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A case of small bowel obstruction

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Large Meckel's Diverticulum Enterolith. A case of small bowel obstruction

The Meckel's diverticulum is usually asymptomatic but in sometimes it presents severe complications, such as bleeding or perforation. The presence of enterolith inside a Meckel diverticulum is rare. In this report, we present a case of a 56-years- old man, with an abdominal pain and small bowel obstruction for a enterolith. Preoperative radiologic studies in Emergency Room (ER) didn't reveal this stone, but realeved a small bowel obstruction. Initially, we tried a conservative management, however after about 48 hours, due to worsening symptoms, the patient undergoes an exploratory laparotomy and a intestinal resection.

Key words: Enteriith, Meckel's diverticulum, Small bowel obstruction

Introduction

A Meckel's diverticulum is a congenital diverticuluum on the ileum resulting from incomplete atrophy of the vitelline duct 1. Described by Johann Friedrich Meckel, a german anatomist, in the 19th century [2], it is located 7 to 200 cm from the ileocecal valve on the amtimesenteric margin of the ileum. In most cases, it is asymptomatic, however it can rarely occur with complications, such as hemorrhage, inflammation, perforation or occlusion. Common symptoms are: fever, vomiting, abdominal pain and bloody stools. A symptomatic Meckel's diverticuluum is predominant in the male and predominantly in the children.
The Diagnosis is generally random and is detected during surgery for other causes. It can be diagnosed by using imaging modalities like ultrasound, X-ray, angiography, CT and magnetic resonance imaging. In recent years, the incidence increased, thanks to the improvement of diagnostic techniques, to laproscopy (magned vision allows easier recognition). The prevalence of Meckel's is between 0.3% and 2.9% of the general population [3]. The management for symptomatic Merckel's is the resection with or without a wedge or segment of the adjacent intestine in open or in laparoscopically.

Case Report

A 56-year-old gentelman with hypertension in medical treatment, presented to the emergency departement with a 48-hour history of diffuse abdominal disconfort, abdominal distension, bilious vomiting and lack of flatulence. Upon examination, the patient presented with no fever, normal vital signs, increased intestinal tympanism and tenderness in the right iliac fossa. White blood cell (WBC) count was elevated (14.200) and inflammatory index were elevated (CPR
4.09 and pct 0.05) (Table I). Abdominal X ray showed a small bowel obstruction and computed tomography (CT) scan confirmed this obstruction with the presence

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Table I - *Labarotory test in ER and after 48-hours*

Laboratory test	E.R.	After 48-hours
White blood cells (WBC)	14200	18600
Platelets (PLT)	274000	205000
C reactive protein (CRP)	4.09	10.15
Procalcitonine (pct)	0.05	0.5

Table II - Complication in Meckel's diverticulum

Complication in Meckel's diverticulum
Bleeding
Obstrucion
Volvulus
Diverticulitis
Enterolithiasis

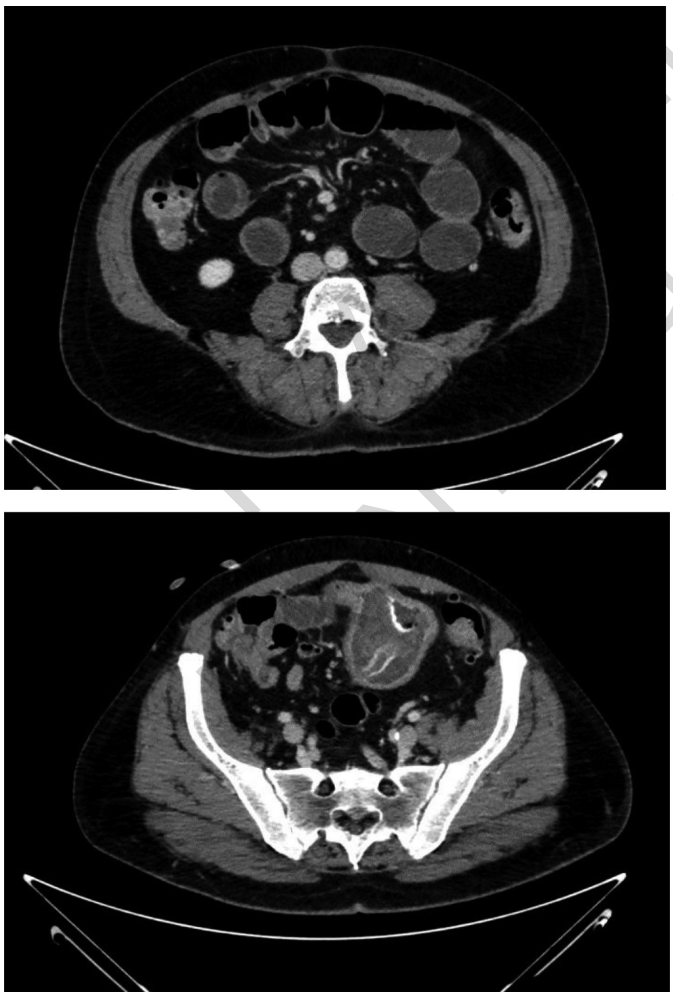

Fig. 1: CT scan 48 h after admission

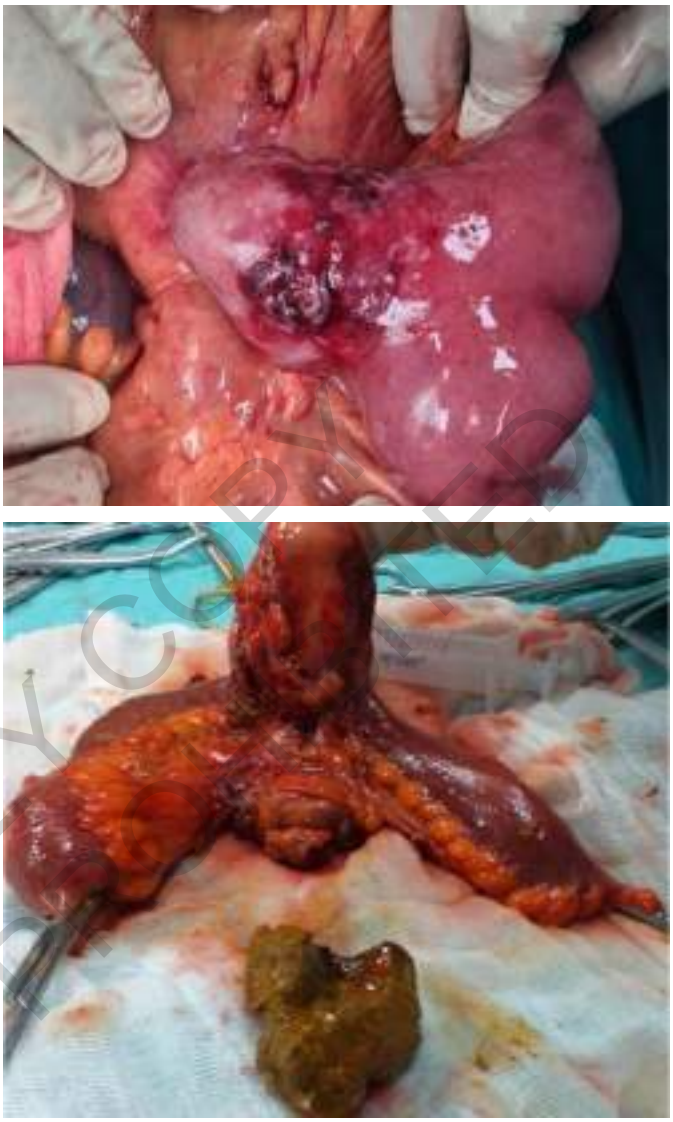

Fig. 2: Intraoperative findings

of hyperdense material in the distal ileum. The patient was admitted to the Department of General Surgery and underwent conservative therapy with infusion of fluids and placement of a gastric tube. After an initial improvement in clinical condition, there was a sudden worsening at approximately 24 hours, with further increase in inflammatory indices (WBC 17200, CPR 10.15 and procalcitonine 0.5) and worsening of the CT scan, which confirmed intestinal obstruction from intestinal intussusception on a foreign body (Fig. 1). Therefore, the patient underwent urgent surgery (Fig. 2). We proceeded to a median exploratory laparotomy with identification of Meckel's diverticulum occupied by a voluminous enterolotolyte and with severe perivisceritis phenomena. It was necessary a intestinal resection and ileal ileal anastomosis end to end. The lenght of stay was regular and the patient was discharged in V day post operation.

Discussion

The Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract with a prevalence in ~2% of the population [4]. Developed from incomplete obliteration of the omphalomesenteric canal, it causes the creation of a true diverticulum in the small bowel. In about 90% of people, is asymptomatic, but occasionally it manifests in the forms of complications: (e.g., bleeding (28%), obstruction (11%), volvulus (13%), diverticulitis (8%)) (Table II).

The obstruction's causes in Meckel's diverticulum are often intussusception, adhesions, volvulus, neoplasm. Instead, enterolithiasis is a rare cause of intestinal obstruction (in 3 - 10% of patient with a 3: 1 male to female ratio). Enteroliths formed in a Meckel diverticulum represent a primary intestinal stones. Predisposing factors are intestinal stasis, inflammation, intraluminal environment. Most of them are radiopaque at the CT scan because they are made by calcium and bile salts. Differential diagnosis in enterolithiasis of Meckel's diverticulum includes calcific abscesses, due to Crohn's disease, ingestion of extraneous bodies, neoplasms of the ileum, ectopic testes or teratomas [5]. The managment of Meckel's stone ileus is surgical. They include bowel resection with primary anastomosis, digital fragmentation of enterolith, removal of the stone through a proximal enterotomy, diverticulectomy. The laparoscopic approach is effective in symptomatic Meckel's diveticulosis but isn't safe in presence of complication such as obstruction or volvulus. It's also possible to perform a stapled laparoscopic diverticulectomy.

Laparoscopy has a definite role in patients with diverticulum symptomatic Meckel, especially when diagnosed is in doubt and has proven to be definitive in facilitating the diagnosis. E. Grasso et al. present a case report of a young patient with an acute abdomen who presented free gas and fluid within the peritoneal cavity on preoperative CT. In this case, exploratory laparoscopy made it possible to exclude a pathology affecting the appendix and pelvic organs and to perform a diverticulectomy and laparoscopic washing [6]. Analyzed literature presented any protocols for the management of Meckel's diverticulum accidentally diagn. Some authors believe that if a meckel's diverticulum is detected during major abdominal surgery it is necessary to remove it, as this diverticulum could become complicated in the future and require another surgery [8]. Less than 10% of symptomatic MD are diagnosed preoperatively because they can mimic several other gastrointestinal disorders. Appendicitis, however, represents the most common preoperative diagnosis.

So, the diagnosis is sometimes made during surgery and in these cases the surgical treatment of choice is diverticulectomy, as also highlighted in a series case published in the literature [9]. In our case, an enterolyte of about 5 cm completely occupied the lumen of the diverticulum and the loop of the small intestine generating an obstruction. A large inflammatory pseudotumor was found intraoperatively and therefore it was necessary to proceed with ileal resection and manual end-to- end anastomosis. It was necessary to proceed with laparotomy surgery as the patient was occluded and a precise diagnosis had not been made preoperatively. Our case is very interesting because the patient, during the lenght of the stay, had an initial improvement thanks to the conservative therapeutic approach, with a worsening of symptoms after 48 hours.

Therefore, an early and accurate diagnosis is needed that recognizes this complication and indicates the need for urgent surgery. There are few articles in the literature on enterolithiasis in meckel's diverticulum [10-13]. This complication is not mentioned in the updates on the management of the meckel's diverticulum or not explored enough. We advocate that this complication should be included in the updates of Meckel's diverticulum as it cannot infrequently characterize this picture and can be misunderstood.

Conclusion

The obstruction due to an enterolyte is very rare. The differential diagnosis includes: appendicolith, biliart and urinary calculi, vascular or omental calcification. In the case of obstruction complication, ileum resection is the most effective approach. The issue of prophylactic resection for asympotmatic

Meckel's diverticuluum remains controversial. For the future it is necessary to consider, in case of intestinal obstruction in a patient with Meckel's diverticulum, the presence of an enterolyte as a complication. Our case underlines that complications of Meckel's diverticulum and Meckel diverticulum-associated enterolithiasis need to be included in the differential diagnosis of abdominal complaints, as this diagnosis can be particularly challenging

Riassunto

Descriviamo un caso non frequente di occlusione intestinale dovuta ad enterolita di un diverticolo di Meckel. Il diverticolo di Meckel è l'anomalia congenita più comune del tratto gastrointestinale. L'incidenza è di circa il 2% della popolazione. La maggior parte dei pazienti è asintomatica, solo il 4-16% presenta complicanze, tra cui sanguinamento, ostruzione e diverticolite. L'enterolitasi altresì rappresenta una complicanza rara ma da tener conto in diagnosi differenziale. L'esecuzione di una TAC addome può nella maggior parte dei casi, conoscendo anche l'esistenza di tale complicanza, fare una diagnosi precoce e precisa del quadro clinico, evitando di giungere a quadri avanzati e scompensati di occlusione inte-

stinale. Pertanto auspichiamo che tale complicanza venga annoverata nelle complicanze classiche del diverticolo di Meckel così da permettere un più semplice e precoce riconoscimento.

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