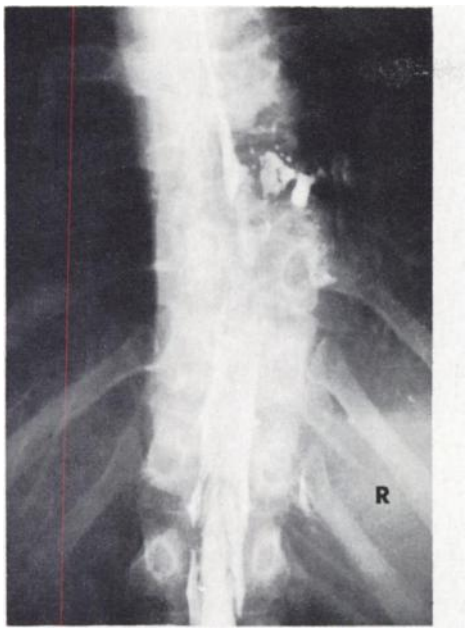

FIG. 3. There is escape of contrast media at level of T-9. There is also some extrinsic compression of column of contrast at the same level.

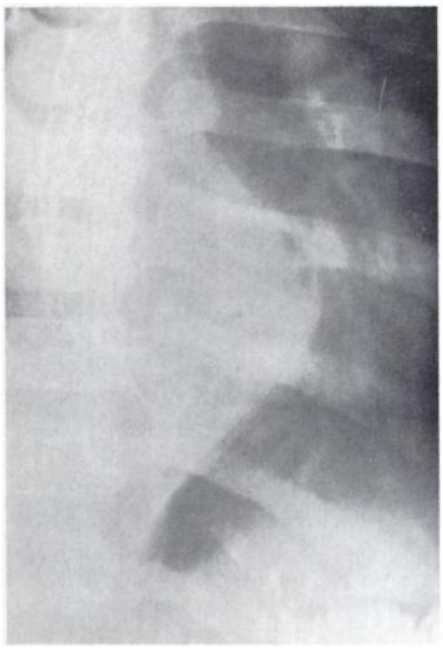

FIG. 1. Anteroposterior spot film of lower mediastinum from esophagram demonstrating left paraspinal mass corresponding to location of abnormal activity on bone image.

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Paraspinal Metastasis of Wilms' Tumor Visualized on Bone Imaging

Extraosseous localization of bone imaging agents has been found to occur in various soft tissue neoplasms (*1-3*), for example, Tc-99m phosphate compounds in neuroblastomas (*4-6*). It has even been suggested that uptake of Tc-99m phosphate compounds by a soft tissue tumor in a pediatric patient is almost pathognomonic of a neural crest tumor (*5*). We present an isolated, thoracic paraspinal metastasis of Wilms' tumor that demonstrated uptake on a Tc-99m methylene diphosphonate (MDP) bone image and thus mimicked the scintigraphic appearance of a thoracic neuroblastoma.

A 2-year-old boy had a left nephrectomy for Wilms' tumor with no evidence of local tumor spread. Chest radiographs and radionuclide liver-spleen and bone images were normal. Following surgery, the child received chemotherapy with vincristine and actinomycin-D. Approximately 2 mo later, a left posterior mediastinal mass (Fig. 1) was discovered on a routine examination. Diagnostic considerations were a paraspinal abscess, neurenteric cyst, neuroblastoma (primary or metastatic), or an unusual, isolated metastasis of Wilms' tumor. A CT scan of the chest and abdomen confirmed that the mass was paraspinal and entirely intrathoracic in location, with no calcification, and showed no

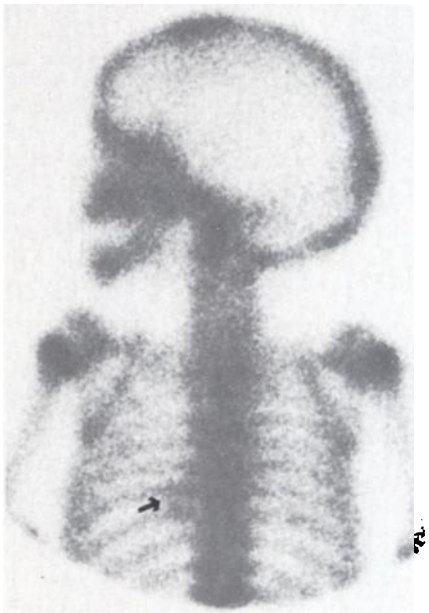

FIG. 2. Posterior bone scintigram demonstrating abnormal soft-tissue activity in left paraspinal region (arrow), with normal uptake by adjacent bony structures.

evidence of pulmonary nodules, hepatic metastasis, lymphadenopathy or abdominal mass. A barium esophagram was normal. Because of the possibility of infection or neuroblastoma a radionuclide bone image was performed and Tc-99m MDP localized within the mass (Fig. 2). Adjacent and other bony structures appeared normal. Urinary catecholamines were not elevated. Thoracotomy revealed a very friable, posterior mediastinal mass diagnosed as a metastatic Wilms' tumor (substantiated by National Wilms' Tumor Study consultant review). Of note, there were areas of necrosis with focal calcification.

Although the mechanism of uptake of Tc-99m MDP by soft tissue tumors is uncertain, McCartney et al. have noted that multiple factors may be operable, including (a) binding of phosphate enzyme systems by the radiopharmaceutical, (b) tumor neovascularity with altered capillary permeability allowing leakage of the tracer, and (c) binding of calcium ions by mitochondria in necrotic tissue into a crystalline structure similar to hydroxyapatite, which then attracts the tracer (*3*). The last mechanism may be applicable in our case.

Uptake of Sr-87m by the extraosseous component of a large lumbar metastasis of Wilms' tumor has been reported by Samuels (*1*). Our case is a rare instance of Tc-99m MDP localization in a completely extraosseous metastasis of Wilms' tumor. Intrathoracic, paraspinal metastasis of Wilms' tumor is uncommon (*7*). In contrast, Eklöf et al. (*8*) noted radiologic evidence of paravertebral widening in 27 of 100 patients with proven neuroblastoma. Two of these cases were primary thoracic neuroblastomas and the remainder represented metastases from abdominal primary tumors. Although uptake of Tc-99m MDP by a soft tissue tumor during bone imaging in a pediatric patient should make neuroblastoma a likely diagnostic possibility, our case demonstrates the nonspecificity of this finding.

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