History
3 week old male transferred from an outside institution for a left renal mass.

Diagnosis
Cystic Neuroblastoma

Additional Clinical
Normal urinary VMA.

Discussion
During embryologic development, the fetal adrenal gland normally contains neuroblastic nodules, which are histologically indistinguishable from neuroblastoma in situ. The number of neuroblastic nodules peaks at 17–20 weeks gestation, and they subsequently mature or regress.
Data from infant screening programs support the theory that many localized adrenal masses are likely to mature or regress without becoming clinically evident.
There is a predominance of cystic neuroblastoma in fetuses. Cystic changes may indicate ongoing involution. At histology, these tumors have small aggregates of neuroblasts in the cyst wall. Cystic tumors usually have favorable biologic markers and are less likely to be chemically active as was seen in this case.
Neuroblastomas are more commonly suprarenal, making diagnosis more straightforward. Differential in this case includes cystic teratoma.
The usual sonographic appearance of an adrenal neuroblastoma is that of an echogenic or complex extrarenal mass compressing or displacing the kidney inferiorly and laterally. Most abdominal neuroblastomas have a variable echogenicity with irregular hyperechoic areas intermixed with less echogenic areas, apparently corresponding to the frequent foci of hemorrhage, necrosis, and microcalcification in these tumors.
Although cystic neuroblastoma is a rare form of neuroblastoma in the infant, it should be considered in the differential diagnosis of a cystic adrenal mass. It may appear as a complex echogenic mass or an anechoic mass by sonographic examination. Failure of a cystic suprarenal mass to resolve on follow-up examination is an indication for surgery.

Findings
Ultrasound—Very complex circumscribed round mass in the left upper quadrant with peripheral vascularity but no significant central vascularity (representing hemorrhage at surgery). Pancreatic tail and left adrenal gland above the lesion and kidney was displaced laterally.
CT—Hypodense circumscribed left upper quadrant mass with displacement of the kidney and pancreatic tail. Lateral limb of left adrenal gland adjacent to the posterosuperior aspect of the mass (not shown).

Reference
From the Archives of the AFIP. A Comprehensive Review of Fetal Tumors with Pathologic Correlation.
Cystic Neuroblastoma in Infants: Radiographic and Pathologic Features George O. Atkinson, Jr. AJR 146:113-117, January 1986
Disclaimer
This teaching site is partially funded by an educational grant from GE Healthcare and Advanced Radiology Services, PC. The material on this site is independently controlled by Advanced Radiology Services, PC, and GE Healthcare and Spectrum Health have no influence over the content of this site.

Content Download Agreement
The cases and images on this website are owned by Spectrum Health. Permission is granted (for nonprofit educational purposes) to download and print materials to distribute for the purpose of facilitating the education of health professionals. The authors retain all rights to the material and users are requested to acknowledge the source of the material.

Site Disclaimer
This site is developed to reach healthcare professionals and medical students. Nothing this site should be considered medical advice. Only your own doctor can help you make decisions about your medical care. If you have a specific medical question or are seeking medical care, please contact your physician.
The information in this website is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician relative to diagnostic and treatment options of a specific medical condition.
The viewpoints expressed in these cases are those of the authors. They do not represent an endorsement. In no event will Advanced Radiology Associates, PC, Spectrum Health Hospitals (Helen Devos Children's Hospital) or GE Healthcare be liable for any decision made or action taken in reliance upon the information provided through this website.