

Oxyuriasis-induced intestinal obstruction in a child – case report

Dębek W, Dzieńis-Koronkiewicz E, Hermanowicz A, Nowowiejska B*

Department of Pediatric Surgery, * III Department of Pediatric Diseases, Medical University of Białystok

Abstract

Purpose: The presentation of an unusual case of the tumor of ileum wall induced by pinworm infection in a 5-years-old child.

Material and methods: The record of a 4-years-old boy treated in the department of pediatric surgery was analyzed concerning the diagnostic difficulties. After 6 month from an episode of ileo-cecal intussusception successfully treated with a barium colon enema, the diagnosis of lymphoma was made and the resection of distant segment of small intestine was performed.

Results: No clinical and laboratory features of oxyuriasis could be stated before the onset of disease, during hospitalization and in the follow-up period. The hypertrophied and activated lymphatic tissue with a non-specific inflammatory reaction to the pinworms were seen in the wall of ileum, appendix and mesenteric lymph nodes. No neoplastic cells were found in the microscopic study of ileum, appendix, mesenteric lymph nodes and peritoneal lavage fluid.

Conclusions: The proper diagnosis of oxyuriasis may be difficult when the course is atypical. The enterobius vermicularis infestation as an etiologic factor should be taken into account in any case of abdominal pathology. However, the methods routinely used in “acute abdomen” including examinations of blood, urine and stool, repeated ultrasound and CT, are not reliable.

As the infestation may mimic neoplasm, the surgical treatment and microscopic examination can be necessary for the final diagnosis in some cases.

Key words: children, enterobius vermicularis, ileus, oxyuriasis, pseudo-tumor, pseudo-neoplasm.

Introduction

The acute abdominal pain is frequently claimed by children younger than 6 years of age presented in surgical office. In these patients, the ileus, appendicitis, neoplasm and bleeding have to be excluded first.

The proper diagnosis of “acute abdomen” in young children is a challenging problem for general practitioners, pediatricians, and even for experienced pediatric surgeons. The meticulous anamnesis and clinical examination are effective in most of the cases. However, the clinical signs in the patients below 6 years of life are uncertain and difficult for interpretation. Even the sophisticated diagnostic methods including ultrasound imaging, computed tomography and MRI may be insufficient in some cases. The delayed and erroneous diagnosis may result in the worsening of prognosis and final outcome.

One of the possible causes of “acute abdomen” in children may be parasite infection. The *Enterobius vermicularis* is the most common parasite occurring in men affecting about 10% of population of the developed countries. The infection rate in children is even higher [1].

Enterobius vermicularis is regarded as an usually innocuous inhabitant of the intestinal tract. The classical symptoms of pinworm infestation are pruritus ani, enuresis and insomnia.

Material and methods

A 4-years-old male patient was presented to the Department of Pediatric Surgery because of acute abdominal pain, nausea and vomiting. The abdomen was soft but painful in the low right quadrant. Ultrasonographically, the ileo-cecal intussusception was diagnosed. The colon barium enema confirmed the diagnosis and was successfully used for a non-operative desinvagination. The ultrasound examination after two days

ADDRESS FOR CORRESPONDENCE:

Wojciech Dębek,
Department of Pediatric Surgery,
Medical University of Białystok,
ul. Waszyngtona 17, 15-274 Białystok,
e-mail: w.debek@csk.pl fax: (+48 85) 7450-920

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revealed thickened wall of distal ileum interpreted as a remnant swelling after the intussusception. After the uneventful 3-day hospitalization, the child was discharged.

Six months later, an episode of not well localized abdominal pain, nausea, vomitus and moderate distension of abdomen was noted. The ultrasound examination revealed a cystic tumor 3.5x4x3cm in the region of cecum. No signs of generalized or local infection, disorders of coagulation system, blood cells and markers of neoplasm were revealed. No eosinophilia was observed. No ova were found in the feces. The spiral CT confirmed the ultrasound picture of an abnormal mass in the terminal ileum (*Fig. 1*). A provisional diagnosis of lymphoma was made and the child was qualified to the open laparotomy for excisional biopsy.

Results

During the operation, a solid, pale and macroscopically non-inflammatory tumor was found in the posterior-superior part of ileal wall ca 4cm of the Bauhin valve. The mesenteric lymph nodes in the tumor region were slightly enlarged. No other pathological findings in the peritoneal cavity were seen. The tumor was resected with a margin of normal ileal wall, together with enlarged lymph nodes and with macroscopically not inflamed appendix (*Fig. 2* and *3*).

Histologically, the hypertrophied and activated lymphatic tissue and no neoplastic cells were found in the wall of ileum and appendix. The appendix and pseudo-tumor lumen contained the pinworms. In the enlarged mesenteric lymph nodes a non-specific inflammatory reaction was noted. No pathological findings were stated in the peritoneal fluid specimen.

The postoperative recovery was uneventful. The patient was discharged on the 7th postoperative day. The treatment with albendazole was performed and repeated after 24 days.

During the 10-months of follow-up no abdominal pain and any other pathological symptoms were observed. The psycho-physical development of the boy is correct as yet.

Discussion

The large bowel colonization by the *Enterobius vermicularis* is typical for massive infection [2,3]. The parasites are found in 0.5-40% of the removed appendices. As very susceptible to destruction, the pinworms are not always to be clearly demonstrated using a routine patomorphological examination of appendix [2]. The role of *Enterobius vermicularis* in pathogenesis of appendicitis is not fully cleared and the pinworms caused appendicitis is never diagnosed preoperatively.

Enterobius vermicularis infection, although rather sensitive to antiparasitic “two-doses, whole-family therapy”, may result in the long term and even life-threatening complications, like granulomae of the liver, spleen, kidney, lung, fallopian tube, and uterus [3,6].

The most common sites for ectopic infestation of *enterobius vermicularis* are female genital tract and peritoneum. Interestingly, the pinworm infection outside the intestinal mucosa results rarely in evident inflammatory reaction. In most of the

Figure 1. Abnormal mass (28.6x25.3 mm), partially cystic, ventrally and laterally adjacent to the cecum with non-homogenous content surrounding by a thick capsule (4.2 mm). Spiral CT.

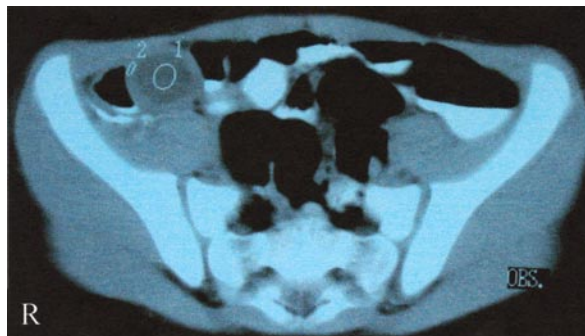


Figure 2. Tumor of the ileal wall 3x3x2.5 cm, partially obstructing the ileal lumen, proximally to the cecum. Intraoperative view.

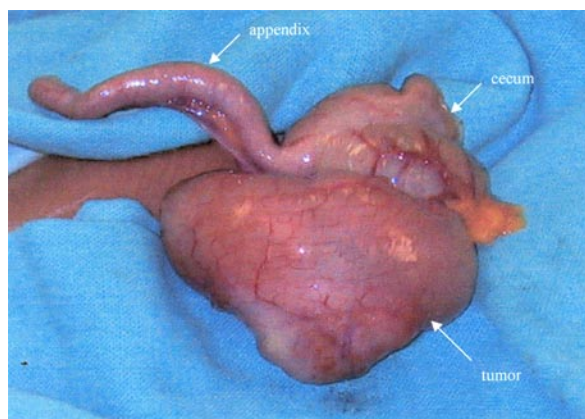
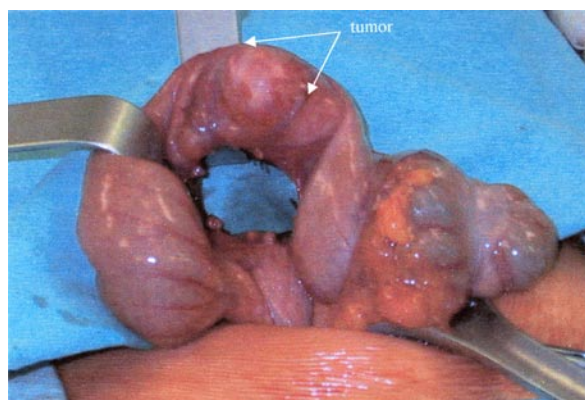


Figure 3. Partially prepared distal part of ileum containing pseudo-neoplastic tumor. Intraoperative view.



cases no physical signs are stated [7]. The absence of typical clinical signs of pinworm infection was observed in our patient.

It is stressed by some authors, that the pinworm infection may invade the intestinal wall, facilitate perforation and cause peritonitis [5,7]. However, the lesions of intestinal wall may

happen before the infection and serve as a mucosal break where the penetration of pinworms occurs [1].

Some authors [1,8] reported the relationship between parasitism and malignant diseases or morbid processes stimulating tumors.

A spontaneous development was shown experimentally of lymphoma in pinworm infected athymic mouse, which had been thought to be due to stimulation of proliferative reaction of lymphatic tissue [9]. A high number of parasite infection (up to 32%) has been reported in children with malignancies [10,11].

Colonization of ileal lumen with enterobius vermicularis is thought to be a frequent phenomenon. However, ileum is a rare location of pseudo-neoplastic tumors induced by enterobius vermicularis [1]. We were not able to find a description of such a tumor-like infiltration in the wall of small bowel in children.

The numbers of eosinophils in peripheral blood and peritoneal lavage fluid were not a good indicators of enterobius vermicularis infestation in our patient. This is confirmed by other authors [1].

The oxyuriasis should be always taken into account in children with a suspicion of tumor. Because of a high rate of pinworm infestation, which can mimic, obscure and overlap the abdominal pathology, all children with any signs suggesting pathology of intestinal tract should be routinely tested for the enterobius vermicularis.

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