CASE REPORT

Simultaneous occurrence of Meckel's diverticulum and patent urachus

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SUMMARY

The simultaneous occurrence of a Meckel's diverticulum and a patent urachus is very uncommon. We describe the occurrence and surgical treatment of Meckel's diverticulum and an urachal anomaly in a 1-year-old boy. The patient had intermittent production of clear fluid from the patent urachus, which disappeared after surgical resection.

BACKGROUND

The allantois is a canal that drains the urinary bladder during the fetal period. This canal joins and runs within the umbilical cord. The urachus is the fibrous remnant of the allantois. Normally the allantois will obliterate and involute during the fourth through fifth month of pregnancy.¹ Incomplete closure of the allantois is highly uncommon, and will frequently result in symptomatic abnormalities.²

Another congenital anomaly is Meckel's diverticulum, which is a true diverticulum, containing all layers of the small bowel wall. It arises from the antimesenteric surface of the middle-to-distal ileum in the fetal period, and is a remnant of the omphalomesenteric duct. This is a long narrow tube that joins the yolk sac to the mid-gut lumen of the developing fetus.³⁻⁴ Normally, this duct regresses between the fifth and eighth week of pregnancy resulting in a remnant with varying length, which is localised in the ileum mainly within 100 cm from the ileocecal valve, with some outliers.⁵⁻⁶

We describe a patient with Meckel's diverticulum and patent urachus, and to the best of our knowledge, this is the first case that describes the simultaneous occurrence of these two congenital anomalies.

CASE PRESENTATION

We present a case of a 1-year-old boy who was born at term. Pregnancy and labour were uncomplicated, and the child had a postpartum APGAR score of 10. One week after delivery, the umbilicus continued to produce clear fluid. The intermittent production of fluid persisted during the first year of life. The patient had no signs of dysuria, haematuria, local umbilical inflammation or pain.

INVESTIGATIONS

Ultrasonography was performed and showed a Meckel's diverticulum and a patent urachus.

TREATMENT

The patient was scheduled for surgery, and a laparotomy was performed (figure 1).

Figure 1 Image of the operative findings: Meckel's diverticulum (black asterisk); umbilicus (white asterisk); patent urachus (black arrow) and small intestine (white arrows).

During surgery, we identified granulomatous tissue that 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 of this structure revealed a Meckel's diverticulum. During surgery, the Meckel's diverticulum and the patent urachus were resected. The postoperative course was complicated by short bowel obstruction due to narrowing of the small intestine at the resection site of the Meckel's diverticulum. The patient was re-operated after 5 days and an end-to-end small bowel anastomosis was performed after resection of the prior site of the Meckel's diverticulum.

The further postoperative course was uneventful. The patient was discharged 8 days after re-operation (15 days after admission).

OUTCOME AND FOLLOW-UP

The boy was in good condition at 6 months of follow-up. He did not have any further symptoms from the patent urachus or the Meckel's diverticulum.

DISCUSSION

Meckel's diverticulum occurs with an incidence of 1.2–2%.³⁻⁴ It is often found incidentally during appendectomy or other abdominal surgery. A symptomatic Meckel's diverticulum can present with a variety of clinical manifestations.⁷ Meckel's diverticulum should be suspected in children with painless lower gastrointestinal bleeding and intussusception, particularly recurrent intussusception, and in patients

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with features of acute appendicitis, particularly when the appendix has already been removed.⁸

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.⁹ A patent urachal fistula is uncommon, though when a patent urachal fistula does exist, it causes general symptoms.^{2 10} Co-existence of a vitelline and urachal remnant is uncommon, although reported.¹¹ In the majority of cases, a patent urachus causes clear fluid loss, sometimes directly from the bladder. In a patient suspected of having a urachal anomaly, ultrasonography is useful in diagnosis of patent urachus or urachal cysts.^{12 13}

Prenatal diagnosis of a urachal anomaly by ultrasonography allows for careful examinations during pregnancy, comprehensive counselling of the parents and appropriate timing of post-natal treatment.¹⁴

The usual treatment of a patent urachus together with a symptomatic Meckel's diverticulum is surgical excision by laparoscopy or laparotomy. The patent urachal fistula should be resected completely including a cuff of the urinary bladder to eliminate the risk of future urachal adenocarcinoma.¹⁵

Urachal anomalies may not be detected until adulthood. In adults, half of the pathological specimens demonstrated evidence of adenocarcinoma. In contrast, no child had evidence of

malignancy. Urachal cancers account for only 1–10% of adult bladder cancers, with a 10-year disease-free survival of about 50%.^{16 17}

Competing interests None declared.

Patient consent Obtained.

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Learning points

- A Meckel's diverticulum and a patent urachus can occur simultaneously.
- Urachal abnormalities that are symptomatic need surgical management.
- Urachal abnormalities should be removed because of the high incidence of malignancies.
- Ultrasonography is useful in diagnosis of patent urachus or urachal cysts.

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