Renal cystic oncocytoma, malignant presentation for a benign disease

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ABSTRACT

Renal cysts can be identified using standard medical imaging and, a histological diagnosis is not required. However, lesions that are more complex may require a more detailed characterization to allow for determination of differential diagnosis and subsequent management.

Oncocytoma is a benign epithelial tumor of the kidney, which usually presents as a solid tumor with a central stellate scar. But rarely, it can have central cystic degeneration or can present as a multilocular cyst. Only few cases of cystic oncocytomas have been reported in literature. It has been reported to mimic a hemorrhagic cyst of the kidney. It can be associated with coexisting papillary renal cell carcinoma and can even have small cell components on histological examination.

We report a renal cystic oncocytoma which presented as an incidental finding of complex renal cyst. Radiological investigations were suggestive of malignancy. Only a thorough histopathological examination revealed the diagnosis.

1. Introduction

Renal cysts can be identified using medical imaging and, most cases, a histological diagnosis is not required. However, lesions that are more complex may require a more detailed characterization to allow for determination of differential diagnosis and subsequent management.

Oncocytoma is a benign epithelial tumor of the kidney, which usually presents as a solid tumor with a central stellate scar. But rarely, it can have central cystic degeneration or can present as a multilocular cyst. Only few cases of cystic oncocytomas have been reported in literature. It has been reported to mimic a hemorrhagic cyst of the kidney. It can be associated with coexisting papillary renal cell carcinoma and can even have small cell components on histological examination.

We report a renal cystic oncocytoma which presented as an incidental finding of complex renal cyst. Radiological investigations were suggestive of malignancy. Only a thorough histopathological examination revealed the diagnosis.

2. Case report

65 years old male, was admitted through Emergency department with epigastric pain, nausea, vomiting, yellowish discoloration of the skin and sclera, he noticed discolored dark urine and whitish pale stool for the last 5 days.

This patent is known hypertensive, no previous history of hospitalization, no previous surgical history. Vital signs were within normal.

Physical examination: General appearance he was sitting comfortable, not in acute pain with jaundice appearance.

On Abdominal examination: mild epigastric tenderness. Laboratory investigation showed Total Bilirubin: 136 μmol/L, direct Bilirubin: 110 μmol/L, Alkaline Phosphatase: 277 U/L, Alanine Transaminase: 93 U/L. all laboratory investigation were within normal.

Patient was diagnosed with obstructive jaundice, confirmed by imaging (MRCP) showed gallbladder containing multiple gallstones. With obstructing stone 0.7cm within the distal common bile duct (CBD) With incidental finding of a 3 × 2.6 cm. Complex cystic lesion, exophytic at the lower pole of the right kidney with thick enhancing wall.

Abdomen and pelvis CT with contrast showed 3 × 3.6 × 2.6 cm exophytic complex cystic lesion at the inferior pole of the right kidney. Appears to be (BosniakIV).

No extension beyond the Gerota fasciaca evidence of vascular invasion, No lymphadenopathy Fig. 1.

Thereafter, the patient underwent Endoscopic retrograde cholangiopancreatography (ERCP), was managed by Insertion of a stent in the CBD.

After his symptoms and serum bilirubin improved, we counseled the patient for right laparoscopic partial nephrectomy, and he tolerated the surgery with no immediate complications, warm ischemia time was 12 minutes. After that he was discharged home day 3 post-operative with uneventful recovery.

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Histopathology revealed cystic oncocytoma, Unifocal, Confined to the kidney with no extension, Absent Lymphovascular invasion Negative Resection margins Figs. 2 and 3.

3. Discussion

When a complex renal cyst is identified, determination of its benign or malignant nature is based on evaluation of the wall of the lesion; its thickness and contour; the number, contour, and thickness of any septa; the amount, character, and location of any calcifications; the density of fluid in the lesion; the margination of the lesion; and the presence of solid components.

Bosniak developed a useful classification scheme primarily based on CT imaging criteria that divides renal cystic lesions into categories that are distinct from one another in terms of the likelihood of malignancy.

Bosniak category IV lesions have large cystic components; irregular, shaggy margins; and, most important, solid enhancing portions that provide a definitive diagnosis of malignancy. Category IV lesions are almost invariably cystic RCCs with a risk of malignancy ranging from 75 to 90% based on the literature.

Renal oncocytoma is the most common benign tumor that appears as an enhancing renal mass on cross-sectional imaging and is presumed to be RCC until surgical excision, representing one of the ultimate challenges in preoperative diagnosis for the urologist. It accounts for 3%–7% of kidney tumors. Oncocytoma was initially described by Zippel in 1942 and then became accepted as a distinct entity after a report of 13 cases in 1976 by Klein and Valensi. Multiple additional reports since that time, including more recent genotyping studies, confirm it to be a benign histology with a distinct cell of origin and genetic abnormalities.

The degree of enhancement in contrast imaging and the timing of peak enhancement is variable in oncocytoma. When the tumor is heterogeneously enhancing, it mimics clear cell type of renal cell carcinoma. When it presents as a hypovascular homogenous mass, it mimics chromophobe or papillary types of renal cell carcinoma. In our case, the tumor presented as a hypovascular cystic lesion with solid components, exhibiting significant contrast enhancement.

Atypical presentations of oncocytoma have been reported. Ogden et al. reported a cystic oncocytoma. While microscopic cystic degeneration can occur in oncocytoma, macrocystic appearance in an oncocytoma is rare. Multilocular cystic oncocytomas have rarely been reported and are very difficult to differentiate from multicystic renal cell carcinoma preoperatively.

Grossly these tumors are mahogany or tan, homogeneous, and well circumscribed with a pseudocapsule and a central stellate scar in some patients. Microscopically the cells are round or polygonal and arranged in a nested growth pattern. The cells are large, uniform, and highly eosinophilic, owing to an abundance of mitochondria.

However, histologically, the greatest dilemma arises from distinguishing chromophobe and clear cell RCC with eosinophilic characteristics from oncocytoma. Hale colloidal iron staining is the classic differentiating marker for oncocytoma, but it can have
nonspecific staining and be difficult to interpret.

Treatment options for a complex renal cyst range from observation to thermal ablation, laparoscopic or open partial nephrectomy, and even radical nephrectomy depending on the size, clinical scenario and uncertainty regarding the diagnosis.

4. Conclusion

The aim of this article to present a rare entity of complex renal cyst (Bosniak IV) turned to be a benign tumor. With the limitation of uncertain diagnosis based on the radiological presentation alone tissue diagnosis and expert histopathologist are needed to establish the diagnosis and rule out malignancy.

Consent

Informed consent was taken from the patient.

Declaration of competing interest

No conflict of interest

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