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Simultaneous Occurrence of a Meckel's diverticulum and a patent urachus: A case report in infant

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Abstract:

Meckel's Diverticulum (MD) is a rare condition defined as a heterotopic gastric or pancreatic tissue in the small intestine, secondary to persistence of the congenital vitello-intestinal duct. It is the remnant of the yolk channel located about 60-80 cm from the ileocecal junction. Simultaneous existence of a Meckel's Diverticulum and a patent urachus is an uncommon situation .It may be asymptomatic for long time .MD is a common anomaly of the small intestine that occurs in approximately 2% of the population, often found incidentally at the time of abdominal exploration. Complications arising from a Meckel's diverticulum or urachal remnant may clinically mimic acute appendicitis and other surgical pathologies. We report on a patient who referred to pediatric surgery with abdominal pain and deterioration of general status. On physical examination his abdomen was distended with guarding. A diagnosis of acute peritonitis by intestine perforation was made. The patient underwent a surgery and in the course of the surgery, a urachal remnant was found to coexist with a Meckel's diverticulum.

Keywords: Meckel's diverticulum, patent urachus, infant, surgery

Introduction:

Meckel's diverticulum is the commonest congenital abnormality of the gastrointestinal tract and occurs secondary to persistence of the congenital vitello-intestinal duct [1, 2]. Embryologically , Meckel diverticulum is caused by failure of closure of the vitelline duct at the fifth week of fetal growth.

Complications develop in only 4% of patients with this malformation [3, 4], most cases presenting in childhood but the simultaneous occurrence of a Meckel's diverticulum and a patent urachus is very uncommon. Normally, the allantois and upper portion of the bladder become obliterated and are postnatally represented as a thick fibrous band (urachus) that connects the umbilicus and the bladder. Incomplete closure of the allantoic lumen results in urachal abnormalities .The clinical manifestations of Meckel diverticulum have been found to be various in natures.

Case report:

We present a case of a 6 months child, referred to pediatric surgery, who came with a deterioration of the general status, vomiting and abdominal pain . It was found from the patient history that pain had begun four hours ago. Physical examination revealed dehydration grade two and abdominal distress. Leucocytes were 30,500/per ml .Abdominal X-Ray and abdominal scan were performed and showed a pneumoperitoneum. A diagnosis of acute peritonitis by intestine perforation was made. The patient was scheduled for surgery, and a laparotomy was performed.

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Median laparotomy incision was made. During surgery, the appendix had a natural appearance. We identified gastric distension, distension of the small intestine without peritoneal effusion.
Granulomatous tissue was found originated from the umbilicus and ended at the bladder (patent urachus). At the umbilical cord, we identified a second structure, which was connected with the small intestine. Dissection revealed a perforated Meckel's diverticulum, in a cystic form, on the anti-mesenteric side of the ileum. It was pediculated to the last ileum and connected to the umbilicus by a short fibrous band.

Heterotopic mucosa of diverticulitis was confirmed on histopathology. During surgery, the Meckel's diverticulum and the patent urachus were resected. An end-to-end small bowel anastomosis was performed after resection of the prior site of the Meckel's diverticulum. The boy was in good condition at 6 months of follow-up, he didn't present any further symptoms from the patent urachus or the Meckel's diverticulum.

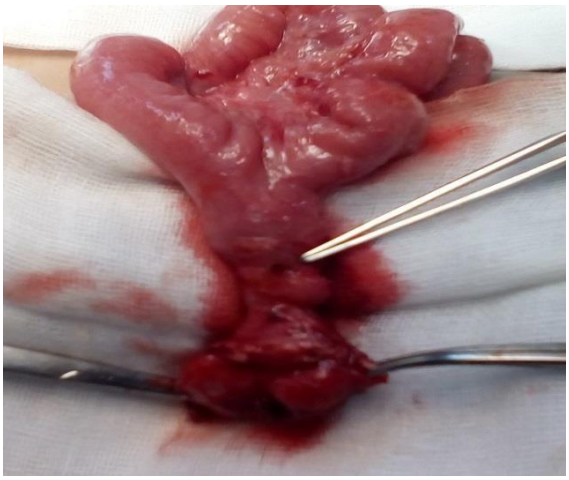

Fig 1: perforated MD and patent Urachus

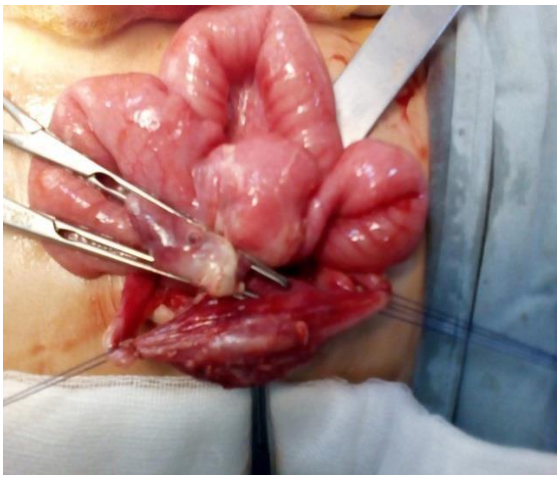

Fig 2: resection of the perforated Meckel's Diverticulum

Discussion:

Meckel's diverticulum occurs with an incidence of 1.2–2% [1, 5]. As a result of the delay or absence of vitelline duct obliteration, a remnant of the vitelline duct persists with varying length and location [3].

Symptoms that may be linked to the diagnosis of Meckel's diverticulum can be symptomatic in <5% of patients with MD [3]. Diverticula contain heterotopic mucosa in 30% of cases and 70% of this heterotopic mucosa is gastric in type [3]. A urachus is a vestigial tubular structure that connects the urinary bladder to the allantois during early embryonic development [4, 6]. Patent urachus occurs with an incidence of 1–2/100 000 deliveries, and is estimated to account for about 10–15% of all urachal anomalies [4, 7] Meckel diverticulum and residual urachus have a common embryological origin: the yolk sac at the eight day of life [8]. Their clinical signs are often absent but complications occur in 4% of the cases (haemorrhage, occlusion, inflammation, and rarely tumoural formation) [3, 8] .

Co-existence of a vitelline and urachal remnant is uncommon, although reported [3, 4].

Spontaneous perforation due to diverticulitis is even less common, the behavior of MD in children showed only 7.3% of symptomatic MD was perforated [9]

It still remains debatable whether or not to operate on a Meckel's diverticulum that is found incidentally [3] .A diseased Meckel's diverticulum, however, must be excised.

The standard surgical treatment of symptomatic MD is diverticulectomy, or in which cases segmental resection of the ileum that includes both the diverticulum and the adjacent ileal should be performed.

A patent urachus should be excised too because of the high incidence of malignancies.

Urachal carcinoma is rare and comprises 0.35 to 0.7 % of all bladder cancers [6].

However, the usual treatment of a patent urachus together with asymptomatic Meckel's diverticulum is surgical excision by laparoscopy or laparotomy.

Conclusion:

The urachal abnormality, which we found together with Meckel's diverticulum, is another rare congenital pathology. The risk is peritonitis, fistula formation, volvulus between fibrous bands, and cancer that could develop in urachal remnants. That's why if any of these conditions exist, total surgical excision should be carried out.

Références

1. Sagar J, Kumar V, Shah DK. Meckel's diverticulum: a systematic review. J R Soc Med. oct 2006;99(10):501‑5.

2. Burjonrappa S, Khaing P. Meckel's diverticulum and ectopic epithelium: Evaluation of a complex relationship. J Indian Assoc Pediatr Surg. 2014;19(2):85‑9.

3. Coexistence of a Meckel's diverticulum and a urachal remnant - Özel - 2005 - Clinical Anatomy - Wiley Online Library [Internet]. [cité 3 oct 2019]. Disponible sur: https://onlinelibrary.wiley.com/doi/abs/10.1002/ca.20149

4. Penninga L, Timmerman P, Reurings JC, Nellensteijn DR. Simultaneous occurrence of Meckel's diverticulum and patent urachus. Case Reports. 8 juill 2015;2015:bcr2015210147.

5. Tatekawa Y. Surgical strategy of urachal remnants in children. J Surg Case Rep [Internet]. 23 juill 2019 [cité 7 oct 2019];2019(7). Disponible sur: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6656304/

6. Gopalan A, Sharp DS, Fine SW, Tickoo SK, Herr HW, Reuter VE, et al. URACHAL CARCINOMA: A CLINICOPATHOLOGIC ANALYSIS OF 24 CASES WITH OUTCOME CORRELATION. Am J Surg Pathol. mai 2009;33(5):659‑68.

7. Nonoperative management of a patent urachus. - PubMed - NCBI [Internet]. Disponible sur: https://www.ncbi.nlm.nih.gov/pubmed/16360476

8. de la Taille A, Cuvillier X, Donnaint A, Biserte J, Mazeman E. [A case of association of cyst of the urachus and Meckel's diverticulum]. J Urol (Paris). 1994;100(5):267‑8.

9. Fraser AA, Opie DD, Gnecco J, Nashed B, Johnson DC. Spontaneous perforation of Meckel's diverticulum in an adult female with literature review. Surg Case Rep [Internet]. 1 nov 2018 [cité 7 oct 2019];4.

Disponible sur: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6211145/