Large Cystic Renal Cell Carcinoma Leading to Diagnostic Dilemma: A Case Report

V. Amar · B. Vennapusa · M. Mahendra Kumar ·
B. Nagaraju · G. Srinivas · P. R. K. Bhargav

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Abstract Large cystic renal tumours can be confused with hepatic lesions even on crosssectional imaging. Careful clinical, sonographic and imaging analysis is needed for establishing correct diagnosis. We report a case of papillary cystic renal carcinoma in a 60 year old man, which was confused with amoebic liver abscess and was initially drained. Subsequent recurrence of symptoms prompted us to re-evaluate the case and repeat sonography confirmed the extrahepatic origin of mass based on simple observation that the liver and mass were moving separately on inspiration. Later guided aspiration from solid component of the mass confirmed the diagnosis as renal cell carcinoma. He was successfully treated with radical nephrectomy with uneventful post-operative recovery.

Keywords Papillary cystic renal cell carcinoma · Amoebic liver abscess · Sonography · Radical nephrectomy

Introduction

Papillary renal cell carcinoma (RCC) is typically a slow-growing tumor. Large tumors can be confused with inflammatory lesions as they have heterogeneous appearance due to necrosis, hemorrhage, and calcification [1].

V. Amar (✉) · M. M. Kumar · B. Nagaraju · G. Srinivas
Prime Hospitals, Kukutpally,
Hyderabad, India
e-mail: amar_venn@gmail.com

B. Vennapusa
Dallas, USA

P. R. K. Bhargav
Mamata Medical College,
Khammam, India

Moreover, radiological determination of the origin of large tumors in subhepatic region is difficult due to the presence of multiple organs and lack of clear tissue planes with the tumor. Here, we report the management of one such case of a large cystic renal tumor leading to diagnostic dilemma and radiological confusion.

Case Report

A 60-year-old male presented with a 15-day history of high-grade fever and painful abdominal lump. On examination, a large tender, firm intra-abdominal lump was palpable in the right hypochondrium. Sonographic impression was a well-defined hypoechoic lesion with internal echoes measuring 16×13 cm in the right lobe of the liver. Initial contrast-enhanced computed tomography (CT) scan revealed a hypodense lesion measuring 16×13×12 cm in the right lobe of the liver (Fig. 1) and displacing the right kidney anteromedially (Fig. 2). The sonographic and CT findings were confirmed by two experienced radiologists. On ultrasound-guided diagnostic aspiration, chocolate-brown fluid suggestive of amoebic liver abscess was aspirated. Therapeutic ultrasound-guided drainage of 2 l of fluid was done. Although, the aspirated fluid was not as thick as anchovy sauce pus, we had no other differential diagnosis apart from amoebic liver abscess, in view of clinical and radiological features. Fluid cytology was negative for amoebae and malignant cells, and culture was negative for bacterial growth. Stool analysis and serology were negative for amoebae. The patient got relief from pain and the size of the lump was reduced. He was kept on oral metronidazole 800 mg thrice a day for 10 days. However, the patient again developed painful abdominal lump and fever within 1 week of catheter drainage.

Fig. 1 CT scan image of large hypodense lesion appearing to be arising from right lobe of liver

Sonographic reevaluation clearly demonstrated that the large cystic lesion was not arising from the liver. This was based on a simple observation that the right lobe of liver and the lesion were moving separately during inspiration, suggestive of an extrahepatic heteroechoic lesion in the right hypochondrium. Interpretation of the contrast CT scans alone did not conclude a diagnosis, as there was no clear plane of cleavage between the right lobe of the liver and the lesion. Tru-cut biopsy of the solid component of the mass yielded the diagnosis of papillary cystic RCC type 1.

Right radical nephrectomy through right subcostal incision was performed. An exophytic cystic mass of 17×17 cm (Fig. 3) arising from the superolateral aspect of the right kidney was found on surgical exploration. There was no macroscopic visceral, vascular, hepatic, retroperitoneal infiltration, peritoneal deposits, or lymphadenopathy. Histopathological examination of specimen confirmed it as a

Fig. 2 CT scan image showing the mass lesion with apparent tissue plane with right kidney

low-grade papillary RCC type 1 and it was a stage 3–T3aN0M0 cancer. Patient recovered well and got discharged on eighth postoperative day. At 8 months follow-up, he was asymptomatic without any recurrence.

Discussion

Papillary RCC accounts for 10–15% of all RCCs [2]. Large tumors are prone to secondary degenerations, with cystic degeneration as a less common mechanism. There are two histopathological subtypes of papillary RCC [3]. Type 1 papillary RCC is a low-grade tumor with better prognosis than type 2 [3]. Papillary RCC usually presents with flank or abdominal pain, palpable flank or abdominal mass. Other symptoms include weight loss, fever, night sweats, and malaise. Metastasis at the time of presentation is rare with papillary RCC. Contrast enhancement is lesser in papillary RCC compared with clear cell RCC on CT scan [4]. Cystic renal masses are commonly classified on CT scan based on the Bosniak classification [5]. According to this classification, cystic renal masses are classified into four categories—categories I and II are managed nonsurgically and categories III and IV, surgically. Thick-walled lesions with irregular calcification in their wall, thick and irregular septa, or enhancing solid components require surgery to exclude malignancy. Radical nephrectomy is the only curative treatment option available for the treatment of localized renal carcinoma. This includes complete removal of Gerota's fascia and its contents, that is, kidney and the adrenal gland.

Fig. 3 Gross specimen of right radical nephrectomy showing an encapsulated tumor

Amebic liver abscess is caused by *Entamoeba histolytica* infection. Patients with amebic liver abscess usually present with fever, abdominal pain, anorexia, and tender hepatomegaly. In larger abscesses, a lump is palpable in the right hypochondrium or epigastrium. On sonography, amebic liver abscess appears as a well-defined hypoechoic lesion. On CT scan, it appears as a thick-walled cavity with low-density center, smooth margins, and a contrast-enhancing peripheral rim. A feature of amebic liver abscess that may aid in distinguishing it from other focal hepatic lesions is its tendency to extend beyond the surface of the liver [6]. Therapeutic aspiration is sometimes necessary for complicated or refractory abscesses.

As initial sonographic and CT scans showed a large thick-walled cystic lesion arising from the right lobe of the liver, aspiration showed chocolate-brown fluid, and patient's symptoms resolved with aspiration, we presumed that the lesion was amebic liver abscess. Recurrence of symptoms within 1 week made us to reevaluate him. On repeat ultrasonography, one very important observation was that the compressed right lobe of the liver and the lesion were moving down separately during inspiration, indicating that the lesion was not arising from the liver. This basic observation was missed in earlier radiological evaluations. However, the origin of the mass could not be concluded on sonography. Careful interpretation of CT scan with this new sonographic finding suggested that cystic mass lesion might be arising from the superolateral aspect of right kidney. If this simple finding was identified in the first instance itself, unnecessary drainage of the cystic mass would have been avoided. This emphasizes the importance of following a protocol to determine the origin of the large cysts or masses in the region of the liver. Even if the entire right lobe is compressed or displaced by the swelling in right hypochondrium, establishment of its hepatic origin is difficult, as the tissue plane between liver and mass is not clear. But ultrasonography ruled out the liver as the source of the

lesion. Our case report highlights the importance of careful interpretation of the radiological (sonographic and CT scans) findings and integrating the clinical judgment in reaching the correct diagnosis.

Conclusions

Large cystic tumors of kidney can be confused with hepatic origin even on cross-sectional imaging. A protocol-based clinikoradiological evaluation integrating the clinical, sonographic, and CT scan findings can avoid diagnostic dilemma and ensures appropriate management.

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