Laparoscopy-assisted excision of ileocecal dermoid cyst in an 11-year-old boy

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The ileocecal region is an extremely rare location for a dermoid cyst (DC) in children, and as such, it is not considered in the differential diagnosis of cystic masses of the ileocecal region. Herein, the authors present the first childhood case of ileocecal DC, which was treated with laparoscopy-assisted excision. DC should be included in the differential diagnosis for a cystic mass located in the ileocecal region in children.

Key words: dermoid cyst, cecum, mesentery, ileocecal region, ileum.

Dermoid cyst (DC) is a special subgroup of mature teratoma, and it contains predominantly an ectodermal derivation. The cyst is characteristically unilocular, lined by stratified squamous epithelium, and contains special structures such as sebaceous glands, hair follicles, and teeth, and it is filled with cheesy sebaceous material.

Dermoid cyst (DC) is located extremely rarely in the ileocecal region in both adults and children. To the best of our knowledge, only eight adult cases with ileocecal DC[1-8] and four childhood cases of mesenteric DC[9-12] (Table I) have been reported to date in the English medical literature.

The first childhood case of ileocecal DC is reported herein to emphasize the rarity of the lesion through a review of the pertinent English medical literature. Pediatric surgeons should be aware of DC in the differential diagnosis of cystic masses located in the ileocecal region.

Case Report

An 11-year-old boy presented with intermittent abdominal pain of two months. He also suffered from rectal bleeding on two occasions. His bowel and urinary habits were normal. He had been receiving oxcarbazepine (Trileptal®) and valproic acid (Convulex®) medications for epilepsy. The physical examination revealed no abnormality except mild mental retardation.

Laboratory examinations showed mild anemia, mild leukopenia and thrombocytopenia; hemoglobin was 12.2 g/dl (N: 13.6-17.2), white blood cells (WBC) 4700/ml (N: 4800-10800), and thrombocytes 104,000/ml (N: 130.000-400.000). C-reactive protein level (<0.3 mg/dl, N: 0-0.3) and liver and kidney biochemistry results were in normal limits. Urinalysis was also normal.

Abdominal ultrasound and computed tomography showed a well-circumscribed cystic mass (31x26x37 mm) between intestinal loops (Fig. 1). The cyst had a thin wall and contained a consistent material. The lesion was assumed to be a Meckel's diverticulum, duplication cyst or omental cyst in light of the clinical and radiological findings.

Laparoscopy was performed using three trocars (umbilicus and both lower quadrants). A spherical mass was found located just on the mesentery of the ileocecal junction, close to the cecum. It was delivered through the umbilical port site after enlarging the incision to 3 cm (Fig. 2). The mass was soft, 3x3x2 cm in size, and lipomatous in appearance (Fig. 3a). It was totally excised with the adjacent lymph node (5x8 mm) without compromising the intestine. The postoperative course was uneventful.

The cyst was lined with keratinized stratified

squamous epithelium. The cyst wall was composed of collagenous fibrosed tissue containing pilosebaceous units and mature adipose tissue. Keratin was observed in the lumen of the cyst. The histopathological findings were consistent with DC (Fig. 3b).

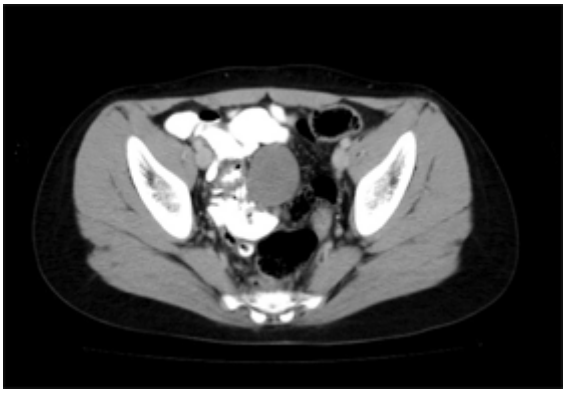

Fig. 1. Abdominal CT demonstrates a well-circumscribed, thin-walled cystic mass between intestinal loops.

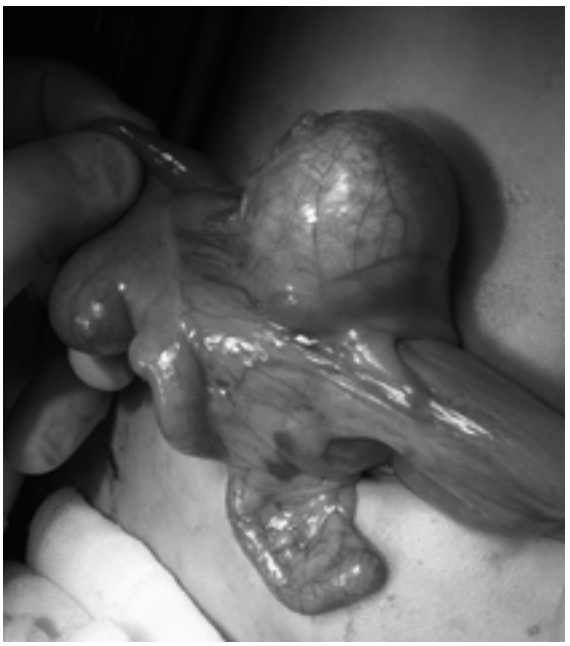

Fig. 2. The mass was located at the ileocecal junction (delivery through umbilical port site).

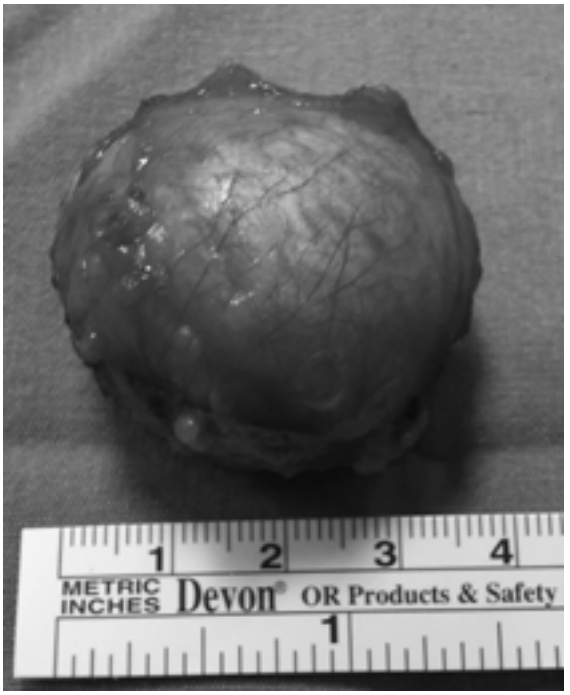

Fig. 3a. Macroscopic appearance of the mass.

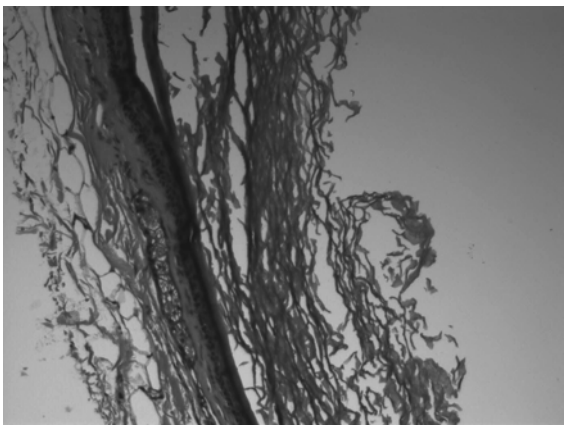

Fig. 3b. The cyst lined with stratified squamous epithelium, with pilosebaceous units in the wall (hematoxylin-eosin stain, X 200).

Table I. Children with Dermoid Cyst of the Mesentery and Ileocecal Region

	Author,	Year	Age	Gender	Presentation
1	Basil Hall J[9]	1904	8 yrs	F	Asymptomatic abdominal mass
2	Kay S[12]	1971	1 yr	F	Asymptomatic abdominal mass
3	Buonanno G, et al.[10]	1984	13 yrs	M	Anemia, jaundice, abdominal mass
4	Punguyire D, et al.[11]	2011	2 yrs	F	Asymptomatic abdominal mass
5	Kırlı EA, et al. present case	2012	11 yrs	M	Abdominal pain

F: Female. M: Male.

Table II. Surgical Data of Dermoid Cysts of the Mesentery and Ileocecal Region

	Location	Size (cm)	Surgery
1	Ileum mesentery, 65 cm proximal to ileocecal valve	30x40	Laparotomy, excision
2	Cecum	8	Laparotomy, excision
3	Mesentery, partially retroperitoneal	15.5x17	Laparotomy, excision
4	Ileum mesentery	10x5	Laparotomy, excision
5	Ileocecal junction mesentery	3x3x2	Laparoscopy-assisted excision

Discussion

Dermoid cyst (DC) is a special type of mature teratoma and contains predominantly ectodermal components: epidermal lining of the cyst, hair follicles and sebaceous glands in the cyst wall, and sebaceous material filling the cyst. DC is usually found in the midline structures such as anterior neck, mediastinum, central nervous system, and gonads. Gonads are the most common localization in children. The ileocecal region is an extremely rare location for DC, with only eight adult cases having been reported to date[1-8]. To the best of our knowledge, only four childhood cases of DC of the mesentery have been reported to date[9-12] (Table I). The cyst was located on the ileum mesentery at 65 cm proximal to the ileocecal valve in one case. No specific information could be derived from the articles about the exact location of DC in another two cases. Therefore, we can presume that our patient is the first case of ileocecal junction DC in childhood (Table II).

Although the exact embryological pathogenesis is not known, two mechanisms have been suggested. DC may derive from sequestration of remnants of totipotent cells during migration from the entoderm of the yolk sac to the gonads via the dorsal mesentery of the hindgut[13], or remnants of totipotent cells in the genital ridge may incorporate in the ileocecal region before rotation of the gut during embryogenesis[1,12].

Dermoid cysts (DCs) of the ileocecal region may present with abdominal pain, rectal bleeding, nausea, vomiting, intestinal obstruction, cecal volvulus, and nontender palpable right-sided abdominal mass. Abdominal pain and rectal bleeding were encountered in the present case. However, rectal bleeding did not seem to be related to DC in our case since the lesion was not located intramurally.

Dermoid cysts (DCs) may cause ulceration, rupture and bleeding, foreign body giant cell reaction against keratin content, and failure to thrive. Interestingly, anemia without associated bleeding has also been reported in a child with mesenteric DC[10]. It has been concluded that the tumor tissues and the host's erythrocytes could share some common antigens, and antibodies produced by the cyst antigens would cross-react with the patient's erythrocytes.

The differential diagnosis of a cystic mass located around the ileocecal region usually includes duplication cyst, mesenteric cyst, omental cyst, cystic lymphatic malformation, epidermoid cyst, and ovarian cyst. Preoperative evaluation for the differential diagnosis is based mainly on radiological examination findings, since similar physical examination findings can be encountered in these etiologies. The

thickness of the cyst wall and the density of the cyst content may be helpful. DC usually has a thin wall and contains a consistent material in the lumen. Fine-needle aspiration biopsy was found nondiagnostic in an adult with DC of the cecum[3].

The treatment of DC is obviously surgery. Excision can be performed through laparotomy or preferably by using a minimally invasive technique[14], laparoscopic surgery. Laparoscopy clearly determined the location of the lesion in the present case. However, we preferred laparoscopy-assisted surgery because of the critical proximity of the lesion to the ileocecal junction. Laparoscopic dissection without intestinal resection may be done in cysts found remote from the intestine. Otherwise, intestinal resection may not be avoided.

Dermoid cyst of the ileocecal region is an extremely rare pathology in children. Preoperative diagnosis is probably not possible. Dermoid cyst should be included in the differential diagnosis for cystic masses located in the ileocecal region in children. Total excision is curative.

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