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Inflammation and infection

Tuberculous adrenal abscess revealed by pleurisy: An extremely rare presentation: About a case

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ABSTRACT

We report an extremely rare presentation of a tuberculous adrenal abscess discovered accidently during a chest CT scan. This case involves a 21-year-old male patient with pleurisy and a left adrenal abscess simultaneously of tuberculous origin, without clinical or biological signs of adrenal insufficiency. The condition showed complete regression of the abscess after medical treatment. The aim of our work is to report an extremely rare case of adrenal tuberculosis in its abscessed form, to describe the imaging aspect in order to facilitate the diagnosis for radiologists.

Guarantor of submission

The corresponding author is the guarantor of submission.

1. Introduction

Adrenal masses discovered incidentally through imaging (incidentalomas) occur in 0.35 %–5 % of cases.[1] They present a real diagnostic challenge given the absence of a typical appearance. The aetiologies are numerous: pheochromocytoma, adrenaloma, metastasis, tubercular adrenalitis …. The significance of our report is to emphasize that a tuberculous abscess and adrenal involvement by *Mycobacterium tuberculosis* should be considered among the differential diagnoses for any incidentaloma.[2]

2. Case report

We report the case of a 21-year-old male patient, with no notable medical history, especially no recent allergy or infection, no surgical history, issued from a non-consanguineous marriage. The parents are healthy with no notable history of illness. He presented with a significant deterioration of general health, weight loss, low-grade nocturnal fever, and a persistent cough for three months. Biology showed a non-specific inflammatory syndrome with C-reactive protein at 354mg/ml. The rest of the workup was unremarkable, in particular the absence of signs of adrenal insufficiency. For persistent coughs A thoracic CT scan was performed, revealing a large, loculated left pleural effusion ans at the level of the abdominal sections performed, a mass in the left adrenal region was discovered. Further evaluation with an abdominal MRI revealed a thick-walled fluid collection in the adrenal region (Fig. 1A, 1B, 1C, 1D). This mass enhances after injection, containing multiple septa and areas of necrosis. This collection measured 50 × 92 × 132 mm (Fig. 1E). Aspiration and drainage of the pleural effusion revealed Koch's bacilli. The patient was placed on anti-tubercular treatment for 9 months. Follow-up at the end of treatment showed complete regression of the adrenal abscess. No resistance or side effects from the treatment were observed.

3. Discussion

Adrenal abscess is a very rare condition, typically occurring in the context of disseminated infection. The most commonly described causative agents are Streptococcus pneumoniae and Nocardia spp. Tuberculosis is an extremely rare cause of abscesses in this region.

The most common manifestation of adrenal involvement by tuberculosis is tuberculous adrenalitis, also known as Addison's disease. The occurrence of a tuberculous adrenal abscess is rarely reported in the literature. It has been described in a 4-year-old child in 2018.[3]

The pathogens commonly implicated in adrenal infection include cytomegalovirus, HIV, histoplasmosis, blastomycosis, echinococcosis, and bacterial infections such as tuberculosis.[4]

Adrenal tuberculosis typically arises from hematogenous dissemination and can manifest years after initial lung or other site involvement.[5] Adrenal insufficiency appears later, after 90 % of the gland has

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been destroyed.

Four histopathological types of adrenal involvement by *Mycobacterium tuberculosis* are described[6]: include granuloma with or without caseous necrosis, adrenal atrophy, adrenal abscess, and glandular hypertrophy, with the latter being the most common form.[3] The first two forms represent chronic infection, while the latter two indicate acute infection.[7]

In the past, adrenal tuberculosis was often diagnosed late, at the chronic stage. Nowadays, the use of imaging techniques increasingly allows for the detection of the infection at an acute stage.

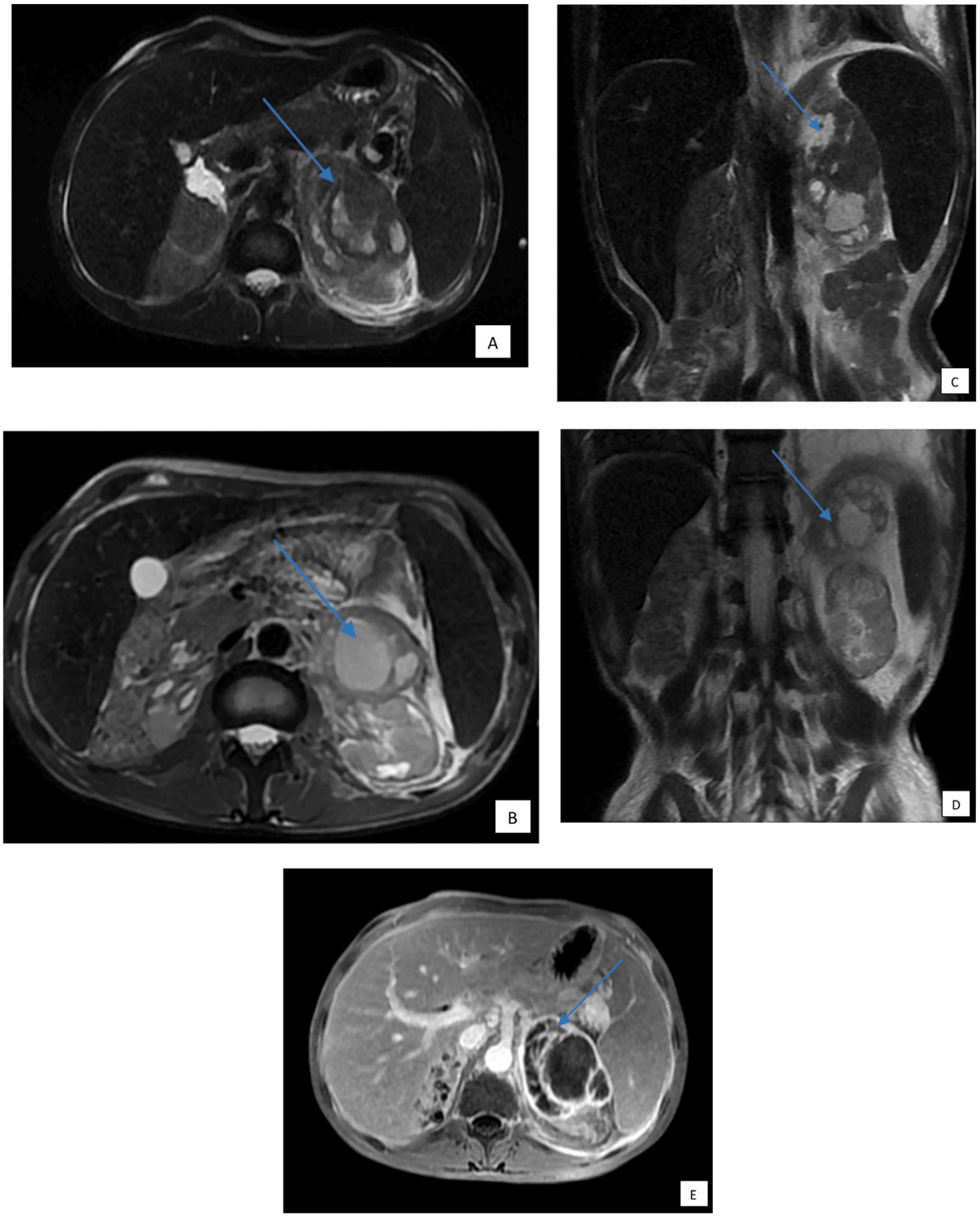

Fig. 1. (A) Sequence MRI T2 axial showing the adrenal mass (blue arrow), with polylobed, multiloculated contours, in intermediate T2 heterogeneous signal; enclosing abcessed cystic logettes with a thick wall.
(B) Another axial T2-sequence MRI section showing the mass of the left adrenal lodge (blue arrow).
(C) Coronal T2 FAT SAT sequence showing the appearance of the mass described above
(D) Coronal T2 FAT SAT: This abscessed collection displaces the left kidney inferiorly. A homogeneous splenomegaly is noted.
(E) T1 axial MRI sequence with gadolinium injection showing a mass with a thickened wall containing multiple cystic pockets suggesting the appearance of abscesses. There is no venous thrombosis of the portal veins, renal veins with good opacification of the arterial network, particularly the left adrenal and renal arteries.

The computed tomography (CT) findings are variable. Adrenal tuberculosis poses a real challenge in terms of differential diagnosis.[8] The lesions are usually bilateral with necrosis, characterized by a central hypodense non-enhancing zone, peripheral enhancement, and calcifications, which distinguishes them somewhat from metastases. In other cases, they may appear homogeneous. Less commonly, there is a liquid collection aspect. This makes our case all the more important, since the lesion is in unilateral abcess form. MRI allows for better identification of granulomas and caseous necrosis, which are indicative of an active lesion.

Diagnostic certainty is achieved through CT-guided or ultrasound-guided fine needle aspiration, which should only be performed after ruling out a pheochromocytoma.[9] Biopsy is not mandatory in cases of simultaneous extrarenal involvement.[2]

Treatment with anti-tuberculous drugs should be administered for 9–12 months, except in cases of resistance, where second-line treatment is necessary for a duration of 18–24 months.[10] Hormone replacement therapy (glucocorticoids and mineralocorticoids) is administered in cases of adrenal insufficiency.[11]

CRediT authorship contribution statement

N. Bahlouli: Writing – review & editing, Writing – original draft, Conceptualization. **A. Lemrabet:** Writing – original draft. **F. Chait:** Writing – original draft. **K. Sfaar:** Writing – original draft. **S. Essetti:** Writing – original draft. **L. Ihsane:** Writing – original draft. **O. El aoufir:** Writing – review & editing, Writing – original draft, Conceptualization. **L. Jroundi:** Validation.

Informed consent

Written informed consent was obtained from patient for the publication of their anonymized information in this article.

Ethics approval

Our institution does not require ethical approval for reporting individual cases.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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