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Patent Omphalomesenteric Duct

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The omphalomesenteric duct or vitelline duct is a remnant of the embryonic yolk sac. The omphalomesenteric duct connects the yolk sac to the gut in the developing embryo and provides nutrition until the placenta is established; the duct attenuates and separates from the intestine between the 5th and 7th weeks of gestation. Partial or complete failure of involution of the omphalomesenteric duct results in various residual structures. Meckel's diverticulum is the most common of these structures. However, patent omphalomesenteric ducts occur infrequently (1,2). It has been reported that approximately 10 % of patients with a Meckel's diverticulum have a fibrous cord attached to the umbilicus (3).

It has also been reported that a patent omphalomesenteric duct may regress spontaneously and result in a Meckel's diverticulum with no connection to the umbilicus (4).

If the omphalomesenteric duct is patent from the terminal ileum to the umbilicus, fecal umbilical drainage will be observed (1).

This paper reports a case of a patent omphalomesenteric duct in an umbilical cord hernia which was diagnosed early, and possible complications by were avoided through surgical treatment.

A male term infant was delivered by cesarean section from the third gestation of a healthy mother. There was no consanguinity between the parents. The birth weight of the patient was 3800 g (50th-75th percentile), length was 52 cm (90th percentile). On first physical examination, a 3 mm diameter orifice on

the umbilical cord at a distance of 3 cm distal to the abdominal wall was observed; a small amount of yellowish discharge was noticed around the orifice (Fig. 1). Other physical examination findings were normal.

During radiographic examination, after an injection of radioopaque material through the orifice, a terminal ileum protrusion in the large umbilical cord and intestinal fistula were imaged (Fig. 2). The patient was operated on and the omphalomesenteric duct and related intestinal segment were resected. Six days after the operation, the general condition of the patient had improved and the patient was discharged.

Diagnosis and treatment of a patent omphalomesenteric duct are important as it may cause severe complications, resulting in 18 % mortality, especially in the newborn period (6). In a study of around one thousand umbilical cords and placentas, microscopic analysis revealed embryonic remnants in 23.1 % of samples. Furthermore, 6.6 % of these were remnants of the omphalomasenteric duct (5).

Omphalomesenteric duct anomalies occur in approximately 2 % of newborns. In 6 % of these the duct remains patent, with 20 % of patent omphalomesenteric duct cases being complicated by intussusception of the small bowel through the patent duct (9). This condition is eight times more common in males; and 73 % of these cases exhibit symptoms within the first 28 days of life (9, 13). Another significant complication is progressive prolapsus of the omphalomesenteric duct, leading to a T-shaped bowel protrusion through the umbilicus (6, 8). Several papers have reported that a patent omphalomesenteric duct can



Figure 1. The 3 mm diameter orifice on the umbilical cord at a distance of 3 cm distal to the abdominal wall.



Figure 2. Terminal ileum protrusion in the large umbilical cord and fistula imaged after an injection of radioopaque material through the orifice.

cause episodes of cramping, abdominal pain and discharge from the umbilicus (8, 12). Bedard et al (11) also reported that omphalomesenteric duct as a cause of colon volvulus in a 77-year-old female patient.

Omphalomesenteric duct anomalies may be associated with umbilical hernia, intestinal atresias, cardiac malformation, cleft lip and palate and exomphalos. It is also reported that the omphalomesenteric duct may be seen in trisomy 13 and Down's syndrome (9, 14). Intestinal obstruction is the most lethal complication of omphalomesenteric duct remnants (8). For this reason, to prevent complications, early surgical

management is important (10). As in our case, it is possible to diagnose the presence of the omphalomesenteric duct in an umbilical cord hernia in early life by careful physical examination of all newborns at birth. In this patient, identification of a 3 mm lesion on the umbilical cord enabled early surgical management of patient and prevention of the complications.

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