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Mesenteric cyst in a newborn. A case report

Torbiel sieci u noworodka. Opis przypadku

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Abstract

We present a case report of a 1.5-month-old infant admitted to the Department of Paediatric Surgery on an elective basis in order to diagnose and treat an abdominal lesion identified in ultrasound examination during the prenatal period. Computed tomography with contrast of the abdominal cavity and pelvis showed a large abdominal cyst measuring 11 × 8 × 7 cm. Consequently, the child was referred for surgery. During the procedure, the cyst was completely dissected. Outside the abdominal cavity, it was decompressed from the blood-serous fluid. Intraoperatively, intestinal malrotation and right ovarian agenesis were additionally diagnosed. The material for histopathological examination was handed over in full. Microscopically, mesenteric lymphangioma was diagnosed.

Keywords: mesenteric cyst, mesenteric lymphangioma, intestinal malrotation

Streszczenie

Przedstawiono opis przypadku 1,5-miesięcznego niemowlęcia przyjętego do Oddziału Chirurgii Dziecięcej w trybie planowym w celu diagnostyki i leczenia zmiany w obrębie jamy brzusznej rozpoznanej w badaniu ultrasonograficznym w okresie prenatalnym. W wykonanej tomografii komputerowej jamy brzusznej i miednicy z kontrastem stwierdzono dużą torbiel jamy brzusznej o wymiarach 11 × 8 × 7 cm; dziecko zakwalifikowano do zabiegu operacyjnego. Podczas operacji w całości odpreparowano torbiel, a poza jamą brzuszną odbarczono ją z krwisto-surowiczego płynu. Śródoperacyjnie dodatkowo zdiagnozowano zaburzenie zwrotu jelit i agenezję jajnika prawego. Materiał do badania histopatologicznego został przekazany w całości. Mikroskopowo rozpoznano malformację naczyniową limfatyczną (*mesenteric lymphangioma*).

Słowa kluczowe: torbiel sieci, malformacja limfatyczna, zaburzenie zwrotu jelit

INTRODUCTION

Abdominal cysts are a rare condition, with an incidence estimated at 1:100,000, and a predominance in women. The reasons for their formation have not been fully explained; the most popular is the theory proposed by Gross. The author claims that the formation of cysts is the result of abnormal fusion of proliferating lymph tissue with the central lymphatic system. Other proposed theories include disorders of the connection of lymph spaces with the venous system, an effect of injury, e.g. as a result of repetitive torsion of the intestine, disorders of fusion of mesenteric germ layers of the intestine or local degeneration of lymph nodes[1]. Intestinal malrotations apply to a number of anatomical variants consisting in incorrect arrangement of individual areas of the gastrointestinal tract and abnormal mesenteric attachment. The incidence of the defect is estimated at 0.5–1% of the population, but clinical symptoms are seen in 1 in 6,000 births. Usually, the defect is diagnosed during the first year of life[2].

CASE REPORT

A 1.5-month-old girl, weighing 4.6 kg, was admitted to the Department of Paediatric Surgery for diagnosis and treatment due to a large cyst in the abdominal cavity. In the prenatal period, ultrasound examination showed a tumour located in the abdominal cavity. In follow-up examinations after birth, the lesion was found to have increased in size but without disturbing the basic life functions of the child. On physical examination at admission, there were no deviations from the normal state. The results of laboratory tests were within normal limits. The diagnostic work-up was extended with computed tomography (CT) of the abdominal cavity and pelvis with contrast, where a well-demarcated, homogeneous structure measuring 96 × 83 × 55 cm with elevated fluid densities was found. The lesion was not enhanced by contrast, and no capsule or compartments were visible. It extended from the top of the bladder to the visceral surface of the liver, compressed the intestinal loops and displaced them to the left side and forward, showing no clear connection with the abdominal and pelvic organs. The lesion required extensive differentiation with an ovarian cyst or with a mesenteric/omentum cyst. The infant was considered eligible for surgery. A transverse incision was made in the right epigastric region and the peritoneal cavity was opened. A dark-burgundy cyst with a very thin, flabby and well-vascularised wall appeared in the surgical field. The cyst was completely removed outside the abdominal cavity. It was attached to the antimesenteric wall of the transverse colon and the greater curvature of stomach, and it was adjacent to the pancreas, which was located intraperitoneally. While maintaining haemostasis, the cyst was completely dissected. Outside the abdominal cavity, it was decompressed from the blood-serous fluid. In addition, intestinal malrotation was found. The abdominal organs were inspected, revealing no abnormalities other than right ovarian agenesis. After bathing the peritoneal cavity, the intestines were properly arranged, and the abdominal wall was closed in layers. The material for histopathological examination was handed over in full. Macroscopically, a thin-walled, membranous, multi-chamber structure measuring 25.04 × 0.1 cm, with intramural, fat and lymphatic texture was found. Microscopically, mesenteric lymphangioma was diagnosed. After the procedure, the patient was transferred to the Paediatric Intensive Care Unit, and on the second postoperative day again to the Department of Paediatric Surgery for further treatment. Amoxicillin with clavulanic acid, analgesics and infusion fluids were used. Due to anaemisation in the course of the disease, the girl received an irradiated leukocyte-poor packed red blood cells transfusion. Otherwise, the postoperative course was uncomplicated. On the tenth day of hospitalisation, which was the fourth day after the procedure, the child was discharged home in good condition (Figs. 1, 2).

DISCUSSION

Nowadays, most abdominal cysts are diagnosed in the prenatal period during an ultrasound examination. Although ultrasonography is characterised by high sensitivity, it is necessary to validate the diagnosis immediately after birth. Cysts are often clinically silent; however, in symptomatic cases, obstruction is common, caused by compression of the intestines by the cyst. On physical examination, the cyst has a soft consistency, it is mobile and has well-demarcated edges. CT scan allows to differentiate and exclude the origin of cysts from other organs including the ovary, pancreas or kidney. The goal of treatment is complete resection of cystic lesions, and the method of choice is laparoscopy[1]. Mesenteric cysts of the small intestine are usually of lymphatic origin[3].

Mesenteric lymphangiomas are congenital defects of the lymphatic system. Half of them are present from birth; in the remaining cases, they appear before the age of two. The lesions usually involve the skin and mucous membranes, and are poorly demarcated from the surrounding tissues. They are most often located on the head and neck, and less frequently on the trunk, limbs and in the retroperitoneum. Typically, they present as soft, cystic or spongy masses covered with skin[4].

Diagnosing lymphatic malformations usually requires many different diagnostic techniques. Ultrasound can show cystic structures, but is not able to determine the aetiology of the lesion[5]. CT and magnetic resonance imaging (MRI) can provide more information, and in addition they are useful before surgery. Histopathological evaluation is necessary to confirm the diagnosis[6].

Treatment options for mesenteric lymphangiomas include percutaneous drainage, surgery, sclerotherapy, laser therapy, and radiofrequency ablation[7]. Content aspiration can be helpful in diagnosis, but often fails to prevent relapse. Due to the effect of treatment, surgical excision of the lesion is the method of choice, preventing recurrence of the tumour[8]. Decisions about treatment strategies depend on location and symptoms[9]. However, many tests are helpful to diagnose intestinal malrotations. The cheapest and easily accessible modality is radiological examination. Often, the image of

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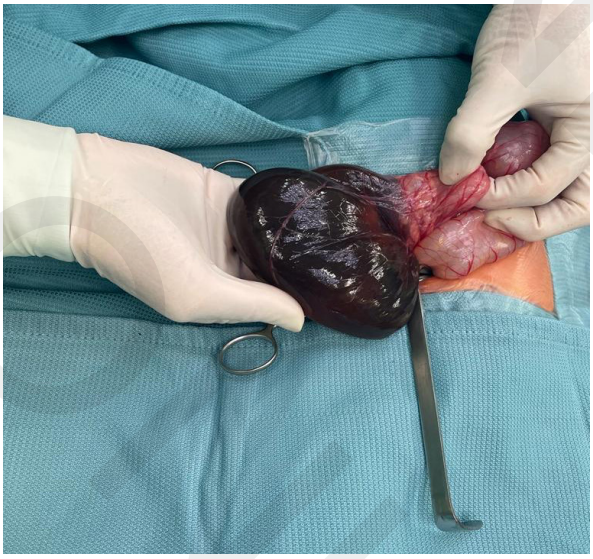

Fig. 1. Mesenteric cyst adjacent to the greater curvature of the stomach and transverse colon

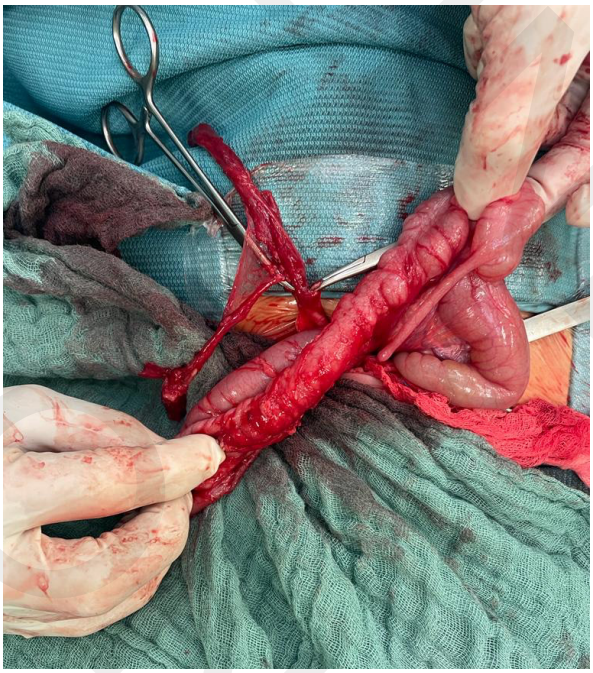

Fig. 2. Intestinal malrotation. The caecum with the appendix and the ascending colon located intraperitoneally are visible

a double air bubble without aeration of further loops of the intestine is noticeable. This is a typical picture for malrotations associated with duodenal compression by Ladd's bands. The defect may also be evidenced by the location of the aerated loops of the intestine on the right side, and the loop of the large intestine on the left. In newborns with intestinal torsion, characteristic findings include air within the stomach and the lack of aeration of further sections of the intestine. Ultrasound examination may show abnormalities in the position of the superior mesenteric vessels. Normally, the superior mesenteric artery is located to the left of the superior mesenteric vein. The opposite position may suggest the presence of malrotation. Upper gastrointestinal series (UGI) and rectal contrast may also be helpful. Other tests contributing to the diagnosis include CT and MRI.

Exploratory laparoscopy may turn out to be not only a diagnostic procedure, but also a therapeutic one. Delaying the diagnosis in patients with mesenteric torsion of the intestine can have disastrous consequences. Therefore, any newborn with acute symptoms of gastrointestinal obstruction requires urgent diagnosis, usually limited to a plain film x-ray and abdominal ultrasound, followed by urgent surgical treatment[1].

CONCLUSIONS

Prenatal tests play a very important role in diagnosing birth defects, which allows implementing an appropriate treatment immediately after the child's birth. Congenital cysts can be diagnosed in utero with a high degree of certainty. This makes it possible to plan proper diagnostics and treatment, including surgery. As a result, patients can be treated in the best health condition, which increases the chances for a good outcome.

Conflict of interest

The authors do not report any financial or personal affiliation with other persons or organisations that could adversely affect the content of the publication and claim the right to this publication.

Author contributions

Original concept of study: IM. Collection, recording and/or compilation of data: MPK, AK, MN, MD. Analysis and interpretation of data: MPK. Writing of manuscript: IM, AK, MN, MD. Critical review of manuscript: MPK. Final approval of manuscript: MPK.

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