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Thrombosis in the Vena Cava Inferior and Right Atrium in a Patient with Wilms Tumor

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Wilms tumor (WT) is the most common kidney origin tumor in children. The tumor can cause thrombosis that may progress to the renal vein, vena cava inferior (VCI), and right atrium.[1,2] VCI thrombus is seen with a rate of 4-10%, and right atrium thrombus is observed with a rate of 1% among cases with Wilms tumor.[3] Vena cava inferior thrombus with WT is usually asymptomatic. Venous flow continues, considering there is usually a thrombus in the lumen. Although venous flow is slow, coagulum formation is rare. Therefore these patients do not need to use anticoagulation.[2,4-6] We aimed to share a patient with VCI and right atrium thrombus who regressed with neoadjuvant chemotherapy, and we did not use anticoagulants despite severe thrombus.

Our patient was a 2.5-year-old boy. A palpable mass was detected in the abdomen 2 weeks before the admission with complaints of abdominal pain and constipation. On abdominal CT, a mass of 105 × 95 × 85 mm in the upper pole of the right kidney was detected. There was prematurity and a 25-day newborn intensive care unit hospitalization history in the patient's history. He had an inguinal and umbilical hernia operation and had a reactive airway. His parents were related, and his grandfather had a history of cancer. During the physical examination, a hard mass of 7-8 cm in diameter was palpable in the right lower quadrant of the abdomen. He had hypertension. There was no genital anomaly. The clinical laboratory test results were reported as follows: white blood cell 10.300/mm^3, hemoglobin 9.5 g/dL, platelets 416 000/mm^3, urea 22 mg/dL, creatinine 0.35 mg/dL, LDH 861 U/L, sedimentation 74 mm/h, PT 13 s, APTT 21 s, fibrinogen: 623 mg/dL, D-dimer: 2.84 mg/L. There was no rupture in the mass originating from the right kidney. A tumor thrombus with a length of approximately craniocaudal 12 cm and a transverse diameter of 5 × 5 cm, reaching the right atrium from the inferior vena cava, was observed. The right and left renal veins were also thrombosed. There was no liver metastasis. There were diffuse metastatic nodules in the lung. The echocardiogram of the patient showed a 13 × 14 mm thrombus in the right atrium (Figure 1). Heart functions were normal. Chemotherapy was started with a pre-diagnosis of WT before the biopsy was taken. Thrombus was not detected in echocardiography at the 6th week of the treatment (Figure 2). The thrombus in the VCI was still present. After 6 weeks of treatment, its mass regressed to 5.5 cm, and the number and size of lung nodules decreased significantly. Surgery was performed after the 10th week of treatment because of the VCI thrombus of the patient. Right radical nephrectomy, VCI thrombectomy, and left renal vein thrombectomy were performed. No embolism was observed during and after the operation. The turbulent flow was seen in VCI after thrombectomy, and the venous return was provided by azygos veins. Its pathology resulted in the blastemal component predominant WT. Chemotherapy was continued. Thrombosis was not detected in thoracic and abdominal imaging at the 24th week of his treatment. It is currently in remission.

In children with cancer, the risk of venous thrombosis can be determined by the disease or treatment, and it can be seen with a frequency of 2-16%.[7,8] Cytokines and coagulation factors

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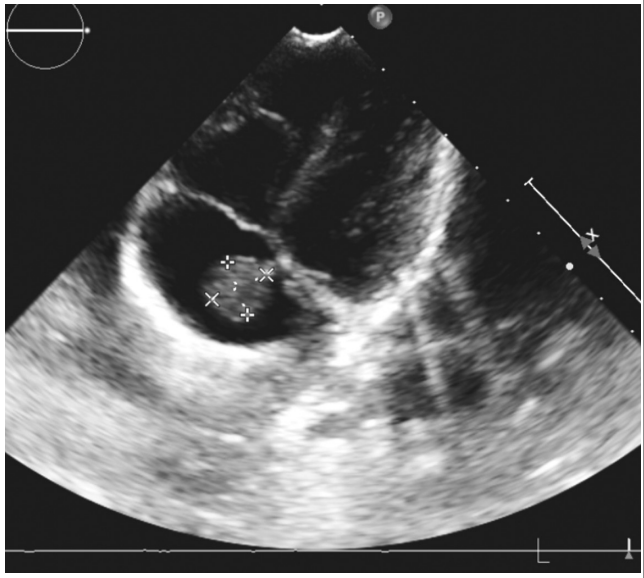

Figure 1. Right atrium thrombosis with a diameter of 13 * 14 mm through an apical 4-chamber window in transthoracic echocardiography.

released from cancer cells are involved in the pathophysiology of thrombosis in patients with cancer.[9] Although there is no clear recommendation for the treatment of thrombosis in childhood cancers, anticoagulant treatment is generally recommended.[10] Vena cava invasion and secondary tumor thrombus are also seen in patients with WT, but routine anticoagulant therapy is avoided considering these patients because of concomitant von Willebrand deficiency. Among these patients, in the case of VCI thrombosis, neoadjuvant chemotherapy provides regression of the thrombus and fewer complications during surgery. Regarding our patient, neoadjuvant chemotherapy provided tumor regression and was followed up without complications after nephrectomy and thrombectomy.

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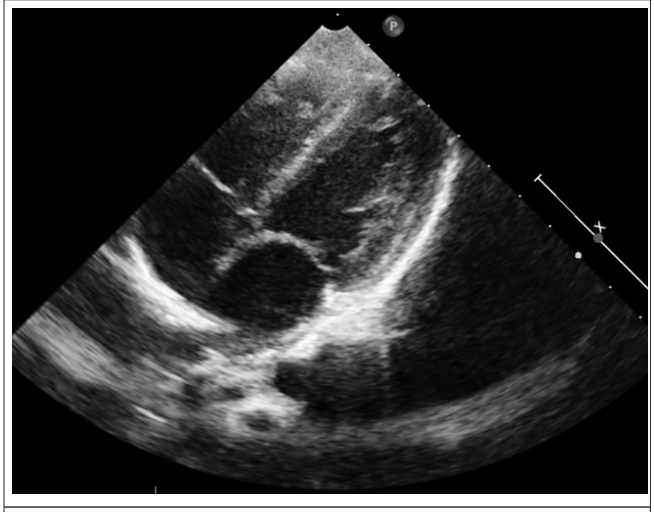

Figure 2. The echocardiogram image at the apical 4-chamber window after treatment.

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