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LETTER TO THE EDITOR
Rhabdomyomatous Differentiation in Primary Wilms Tumor and Hepatic Metastases After Chemotherapy and All-Trans-Retinoic Acid in Combination With Interferon-α

To the Editor: A 4.5-year-old male was presented with severe abdominal distension and dyspnea. A computed tomography (CT) scan revealed a tumor approximately 20 cm in diameter arising from the left kidney, and bilateral pulmonary and hepatic metastases were also noted. A percutaneous biopsy of the renal tumor was performed and pathological examination showed a classic triphasic pattern of Wilms tumor without anaplasia.

A diagnosis of Stage IV favorable histology Wilms tumor was made, and he began preoperative chemotherapy with vincrinstine, actinomycin-D, and epirubicin. An episode of life-threatening sepsis with congestive heart failure was noted as he completed a 6-week course of chemotherapy. Additionally, the tumors became larger on the follow-up CT scan. Then he received chemotherapy consisting of cyclophosphamide, etoposide, and carboplatin, as well as radiotherapy. He developed septic shock after the third course of chemotherapy, and there was no significant tumor regression. As there was little improvement in alleviating the symptoms resulting from the tumors, his parents decided on no further chemotherapy. After his condition stabilized, he began to receive all-trans-retinoic acid (ATRA) in combination with interferon-α (IFN-α) as reported by Adamson et al. [1]. No severe adverse effects were observed, and ATRA/IFN-α therapy was continued for 10 months. He then underwent a left nephrectomy along with wedge biopsies of hepatic nodules. The renal tumor, measuring 16 cm × 16 cm × 12 cm, consisted of about 10% necrosis, 3% blastema, and stroma with rhabdomyomatous differentiation which was further confirmed by immunohistochemical staining for muscle specific desmin and actin (Fig. 1). The hepatic specimens also showed metastatic tumor cells undergoing a maturation process of rhabdomyomatous differentiation. Follow-up imaging studies continued to demonstrate multiple pulmonary and hepatic nodules without change in size or number for 9 years since stopping therapy.

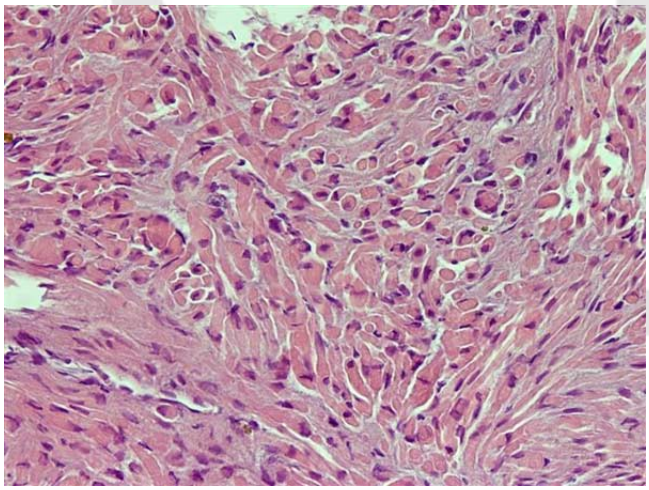

Fig. 1. The section of renal tumor reveals a mature appearance of rhabdomyomatous differentiation. Interlacing bundles of cells with eccentric eosinophilic cytoplasm and strap cells are seen (H&E stain, magnification ×400).

Wilms tumor arises from embryonic renal precursors. Differentiation-inducing therapy can be an alternative treatment modality with tolerable side effects, especially for critically ill patients. In a phase I trial of ATRA/IFN-α therapy for children with refractory cancers, a 3-year-old child with recurrent Wilms tumor had maturation of renal and pulmonary tumors after 1-month therapy [1]. While in the phase II trial, there were no complete or partial responses in 14 children with recurrent Wilms tumor [2]. A lack of radiographic response does not always represent treatment failure if tumor cells undergo differentiation rather than apoptosis [3]. Further studies are needed.

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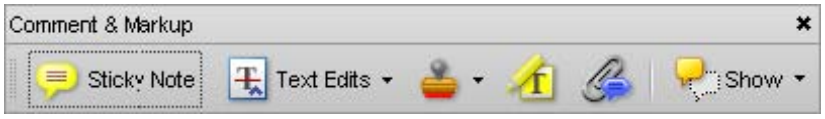

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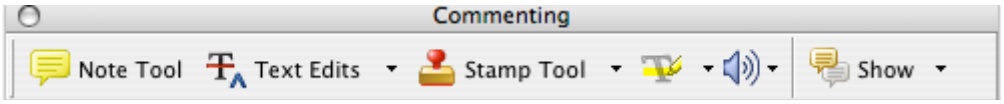

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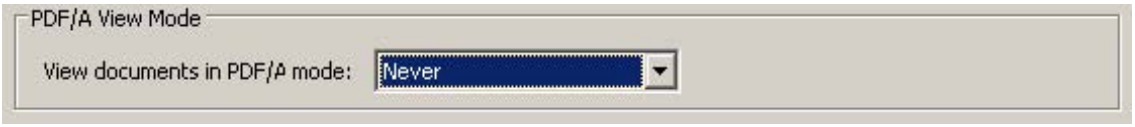

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