

Intestinal obstruction by giant Meckel's diverticulum. Case report

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SUMMARY: Intestinal obstruction by giant Meckel's diverticulum. Case report.

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Most cases of Meckel's diverticulum (MD) are asymptomatic and discovered by chance. Management of MD is controversial. The authors describe an exceptional case of intestinal obstruction caused by a giant MD in a patient who had previously undergone appendectomy.

A review of the contradictory literature on this subject leads to the conclusion that careful consideration of clinical and morphological data (patient's age, ASA score, the surgical procedure to be performed, morphology and position of the MD, any fibrotic bands) is required before deciding whether or not to resect an asymptomatic MD.

RIASSUNTO: Occlusione intestinale da diverticolo di Meckel gigante. Caso clinico.

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Nella maggioranza dei casi il riscontro del diverticolo di Meckel (MD) è accidentale. Vi è da sempre disaccordo sul comportamento chirurgico dopo riscontro di un MD asintomatico. Gli Autori descrivono un singolare caso di occlusione intestinale causata da un MD gigante in un paziente precedentemente sottoposto ad appendicectomia.

Dopo una revisione della contraddittoria letteratura sull'argomento, gli Autori concludono che la valutazione attenta di alcuni dati clinici e morfologici (età del paziente, ASA, intervento chirurgico effettuato, morfologia e posizione del diverticolo, presenza di aderenze fibrose) rappresenti un saggio comportamento prima di decidere di resecare un MD asintomatico.

KEY WORDS: Meckel's diverticulum - Intestinal obstruction - Appendectomy.
Diverticolo di Meckel - Occlusione intestinale - Appendicectomia.

Introduction

Following an exceptional case of intestinal obstruction, due to a "band" around an ileal loop caused by a long Meckel's diverticulum (MD) with the tip anchored to the abdominal wall in a young patient who had already undergone appendectomy, we decided to investigate the utility of a methodical search for MD during laparotomy procedures and review the literature about indications for preventive diverticulectomy.

Case report

A 24-year-old Indian man was admitted via the Emergency Room for abdominal pain of around 24 hours' duration, nausea, no bowel movement, clinical and radiological signs of mechanical intestinal obstruction. He had undergone appendectomy at the age of eight in his country of birth due to gangrenous appendicitis. He had no known existing conditions and he was not taking any medications.

On admission, he underwent an iodine contrast-enhanced abdominal x-ray, which revealed an obstruction in the terminal ileum. An emergency laparotomy was performed, which revealed an MD (14 cm long and 2 cm wide) 80 cm from the ileocecal valve. Its tip was strongly adherent to the parietal peritoneum of the abdominal wall at the site of the appendectomy scar. Its midsection was strangulated by one of the terminal ileal loops (Figs. 1,2).

The MD and the loops were dissected free. The strangulated loop was found to be non-ischemic. The diverticulum was resected by a linear stapler suture oversewed by a hand suture with 4/0 absorbable thread.

The patient was discharged on day 4th with no post-operative complications.

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Fig. 1 - The tip of Meckel's diverticulum is attached to the parietal wall by a thick fibrous band, indicated by the arrow.

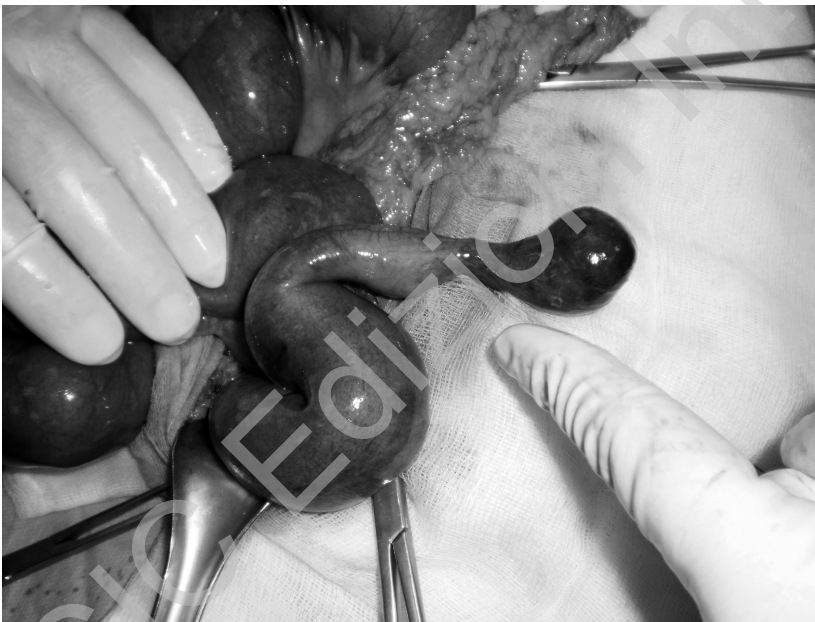


Fig. 1 - Operative view after dissecting and exteriorizing the diverticulum, whose distal third is congested and ecchymotic from its strangulation.

Discussion

Careful exploration of the small intestine for MD (at least 1 m from the ileocecal valve) should be common practice when performing appendectomy, even where the patient's signs and symptoms are clearly attributable to acute appendicitis. However, there are contradictory opinions in the international literature over whether or not to remove any MD found incidentally and not showing signs of complications.

The complications most often attributed to MD, with an estimated incidence of around 4%, are secondary to intussusception of the diverticulum, volvulus of the nearby intestine on congenital bands or bands secondary to diverticulitis, perforation of a diverticular ulcer, and diverticulitis. Less frequent complications include herniation of the MD in the presence of an inguinal or crural hernia (Littre's hernia), arterial compass syndrome, chronic diverticulitis, intra-diverticular lithiasis, and benign (lipoma, amartoma) or malignant (carcinoid, mesen-

chymal tumor including GIST, leiomyosarcoma-adenocarcinoma, desmoplastic small round cell tumor) neoplasms (0.5 - 1.9% of cases) (1-6).

The appearance of the MD is a clue to the type of complication it might undergo: diverticulitis and torsion are common in long MDs with a narrow base, while broad, stumpy MDs are susceptible to intussusception.

In a retrospective study of 202 cases, Soltero calculated that the risk of complications from MD was around 4.2%, while post-operative morbidity was around 9% after removal of a not pathological diverticulum and 11% after removal of a pathologic diverticulum. He also asserted that 800 asymptomatic MDs would need to be removed to save the life of one patient from a potential complication (7).

Authors in favor of the routine removal of an incidentally found MD report caseloads demonstrating no increase in morbidity or mortality after resection of asymptomatic MD (8-11). In contrast, those against report greater morbidity and mortality for preventive diverticulectomy (12,13) (see Table 1). A comparison of the various caseloads involved in these conflicting results

leads to a stalemate. Given this, some less intransigent authors have attempted a compromise, considering various clinical and anatomical criteria to arrive at a decision on what to do when faced with an asymptomatic MD. In 2001, Groebli suggested a number of criteria to be taken into account when deciding whether or not to remove an asymptomatic MD: male sex, age <40, ASA score, type of the operation being done when the MD is found, position, size and thickness of the diverticulum (14). In 2006, Robijn proposed a risk score based on four risk factors: male sex, age <45, diverticulum longer than 2 cm, and presence of fibrous band (15).

With respect to our own case, there are two possible theories: either the MD was not looked for during the appendectomy, or it was decided to leave it in place, despite its excessive length, as gangrenous appendicitis was the evident cause of the patient's signs and symptoms. In fact some authors prefer to leave any MD found incidentally during appendectomy for gangrenous or perforated appendicitis, removing it only in the case of "mildly inflamed appendix" (16).

We routinely look for MD when carrying out ap-

TABLE 1 - COMPLICATIONS OF MECKEL'S DIVERTICULECTOMY IN RECENT LITERATURE.

Author, year	Patients	Results	Conclusions
Zulfikaroglu B, 2008	40 in the incidental group and 36 in the symptomatic group.	No significant difference in postoperative complications or hospital stay. Two deaths in the symptomatic group.	Resection of incidentally found MD not associated with increased operative morbidity or mortality.
Bani-Hani, 2004	40 in the incidental group and 28 in the symptomatic group.	No significant difference in morbidity (p = 0.71), no deaths in either group.	Resection of incidentally found diverticula not associated with increased operative morbidity or mortality.
Arnold JF, 1997	58 patients: 45 incidental, 13 symptomatic	No associated morbidity or mortality.	Incidentally found MD should be resected unless absolutely contraindicated.
Kashi SH, 1995	43 cases of MD. In 21 of 35 diverticulectomies, MD was an incidental finding.	Overall complication rate 26%, rising to 30% in the asymptomatic group.	Incidentally discovered MD should be left in situ.
Peoples JB, 1995	Incidental diverticulectomy in 90 patients. 4 patients underwent resection for a complication of their diverticulum	Morbidity 2% and mortality 0% for the first group. Morbidity and mortality 0% for the complications.	Incidental diverticulectomy in adults should be abandoned.
Ueberrueck T, 2005	233 MDs (2.9%) detected during appendectomy. Of these 80.7% (n = 188) were removed and 19.3% (n = 45) were left untouched	No significant difference in postoperative complication between patients in whom the MD was removed (9.5%; n = 18) and those in whom it was not (17.7%; n = 8). No complications associated with a non-removed MD.	In cases of gangrenous or perforated appendicitis, incidentally discovered MD should be left in place, whereas in an only mildly inflamed appendix it should be removed.

pendectomies, except where peritonitis with acute appendicitis complicated by adhesions between the intestinal loops makes it difficult and above all risky to manipulate and exteriorize the loops. In any case, knowing that a patient has an MD, thanks to a description of its presence and features in his or her surgical records, could facilitate any subsequent etiological diagnosis of abdominal pain.

We generally leave in place any MD found incidentally during appendectomy for acute appendicitis, except where its conformation (highly elongated, fibrous bands attached to the umbilicus or as the sequelae of inflammatory processes) makes it particularly at risk.

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Conclusions

Given the enormous variability in the combinations of factors that might lead to a complication of an MD, there will probably never be universal agreement on how to proceed in the case of a chance finding. In any case it should always be looked for, except in those rare cases where adhesions between intestinal loops make this difficult. The decision on whether or not to carry out diverticulectomy should be based on the features of the MD itself. Where there are no complications, this decision should be left to the surgeon's common sense and experience.