

## Perforated Meckel's diverticulum

### Divertículo de Meckel perforado: una entidad inusual

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#### ABSTRACT

We report a patient with diffuse peritonitis due to perforation of Meckel's diverticulum. This patient was referred to the operating room and underwent bowel resection segment encompassing the area of the diverticulum and terminoterminal primary enteroanastomosis on two levels with good evolution. The diverticulum complications are often related to the presence of ectopic mucosa, especially the gastric and pancreatic type. Since preoperative diagnosis is difficult and infrequent, in most cases this anomaly is confirmed only during surgery. Surgical resection of the affected intestinal segment is the mainstay of treatment in both diverticula diagnosed incidentally, as the complicated by inflammation, bleeding, obstruction or perforation. We conclude that in cases of acute abdomen punctured, the diagnosis of Meckel's diverticulum should be considered.

**Keywords:** *Meckel's diverticulum; Peritonitis; Abdomen, acute (source: MeSH NLM).*

#### RESUMEN

Se describe el caso de un paciente con peritonitis difusa debido a la perforación de un divertículo de Meckel. Este paciente fue llevado a la sala de operaciones y fue sometido a resección del segmento intestinal incluyendo el área del divertículo y enteroanastomosis primaria termino-terminal en dos niveles, con buena evolución. Las complicaciones del divertículo a menudo están relacionadas con la presencia de mucosa ectópica especialmente del tipo gástrica y pancreática. Dado que el diagnóstico preoperatorio es difícil y poco frecuente, en la mayoría de los casos esta anomalía se confirma únicamente durante la intervención quirúrgica. La resección quirúrgica del segmento intestinal afectado es el pilar del tratamiento, tanto en los divertículos hechos con diagnóstico en forma casual, como el complicado por la inflamación, sangrado, obstrucción o perforación. Llegamos a la conclusión de que en los casos de abdomen agudo perforados el diagnóstico de divertículo de Meckel debe ser considerado.

**Palabras clave:** *Divertículo ileal; Peritonitis; Abdomen agudo (fuente: DeCS BIREME).*

#### INTRODUCTION

Meckel's diverticulum is the most common congenital anomaly of the digestive tract and is found in 2% of the population. In its evolution, approximately 4% of patients develop symptoms throughout life due to complications such as bleeding, obstruction, diverticulitis or perforation. The larger sample relate diverticula complications, in that the preoperative identification of this anomaly is infrequent bowel. Thus, in cases of acute surgical abdomen, the diverticulum complicated Meckel should be considered.

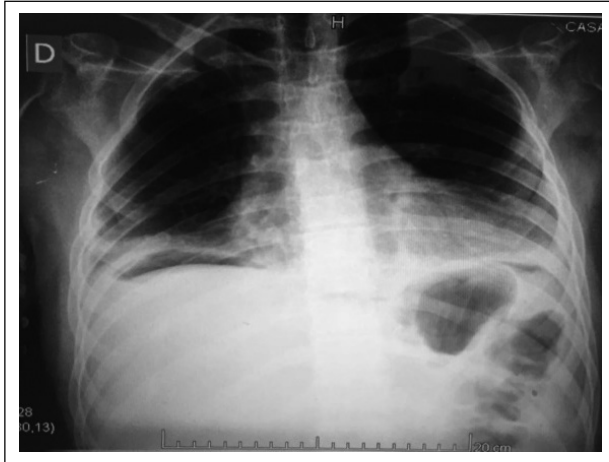
#### CASE REPORT

A 39 years old man, was admitted to the emergency unit of diffuse abdominal pain of 3 days of evolution, associated with anorexia, nausea and vomiting. He

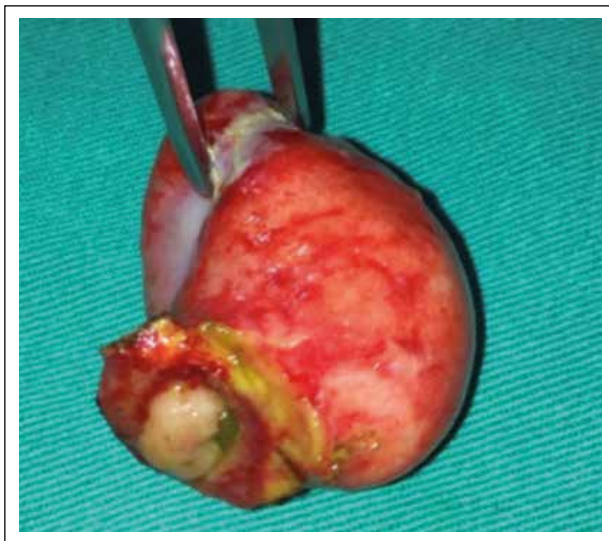
had history of epilepsy and mental deficit. Absence of gas elimination (flatulence) and feces over the same period. On physical examination was in regular general condition, dehydration, tachycardia and suffering facies. The abdomen had severe rigidity, decreased bowel sounds, pain on diffuse palpation and on maneuver sudden decompression.

Complete blood count revealed leukocytosis important, not found electrolyte disturbances and serum amylase was within normal parameters. the patient was submitted to radiography of abdomen that showed significant bowel distension, fluid levels and evident pneumoperitoneum in right diaphragmatic region.

After hemodynamic stabilization, we indicated surgical intervention. At laparotomy was identified large amount of enteral fluid in the cavity, small bowel loops



**Figure 1.** Chest radiography with pneumoperitoneum.



**Figure 3.** Extracted Meckel's diverticulum.

swollen and distended. Found a Meckel's diverticulum drilled in antimesenteric border of the terminal ileum, 60 cm from the ileocecal valve (Figures 1,2 and 3). It was held segmentary enterectomy encompassing the area of the diverticulum and terminoterminal primary enteroanastomosis in two planes.

Due to contamination of the wound and a psychomotor agitation framework presented by the patient, it was necessary new surgical approach on the fourth day due a partial dehiscence aponeurotic. He was discharged on day 10 without further complications. Histological examination of the surgical specimen: Meckel's diverticulum with diffuse inflammatory reaction and local drilling without ectopic mucosa findings.

## DISCUSSION

The description of Meckel's diverticulum of origin occurred in 1809 by Johann Friedrich Meckel,



**Figure 2.** Perforated Meckel's diverticulum located about 60 cm from the ileocecal valve.

based on embryological incomplete obliteration of omphalomesenteric duct between the 5th and 7th week of pregnancy.

The diverticulum incidence in the general population has been estimated at 2%, autopsy reports and retrospective studies describe a range between 0.14% to 4.5% <sup>(1)</sup>. The diagnosis is usually made in children, 50% to 60% of patients which develop symptoms are under 2-year old <sup>(2)</sup>.

This is a true diverticulum which is located on the anti-mesenteric border of the ileum, usually about 100 cm ileocecal valve <sup>(3)</sup>. On average a size of 4cm, ectopic mucosa presents in 50% of cases arising from pluripotent cells lining the vitello-intestinal duct. The most common is the gastric origin (corresponding to 60-85%) and pancreatic (5-16%) or a combination of both in 5-12% of cases <sup>(4)</sup>. The diagnosis must be considered in any patient with unexplained abdominal pain, nausea, vomiting or gastrointestinal bleeding <sup>(5)</sup>. Diagnosis by computed tomography is cited in the literature as infrequent. Scintigraphy with radioactive technetium (99 mTc) is a diagnostic option with a sensitivity of 90% in children and 46% in adults, however only restricted to diverticula which present ectopic gastric mucosa associated <sup>(4)</sup>. Therefore, the preoperative diagnosis is difficult and exceptional, since it is a rare condition that can mimic other causes of acute abdomen and presents nonspecifically in most imaging studies.

The manifestation of signs and symptoms of the diverticulum is dependent on complications <sup>(5)</sup>. And the risk of complications is 4.2%. The incidence of complications decreases with increasing age of the patients <sup>(6)</sup>. In a recent review, the conditions most commonly associated with symptomatic diverticulum were: younger than 50, male, diverticulum bigger than 2 cm and the presence of tissue ectópico <sup>(7)</sup>. This risk of complications ranging from 4% to 25% in several studies, the most common being: hemorrhage, small bowel obstruction, diverticulitis and perforation <sup>(8)</sup>. They are specific to each age group. Bleeding, for example, is the most common complication observed under 2 years old due to ulceration of the ileal mucosa adjacent caused by acid production by the ectopic gastric mucosa. In adults, intestinal obstruction is more common clinical presentation, from intussusception mechanisms, volvo, enterocolitis or fitobezoares.

Perforation is a rare complication may be caused by diverticulitis, trauma, ulceration, tumor or strange body <sup>(8)</sup>. Diverticulitis and perforation occur at a combined rate of nearly 20% and often present themselves in a manner similar to an acute appendicitis above. Initially, a fecaloid mass obstructs the diverticulum leading to inflammation, necrosis and eventual perforation. More rarely, Meckel's diverticulum can be pierced by foreign bodies <sup>(9)</sup>.

Approaches for Meckel's diverticulum depend on how we performed the diagnosis, it was incidental finding or due to the presence of complications. In asymptomatic patients resection of the diverticulum or ileal segment that contains has been advocated in most studies, in that strategies to determine the risk factors (age, sex, diverticulum length) proved ineffective in decision remove prophylactically or not the diverticulum. Treatment of a Meckel diverticulum complicated should always be aimed at the surgical resection of the diverticulum. It is believed to be the enterectomy segment with end-to-end reconstruction the most appropriate conduct to ensure the complete removal of the diverticulum and ectopic mucosa at the base of the segment ileal <sup>(10)</sup>. Compared to a complicated diverticulum surgically removed, the rate of mortality and postoperative morbidity is 2% to 12%, respectively <sup>(3)</sup>.

In conclusion, the rarity of the condition diverticulum perforated Meckel, combined with preoperative diagnosis unlikely that intestinal anomaly motivated this case report. Drilling can be caused by diverticulitis, trauma, ulceration, tumor or foreign body and generates a diffuse peritonitis considerable morbidity and mortality. In this case, the chosen treatment showed good results. Resection of Meckel's diverticulum was performed with certain degree of protection, the biopsy showed no remaining ectopic tissue.

**Conflicts of Interest:** None.

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