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An inflammatory myofibroblastic tumor of the small intestine in a 15-year-old girl

To the Editor,

A 15-year-old girl was admitted to our department hospital with periumbilical pain, nausea, and vomiting. Her plain computed tomography (CT) scan showed transmural growth of a dumbbell-shaped soft tissue mass (11.5×9×8 cm) with uneven density in six small intestine areas, and an effusion was observed in the pelvic cavity (Figure 1). A contrast-enhanced CT scan showed uneven arterial enhancement and delayed lesion enhancement, with the CT value reaching 149 HU (Figures 2, 3). Two days later, fresh blood was detected in her stool, and her hemoglobin level decreased to 71 g/L. Surgical resection of the tumor was performed under general anesthesia, which revealed that the tumor had an intact capsule and did not invade surrounding tissues.

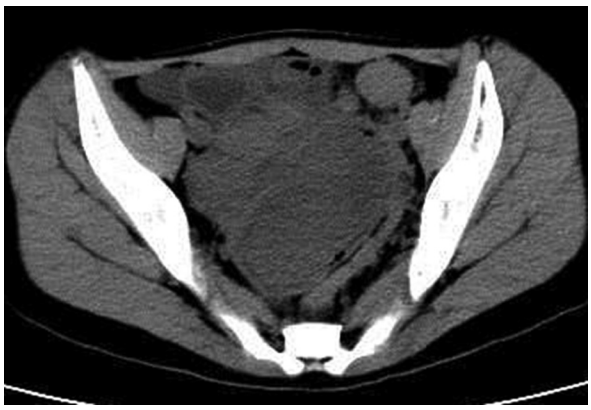

Figure 1. Axial plain CT imaging of the pelvic cavity shows transmural growth of a dumbbell-shaped soft tissue mass in six areas of the small intestine, with uneven density

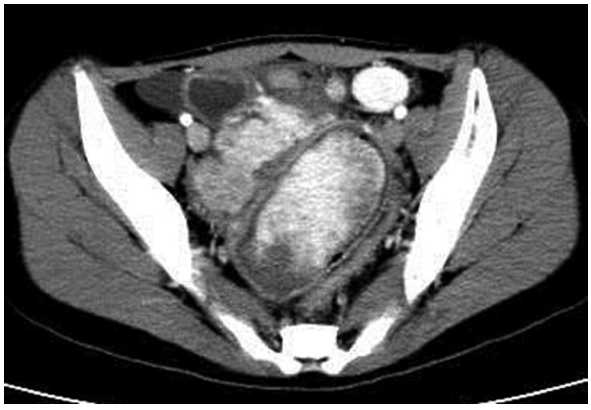

Figure 2. An axial contrast-enhanced CT scan shows uneven arterial enhancement, delayed lesion enhancement, tumor blood supply from branches of the superior mesenteric artery, and clearly enhanced nodules with central necrosis in the mesentery

The postoperative pathology examination revealed numerous spindle cells arranged in dense bundles with diffuse infiltration of inflammatory cells, tumor involvement of the mucosa and serosa, and a negative margin. Immunohistochemistry results were as follows: anaplastic lymphoma kinase (+), α-smooth muscle actin (-), h-caldesmon (-), S-100 (-), CD117 (-), DOG-1 (-), actin (-), and β-catenin (-). A diagnosis of an inflammatory myofibroblastic tumor (IMT) was made based on immunohistochemistry and morphological characteristics (Figure 4). Recurrence was not detected at the 3-month follow-up examination.

Inflammatory myofibroblastic tumor is a general term recently used for rare, low-grade tumors characterized by myofibroblastic proliferation and inflammatory infiltration. This tumor is now recognized as a distinct neoplastic process with specific molecular alterations. Treatment is based on the tumor status (1). IMTs have been reported in multiple locations including the lung, liver, spleen, stomach, abdominal cavity, omentum, retroperitoneum, orbit, spinal meninges, heart, thyroid gland, and kidney; however, most IMTs are located in the lungs, and IMTs are the most common pulmonary tumor in childhood. Extrapulmonary IMTs typically affect younger patients (first and second decades), in contrast with a peak incidence in mid-adulthood for pulmonary IMTs (2).

Computed tomography imaging reveals the size and scope of the lesion, surrounding structures, relationship between the tumor and surrounding vessels, and tumor vessel morphology. The specific enhancement pattern of the tumor and surrounding metastatic nodules on CT imaging may provide new clinical insights for the preoperative diagnosis of small intestine tumors.

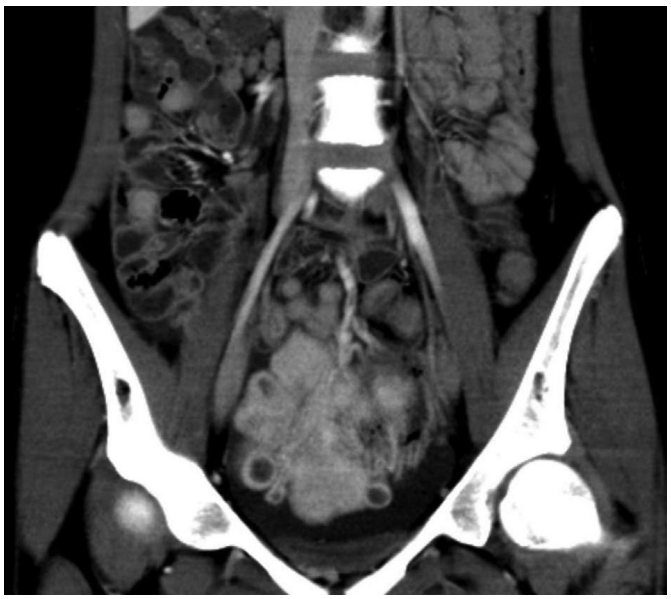

Figure 3. Coronal reconstruction shows that the delayed phase of the tumor was enhanced and that the lymph nodes along the distribution of the mesenteric lymph nodes were clearly displayed

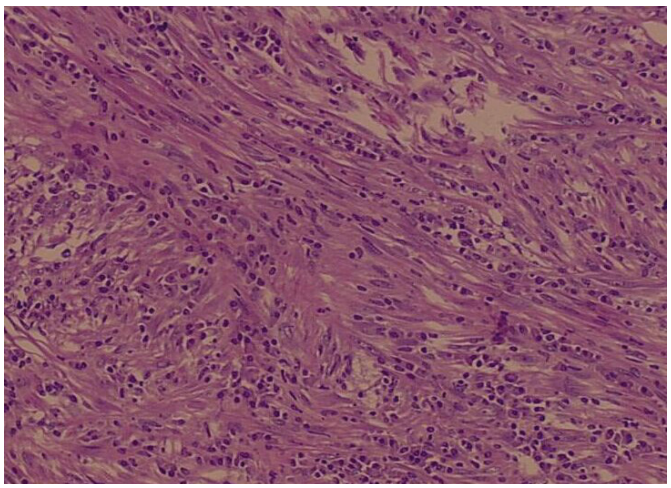

Figure 4. Numerous spindle cells are densely arranged in bundles with diffuse infiltration of inflammatory cells. Immunohistochemistry results confirmed the diagnosis of IMT

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Yantai Yuhuangding Hospital, Shandong Province, PR China.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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