Meckel's diverticulum strangulated in an umbilical hernia

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ABSTRACT

Background: Strangulated Meckel's diverticulum (MD) in an umbilical hernia (UH) is a rare event. We present herein a case of strangulated MD in UH in a child. **Case Report:** An 18-month girl was admitted with clinical features suggesting upper intestinal strangulation since seven days. Many attempts of reduction were done before admission. She was resuscitated and had exploratory laparotomy, which revealed the hernia sac containing a completely gangrenous MD. She had bowel resection and had an uneventful postoperative period. **Conclusion:** An MD may be the content of a strangulated UH. Bowel resection of the segment bearing the diverticulum is advisable if the latter is gangrenous.

Key words: Child, Meckel's diverticulum, umbilical hernia

DOI: 10.4103/0189-6725.54779

INTRODUCTION

Although umbilical hernia (UH) is common in children, its strangulation is considered as rare by many authors[1-3] Meckel's diverticulum (MD) resulting from an incomplete regression of the omphalo-mesenteric duct, is equally rare with an annual frequency between 0.79%-5.6%.[4] The strangulation of a MD in an UH is even rarer.[2] We report herein a case of strangulated MD contained in an UH in a child.

CASE REPORT

An 18-month girl was admitted in the surgical emergency department of the Tokoin Teaching Hospital of Lomé in 2007, with complaints of painful umbilical swelling, vomiting, fever and constipation. She was ill for seven days prior to admission. During the first consulting visit to a clinic, the diagnosis of malaria was made and the baby was placed on antimalarial treatment (artemather and lumefantin, paracetamol and metopimazin). The symptoms remitted for two days, and increased with vomiting, fever, and progressive increase in the size of umbilical swelling. Complete inability to pass faeces from the fourth day (despite the continuation of the antimalarial treatment), motivated the visit to a teaching hospital. Her past medical history was unremarkable.

She was febrile at presentation with a temperature of 38.5°C. The main abdominal finding on examination was a tender UH, with pitting oedema of its shinny overlying skin; its diameter was 4 cm. The diagnosis of strangulated UH with probable bowel's necrosis was made. She was prepared for an operation. At surgery, the vessels underneath the skin of umbilical wall were remarkably dilated, as far as the base of the umbilicus [Figure 1]. The sac contained a MD located on the antimesenteric border of the terminal ileum, 12 cm from the ileo-caecal junction; its base measured 2 cm wide and 1.5 cm long. It was completely gangrenous throughout its length. The appendix was normal.

A resection was performed to remove 8 cm of the small bowel at both sides of the MD, with an immediate end-to-end anastomosis. The abdominal wall was closed, followed by an umbilicoplasty. The postoperative period was uneventful. Patient was discharged after seven days of operation. On two months follow-up, she remained



Figure 1: Swollen and oedematous umbilicus, and gangrenous Meckel's diverticulum

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well with no complaint. Histological examination confirmed MD polymorphonuclear infilterate, oedema, and scattered necrotic zones.

DISCUSSION

Congenital UH is due to an incomplete closure of the umbilical ring, or due to the weakness of the fasciae around the ring, leading to the protrusion of the abdominal viscera.[3] Very often, UH closes spontaneously in the first three to four years of life; thus, it should not be usually operated before five years of age.[3] Its closure is indicated if the defect's diameter persists and is more than 1 cm after the age of four; the closure may be undertaken at any age if the diameter increases instead of reducing.

Strangulation of an UH in a child is considered by many authors to be rare,[1-3] and only few cases are published.[1,2] Strangulations can result in intestinal necrosis necessitating intestinal resections. Fall *et al.*,[1] reported five cases of such strangulation in a series of 41 UHs in Dakar (Senegal), while Chirdan *et al.*,[2] reported only one case of strangulation in a series of 23 UHs in Jos (Nigeria). In this latter report, the resected portion of gangrenous small bowels included the MD. In our case, although the MD was strangulated in the UH, there was no small bowel necrosis.

A MD similar to other embryonic remnants of the umbilical region, coexisting with a UH can develop its own pathology, including strangulation in the hernia. When these remnants are included in hernial sac (case of MD), or when they are a part of the hernial sac wall, or of the umbilical ring (remnants of umbilical arteries, umbilical veins or urachus), their inflammation may give rise to painful umbilical symptoms. Pagava *et al.*,[5] reported a case of suppurative urachal cyst that simulated a strangulated UH. As for a MD, it is characterised by its latency, and is often discovered by chance; whether it is complicated or not.[4] Tekou *et al.*,[4] reported 11 cases of MD, none was diagnosed before operation.

In case of an obviously strangulated UH, no attempt should be made to reduce the hernia because of the risk of intensifying ischemia of the viscera or of perforating gangrenous viscera in the peritoneal cavity. The contamination of the large peritoneal cavity will result in a generalised peritonitis, and can worsen prognosis.

The treatment of MD, whether pathological or not, is surgical resection of approximately 10 cm of small bowel at each side of MD. That way, one can be sure to have removed heterotopic tissular islets that may be in a MD.[4]

We conclude that a MD may be the content of a strangulated UH. Adequate bowel resection of the segment bearing the diverticulum is advisable, if the latter is gangrenous.

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Source of Support: Nil, **Conflict of Interest:** None.