Pediatrics

Kidney teratoma: A case report and literature review

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ABSTRACT

Teratomas are rare germline tumors that originate from embryonic germ cell layers. Teratoma of the kidney is extremely rare. We report the main radiologic features of an unusual case of mature cystic teratoma arising from the right kidney in a two-year-old boy. A left-sided abdominal mass was detected on physical examination and B-Mod Ultrasound (US) examination revealed a heterogeneous mass with central cystic component. Nephrectomy was performed and a large, fatty mass arising from the right kidney was excised. The final pathologic diagnosis was confirmed as cystic-solid renal teratoma.

Introduction

Teratoma of the kidney is an exceptionally infrequent germline tumor, which is uncommon that its originates from one or more embryonic germ cell layers. The incidence of Renal teratoma is very low. The primary intrarenal teratomas that have been reported to data were less than 30 cases.¹ Thus, we describe an unusual case of teratoma of the kidney. The clinical findings and experience of this patient suggest an appropriate and practical course of action when dealing with similar cases. Written informed consent was obtained from the patient for inclusion in the present study.

Case report

A two-year-old boy, with no history of hematuria, pyuria, fever, anorexia or vomiting, was found an abdominal mass on the right side for about one month. A chest x-ray did not find abnormalities. Abdominal ultrasound examination revealed space-occupying lesions with internal cystic and solid changes in the right kidney. A mass containing mixed density areas on the right kidney was found through computed tomography (Fig. 1), while no abnormalities was found in the left kidney. Additionally, The rest of his examines is all right.

Patient was operated by means of laparotomy. An encapsulated mass (about 13 cm*8 cm*5 cm) was found in the upper pole of right kidney, composed of cystic and solid structures. Moreover, capsule of the mass was complete and polycystic, with hoar calcification adhering to certain cystic wall. Additionally, gray, solid bone tissues were found in the mass whereas no swollen lymph nodes were found around renal hilus. The patient had a good recovery after operation The postoperative histopathological examination confirmed that the tumor consist of skin and its accessories, bowel tissues, lymphoid tissues, as well as nerves, fat and bone tissues (Fig. 2A and B). Thus our pathological findings were in accordance with mature solid cystic renal teratoma.

Discussion

Teratoma is an unusual neoplasm (incidence 0.7/100,000 children/year), with three germ layers tissue derivatives. Based on Alexander's research, 0.7/100,000 children got teratoma each year.² Teratomas attack in ovaries, sacrococcygeal region, testes, central nerval system, mediastinum mostly but rarely occurred in other locations, as less than 5% cases attacking in the abdomen.³ One of the least familiar locations

Fig. 1. Computed tomography showed a mass containing mixed density areas on the right kidney.
for teratomas is kidney, and other germ cell tumors. Mature teratomas must be identified from teratoid Wilms’ tumor. The common clinical manifestations included abdominal mass, abdominal pain etc. On x-ray film, kidney teratoma is usually characterized by abdominal mass in unilateral. Retrograde urinary tract imaging revealed expansion and distortion of the collection system. Ultrasonic displayed as cystic strong uneven echo mass, accompanied by massive calcifications. Beyond that, CT is often characterized by heterogeneity lump, presenting as cystic area with bulky calcifications and necrosis. Magnetic resonance (NMR) showed fat sequence within the tumor.

Teratomas are generally acknowledged as benign, however, it is reported that in some situations malignant metastases with well-differentiated teratomas of various organs, therefore, teratomas attacking in the kidney have the capacity of metastatic spread. The differential diagnosis of the kidney teratoma have the following points: renal hemangiomata, CT scan less calcification, often out after enhancement now obviously improved. Wilms’ tumor, can contain a small amount of fat and nutrients is not benign calcification, CT enhanced scan tumor essence, the cyst wall and its fiber interval has strengthened, but its reinforcement degree is inferior to normal renal parenchyma. Based on diverse tumor levels, various kinds of tumor ingredients differentiation degrees. MRI shows unlike manifestation that tumors can be improved or not enhancement. Renal lipoma: CT performance for a homogeneous fat density. Renal liposarcoma, points good liposarcoma and lipoma is similar, but its shape is irregular, tumor fiber inside space more bulky, nodules more, and often can be significantly improved. Contained in kidney week fat ingredient of pathological changes, such as retroperitoneal, adrenal teratoma.

There is not an unified standard on the treatment of the kidney teratoma. We highly recommended to complete excision of the tumor mass also the anticancer drug treatment is not really needed. It is very essential to an accurate histologic diagnosis.

Patients with pure immature teratomas can be effectively treated with a surgical excision alone because the 3-year event free survival is more than 85%. So child with mature teratoma should undergo a surgical excision. It can be effectively treated that patients with pure immature teratomas, as higher than 85% with 3-year event free survival.

Conclusion
Renal teratomas are very unusual, but when kids in childhood it is essential of any renal mass should in view of the differential diagnosis. It is limited that the followed data after surgical removal for intrarenal teratomas in children. Normally the mature teratomas are benign, surgery is the best way to get it cured, but they also have the potential risk for malignant transformation. It should formulate long-term follow-up examinations to all the patients with the diagnosis of benign teratoma.

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Statement of ethics
Written consent of the patient was obtained for publication of this case report.

Conflicting interests
The authors declared that they have no competing interests.

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