Retroperitoneal Teratoma
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History
Newborn with congenitally diagnosed mass. No other clinical symptoms.

Diagnosis
Retroperitoneal Teratoma; Immature teratoma, grade 1, with microscopic yolk sac tumor. Later resection demonstrating focus of secondary neuroglial malignancy.

Additional Clinical
Mass continued to grow and was resected.

Discussion
Teratoma is a germ cell tumor that originates from pluripotent germ cells. Less than 10% of teratomas are found in the retroperitoneum. Teratoma is the third most common tumor in the retroperitoneum in children, after neuroblastoma and Wilms tumor. Teratoma is more common in females, with a bimodal age distribution (<6 months and early adulthood). Teratoma can be benign or malignant, and benign teratoma can be either mature or immature.

Mature teratoma (dermoid cyst) contains well-differentiated tissues from at least two germ cell layers. Ectodermal layers are seen in all, mesodermal layers in 90% of lesions, and endodermal layers in the majority of lesions. Mature teratomas are predominantly cystic. Calcification (toothlike or well defined) and fat can be seen in 56% and 93% of cases, respectively. A fat-fluid (sebum) level and chemical shift between fat and fluid are pathognomonic. Malignancy has been reported in 2%–3% of mature teratomas, more commonly in children (26%) than adults (10%), and is associated with wall thickening, irregular margins, and infiltration of adjacent organs.

Compared with mature teratoma, immature teratoma is less common (<1%), contains more than 10% undifferentiated tissue, and is seen in a younger age group (<20 years). Immature teratoma is predominantly solid, with scattered areas of fat and calcification (coarse and ill defined), but cystic components are found occasionally.

Malignant teratoma can have germ cell or non–germ cell malignant tissue. Malignant transformation is less common in the retroperitoneum. Malignant tumors are irregular, with invasion of adjacent structures and vascular invasion. Surgical resection is required for definitive diagnosis and treatment.

Findings
CT: Hypodense heterogeneous mass with scattered calcifications located in the retroperitoneum with displacement of the kidney inferiorly and encasement of multiple vessels in a similar pattern to neuroblastoma. Multiple loculations are less dense than soft tissue but not as low in density as fat. MRI done to evaluate for fat demonstrates heterogeneous signal of fluid, soft tissue and calcium but no definitive fat that suppressed on T2FS.

On histology, the mass contained brown fat (which likely explains the density/signal on initial studies representing brown fat, liquid fat) and this later transformed into mature fat on the CT.

Reference
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