Clinical Image – Genitourinary Radiology

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The Eternal Dilemma: Fat-poor Angiomyolipoma

Ezeli İkilem: Yağdan Fakir Anjiomyolipom

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A 55-year-old female patient admitted to the emergency department with one week long abdominal pain. In the physical examination of the patient, no clinical finding other than sensitivity was observed. The laboratory tests were normal. Because there was discordance between the patients clinical findings and laboratory tests, ultrasound exam was performed to exclude acute abdomen and a mass was detected in the anterior of left kidney's upper pole. There upon, the patient was discharged with recommendations and directed to the urology department. The patient had no history of malignancy or surgical history. Contrast enhanced abdominal magnetic resonance (MR) was performed for the lesion characterization. In the abdominal MRI, a lesion was detected in the anterior region of the left kidney's upper pole which is 36x20 mm in size. The lesion was hypointense on T2 weighted images (WI), slightly hyperintense on T1WI and had central cystic area. Since the mass was closely adjacent to the tail of the pancreas and had similar signal intensity with the pancreas on T2WI and postcontrast images, the origin of the lesion could not be made clearly between left kidney and pancreatic tail **(Figure 1-5)**. Therefore, histopathologic verification was recommended for preoperative management. It was reported as angiomyolipoma, wihch is rich in smooth muscle and poor in fat, after staining with actin and HMB-45 along with immunohistochemical staining obtained as a result of the biopsy procedure.

Renal angiomyolipomas are the most common benign kidney tumors. Non invasive diagnostic capacity between benign and malignant lesions is not yet at the desired standard. Approximately 10-17% of the resected kidney tumors are benign, and 2-6% of them are reported as angiomyolipomas [1]. Angiomyolipomas contain smooth muscle tissue, blood vessels and macroscopic fat areas in varying proportions [2]. In most cases, it is diagnosed radiologically without any further examination due to the macroscopic fat content. In the radiological diagnosis of angiomyolipoma, we use findings such as containing densities below -10 HU in computerized tomography (CT) examination

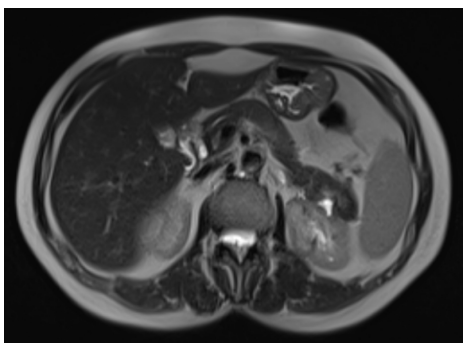

Figure 1. Axial T2 weighted (Contrast-enhanced abdominal magnetic resonance images of the patient)

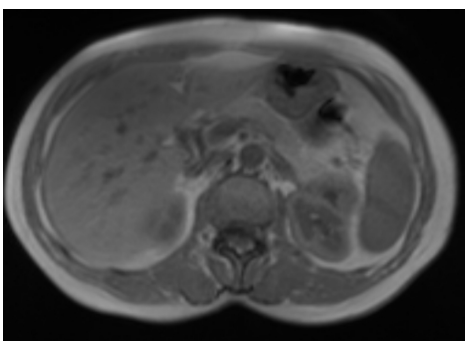

Figure 2. In phase (Contrast-enhanced abdominal magnetic resonance images of the patient)

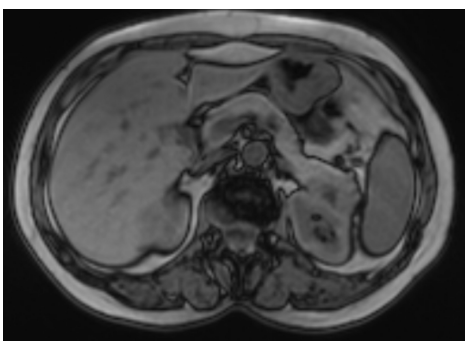

Figure 3. Out of phase (Contrast-enhanced abdominal magnetic resonance images of the patient)

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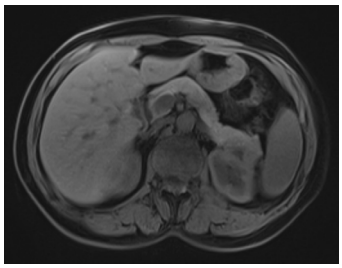

Figure 4. T1 Weighted, fat saturated T1 weighted (Contrast-enhanced abdominal magnetic resonance images of the patient)

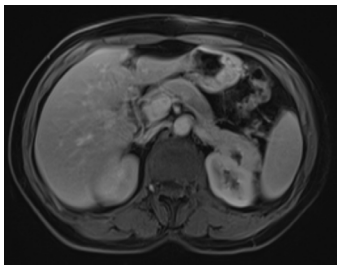

Figure 5. Post contrast images revealed a solid mass with central cystic area (Contrast-enhanced abdominal magnetic resonance images of the patient)

or showing suppression in fat saturated sequences in MRI [3]. In addition, chemical shift suppression techniques are useful in MRI in cases when there is a small amount of fatty tissue [4]. On the other hand, in 4.5% of angiomyolipomas, fatty tissue may not be seen radiologically [5]. Since the imaging findings of these fat-poor lesions, containing less than 25% fat, cannot be distinguished from RCC and they pose a serious problem [6]. RCCs, especially clear cell carcinomas, may also contain fat, but unlike angiomyolipomas, this adipose tissue is located at intracellular space and we use signal loss in out of phase MR sequence to differentiate RCC from angiomyolipoma [7]. Angiomyolipomas carry the risk of bleeding, especially in sizes over 4 cm and sometimes, fat densities can be overlooked due to intralesional bleeding and they can be confused with RCC [8]. Although new methods such as CT histogram [9] and specific MR sequences [4,10] have been used in the separation of fat-poor angiomyolipoma and RCC with new developments in radiology and technology, the application and reliability of these methods in daily practice are not sufficient.

Keywords: angiomyolipoma, renal cell cancer, chemical chift imaging

Ethics Committee Approval: N/A.
Informed Consent: An informed consent was obtained from the patient.
Publication: The results of the study were not published in ful lor in part in form of abstracts.
Peer-review: Externally peer-reviewed.
Conflict of Interest: The authors declare that they have no conflict of interests.
Financial Disclosure: The authors declare that this study received no financial support.

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