoscopic management of Meckel’s diverticulum in adults along with operative decisions and laparoscopic options. The author of this report has used this approach in a number of adults with asymptomatic Meckel’s diverticula found incidentally during laparoscopy.

In conclusion, complicated Meckel’s diverticulum is a very uncommon cause of small bowel obstruction, which has to be considered in the differential diagnosis, especially in young patients without previous abdominal operations.
Ασυνήθης περίπτωση αποφρακτικού ειλεού σε έδαφος μεκκελείου αποφύσεως

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ΠΕΡΙΛΗΨΗ: Η Μεκκέλειος απόφυση παράστηκε εμβρυϊκό τύπολλειμμα του ομφαλομεσεντερικού πόρου, το οποίο ανευρίσκεται στο 1-4% των ατόμων. Η παρουσία της είναι συνήθως ασυμπτωματική και μόνο σε ποσοστό 10-20% των ασθενών εκδηλώνεται κλινικά με την εμφάνιση επιπλοκών. Περιγράφεται ασυνήθης περίπτωση εντερικής απόφραξης σε έδαφος μεκκελείου αποφύσεως.

Ασθενής ηλικίας 24 ετών, χωρίς ιστορικό προηγούμενης χειρουργικής επέμβασης, προσήλθε στην κλινική με εικόνα αποφρακτικού ειλεού (κοιλιακός πόνος, έμετοι, αναστολή αποβολής αερίων και κοπράνων και μετεωρισμός της κοιλίας). Στην απλή ακτινογραφία διαπιστώθηκε η ύπαρξη πολλαπλών υδραερικών επιπέδων λεπτού εντέρου, ενώ το εργαστηριακός έλεγχος έδειξε την ύπαρξη λευκοκυττάρωσης. Ο ασθενής υποβλήθηκε σε ερευνητική λαπαροτομία, στην οποία διαπιστώθηκε η παρουσία φλεγμαίνουσας μεκκελείου αποφύσεως, σε απόσταση περίπου 80 εκ. από την ειλεοτυφλική βαλβίδα, η κορυφή της οποίας συμφυόταν με τη ρίζα του μεσεντερίου. Η σύμφυση αυτή της μεκκελείου είχε ως αποτέλεσμα τη δημιουργία αφρόπονης δια μέσου της οποίας διεξήχθη το περιφερειακό ημία του εντερού, με τη μορφή εσωτερικής κήλης, γεγονός που είχε ως αποτέλεσμα την απόφραξη του εντερικού αυλού. Διενεργήθηκε εκτομή της μεκκελείου αποφύσεως και συρραφή του λεπτού εντέρου σε δύο στρώματα. Η μετεγχειρητική πορεία ήταν ομαλή.

Η μεκκέλειος απόφυση μπορεί να αποτελέσει σπάνιο αίτιο εντερικής απόφραξης, το οποίο θα πρέπει να περιλαμβάνεται στη διαφορική διάγνωση ειδικά σε απουσία ιστορικού προηγούμενης χειρουργικής επέμβασης.

Αξέχαστα Κλειδιά: Μεκκέλειος απόφυση, Αποφρακτικός ειλεός.

REFERENCES


