ARCHIVES OF HELLENIC MEDICINE: ISSN 11-05-3992

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ARCHIVES OF HELLENIC MEDICINE 2022, 39(5):716–717
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2022, 39(5):716–717

Medical Imaging Quiz – Case 71

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A 48-year-old patient was admitted to the emergency department due to an abdominal pain after an accident. None past medical history was referred. Computed tomography (CT) was performed and a well circumscribed adrenal lesion with fat-containing components was observed in the right adrenal gland (fig. 1).

Comment

Adrenal myelolipomas are rare with estimated autopsy prevalence of 0.1–0.2%, benign and usually asymptomatic tumors of the adrenal gland characterized by the predominance of mature adipocytes. There is no gender predilection. Most lesions are usually identified in adults, are asymptomatic and may be discovered incidentally when the region is imaged for other reasons. Larger lesions (typically over 4 cm in size) can present with an acute retroperitoneal hemorrhage, and still others (especially when very large) with vague mass-related symptoms. There may be a right-sided predilection. Although the tumor itself is non-functioning there is a relatively high incidence (10%) of associated endocrine disorders like Cushing syndrome, congenital adrenal hyperplasia and Conn syndrome.

Histological examination demonstrates variable amounts of mature adipocytes similar to bone marrow and hematopoietic cells. The fatty component is often the predominant feature and therefore the most characteristic feature on imaging. The lesions can infrequently contain bone or show partial replacement by hemorrhage or fibrosis.

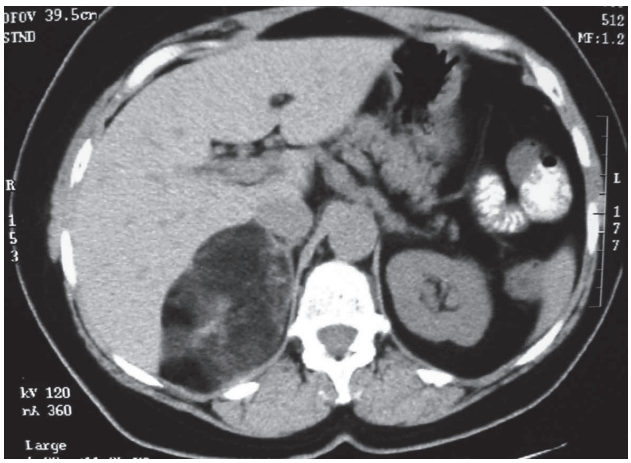

Figure 1. Computed tomography (CT) reveals relatively well circumscribed adrenal lesion with fat-containing components.

Exact sonographic appearances are varied depending on individual tumor components. Usually is seen as a heterogeneous mass of mixed hyper- and hypoechoic components with the former primarily resulting from fatty portions. Areas of hemorrhage appear hypoechoic on ultrasonography. Fat within a myelolipoma can slow the ultrasound waves, resulting in the artifactual appearance of a discontinuous diaphragm. CT appearance is usually characteristic. The typical adrenal myelolipoma appears as an adrenal lesion with fat-containing components. The mass is usually relatively well circumscribed; however masses that are mostly fat may be difficult to separate from surrounding retroperitoneal fat.

The amount of fatty component is variable, ranging from only a few small regions in an otherwise mostly soft tissue density mass (10%) to masses made up of roughly equal components of fat and soft tissue (50%) or almost completely composed of fatty tissue (40%). The soft tissue and fatty components can be sufficiently mixed in some cases to render the mass a density similar to fluid. If hemorrhage is present then regions of higher attenuation may be seen. This is more frequently seen in large lesions >10 cm.

Magnetic resonance imaging (MRI) consists of T1 typically hyperintense due to fat contents, T1 typically shows fat suppression, T2 generally intermediate to hyperintense but can sometimes vary depending on contents (especially blood products), T1 C+ (Gd) shows striking enhancement.

They are benign lesions histologically and there is currently no recognized malignant potential. As such, if imaging features are characteristic and the lesion is small, no treatment is required. If imaging findings are indeterminate, percutaneous biopsy can be performed. In larger lesions or where hemorrhage has occurred, surgical excision is curative. General imaging differential considerations include retroperitoneal liposarcoma, fat-containing adrenocortical carcinoma, lipid-rich adrenal adenoma, adrenal teratoma, renal angiomyolipoma, adrenal angiomyolipoma, adrenal lipoma, extra adrenal myelolipoma.

References

1. PALMER WE, GERARD-McFARLAND EL, CHEW FS. Adrenal myelolipoma. *AJR Am J Roentgenol* 1991, 156:724
2. DONG A, CUI Y, WANG Y, ZUO C, BAI Y. (18)F-FDG PET/CT of adrenal lesions. *AJR Am J Roentgenol* 2014, 203:245–252
3. ELAINI AB, SHETTY SK, CHAPMAN VM, SAHANI DV, BOLAND GW, SWEENEY AT ET AL. Improved detection and characterization of adrenal disease with PET-CT. *Radiographics* 2007, 27:755–767
4. HAKIM A, ROZEIK C. Adrenal and extra-adrenal myelolipomas – a comparative case report. *J Radiol Case Rep* 2014, 8:1–12
5. PILLAY Y. Abdominal wall extra-adrenal myelolipoma, a case report and review of the literature. *J Surg Case Rep* 2018, 2018:rjy063

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Diagnosis: *Adrenal myelolipoma*