

**Figure 2.** The 4-year progression of EFN diagnosis data at a single institution.

All 20 reports were reviewed and defined as follows: “not described”—when features of EFN were overlooked; “described but not suggested”—when EFN features were described but the diagnosis was not suggested in the report; and “suggested”—when EFN findings were described and its diagnosis was suggested.

The outcome was surprising. As shown in Figure 2, we found a progressive number of diagnoses over the years, especially after 2013. In 2011, when radiologists were still unaware of the entity, the number of correct diagnoses was zero. In 2014,

after the educational intervention, there were no more missed diagnoses of EFN at the institution.

We can suggest that the dissemination of knowledge at our institution changed the pattern of the diagnosis of a disease. We believe that, in the next few years, EFN will become known worldwide, the labels “rare” and “unknown” therefore no longer being associated with this entity.

**REFERENCES**

1. Giassi KS, Costa AN, Bachion GH, et al. Epipericardial fat necrosis: an underdiagnosed condition. *Br J Radiol.* 2014;87:20140118.
2. Giassi KS, Costa AN, Apanavicius A, et al. Epipericardial fat necrosis: an unusual cause of chest pain. *J Bras Pneumol.* 2013;39:627–9.
3. Giassi KS, Costa AN, Bachion GH, et al. Epipericardial fat necrosis: who should be a candidate? *AJR Am J Roentgenol.* 2016;28:1–5.
4. Pineda V, Cáceres J, Andreu J, et al. Epipericardial fat necrosis: radiologic diagnosis and follow-up. *AJR Am J Roentgenol.* 2005;185:1234–6.
5. Diamond GA. A clinically relevant classification of chest discomfort. *J Am Coll Cardiol.* 1983;1(2 Pt 1):574–5.

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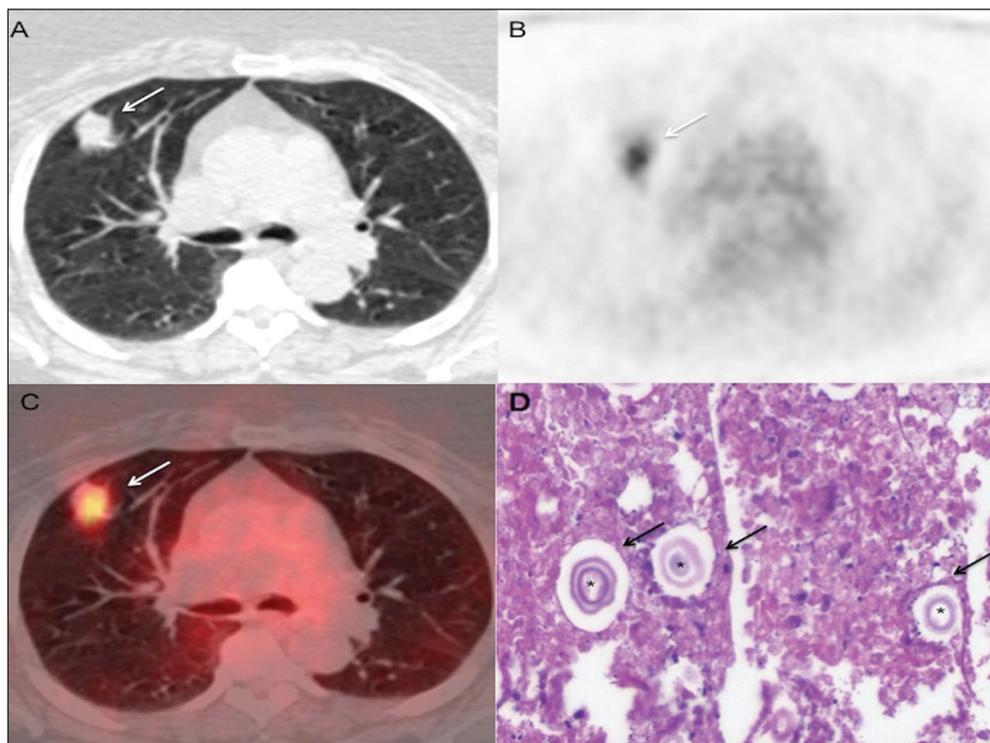
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**Pulmonary cryptococcosis mimicking neoplasm in terms of uptake PET/CT**

Dear Editor,

We report the case of a 64-year-old female nonsmoker who presented with complaints of chronic cough and weight loss. Physical examination revealed no fever or other abnormalities. Positron emission tomography/computed tomography (PET/CT)

demonstrated a mass, with soft tissue attenuation and spiculated borders, in the anterior segment of the right upper lobe, arising from the horizontal fissure and extending to the pleura, measuring 3.2 × 2.2 × 1.2 cm, with a maximum standardized uptake value (SUV) of 5.5 and high glycolytic metabolism (Figure 1A–C). The patient underwent lung biopsy, and histopathological analysis of the biopsy sample indicated cryptococcosis (Figure 1D).



**Figure 1. A–C:** PET/CT scans showing a spiculated mass with soft tissue attenuation, located in the anterior segment of the right upper lobe, arising from the horizontal fissure and extending to the pleura (arrows), with a maximum SUV of 5.5. **D:** Histological slide, with hematoxylin-eosin staining (magnification, ×10), of a lung biopsy sample, showing rounded structures with basophilic capsules (asterisks), accompanied by nuclear fragmentation of inflammatory cells, together with macrophages and multinucleated giant cells (arrows). Histochemical analysis, with mucicarmine and Grocott’s staining, confirmed the presence of cryptococci.

Pulmonary cryptococcosis is caused by fungi of the genus *Cryptococcus* (*C. neoformans* and *C. gattii*), which are monomorphic encapsulated yeasts that are found worldwide, particularly in soil contaminated with pigeon droppings and decomposing wood. Although infection occurs through the inhalation of airborne infectious particles, pneumonia is relatively uncommon in infected individuals. In fact, after hematogenous dissemination, infection of the central nervous system is more common than is pneumonia<sup>(1-4)</sup>.

Pulmonary cryptococcosis has a variety of clinical and pathological presentations. It can manifest in immunocompetent and immunocompromised patients, although the latter account for the majority of cases, with a wide variety of radiological abnormalities. The following are the main characteristics to be identified by CT<sup>(2-4)</sup>: location and distribution; solitary or multiple nodules that can progress to confluence or cavitation; segmental consolidation or infiltrative masses; hilar or mediastinal lymph node enlargement; pleural effusion; reticular or nodular infiltrate; linear opacities; septal thickening; and endobronchial lesions. The diagnosis of pulmonary cryptococcosis is difficult to make, because the organisms often colonize the upper airways and the symptoms are nonspecific, as are the radiological manifestations<sup>(4)</sup>.

In the diagnosis of pulmonary cryptococcosis, PET/CT plays a complementary role. In approximately 60% of patients, cryptococcal lesions show <sup>18</sup>F-fluorodeoxyglucose uptake that is greater than is that of the mediastinal blood pool. The SUV, a calculated measure of contrast uptake, is used in order to identify the underlying cause of such lesions, knowledge of their physiological distributions and variants being of fundamental importance for minimizing errors of interpretation<sup>(1,5,6)</sup>. Typically, low SUVs ( $\leq 2.5$ ) are associated with benign lesions, whereas high SUVs ( $> 2.5$ ) are associated with malignant lesions<sup>(1,5)</sup>. Sharma et al.<sup>(1)</sup> demonstrated that the SUVs of cryptococcal lesions range from 0.93 to 11.6.

When PET/CT is used in order to differentiate pulmonary nodules and to discriminate between infection and malignancy, its potential pitfalls should be borne in mind, especially in areas where the prevalence of granulomatous infection is high, as

well as in immunocompromised patients<sup>(7,8)</sup>. Inflammatory and infectious lesions can show elevated metabolic rates and can therefore be misidentified as malignant lesions<sup>(5,6,8)</sup>, thus posing a diagnostic challenge<sup>(6)</sup>.

In patients with pulmonary cryptococcosis, there is great variability in the SUVs of cryptococcal lesions. Therefore, the clinical correlation, risk factors for cancer development, and geographic location, together with the PET/CT findings, are fundamental for diagnostic clarification, although it is usually necessary to perform a lung biopsy<sup>(1,5,8)</sup>.

#### REFERENCES

- Sharma P, Mukherjee A, Karunanithi S, et al. Potential role of 18F-FDG PET/CT in patients with fungal infections. *AJR Am J Roentgenol.* 2014;203:180-9.
- Lindell RM, Hartman TE, Nadrous HF, et al. Pulmonary cryptococcosis: CT findings in immunocompetent patients. *Radiology.* 2005;236:326-31.
- Fox DL, Müller NL. Pulmonary cryptococcosis in immunocompetent patients: CT findings in 12 patients. *AJR Am J Roentgenol.* 2005;185:622-6.
- Lee WY, Wu JT, Jeng CM, et al. CT findings of pulmonary cryptococcosis: a series of 12 cases. *Chin J Radiol.* 2005;30:319-25.
- Truong MT, Ko JP, Rossi SE, et al. Update in the evaluation of the solitary pulmonary nodule. *Radiographics.* 2014;34:1658-79.
- Mosmann MP, Borba MA, Macedo FPN, et al. Solitary pulmonary nodule and 18F-FDG PET/CT. Part 1: epidemiology, morphological evaluation and cancer probability. *Radiol Bras.* 2016;49:35-42.
- Hsu CH, Lee CM, Wang FC, et al. F-18 fluorodeoxyglucose positron emission tomography in pulmonary cryptococcoma. *Clin Nucl Med.* 2003;28:791-3.
- Deppen S, Putnam JB Jr, Andrade G, et al. Accuracy of FDG-PET to diagnose lung cancer in a region of endemic granulomatous disease. *Ann Thorac Surg.* 2011;92:428-32.

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#### Giant renal angiomyolipomas in a patient with tuberous sclerosis

Dear Editor,

A 40-year-old female patient, diagnosed 15 years prior with tuberous sclerosis (TS) but not having had periodic follow-up evaluations, presented with a 20-day history of constant abdominal pain. A palpable abdominal mass had been detected during a medical consultation. Laboratory tests revealed no abnormalities. Computed tomography (CT) of the abdomen showed heterogeneous, partially delimited bulky formations with extensive areas of fat attenuation, resulting in marked bilateral occupation of the kidneys, accompanied by diffuse architectural distortion of the parenchyma and local mass effect (Figure 1). Given the clinical history of the patient, the main diagnostic hypothesis was giant renal angiomyolipomas (AMLs), and the correlation with magnetic resonance imaging (MRI) of the abdomen was therefore recommended (Figure 2). Because of the symptom profile associated with extensive bilateral occupation of the kidneys and the high risk of hemorrhage, it was decided that total nephrectomy was the most appropriate therapeutic option for the patient. Postoperatively, the patient was stable and was referred for routine hemodialysis.

Masses of the urinary tract have been the object of a number of recent publications in the radiology literature of Brazil<sup>(1-3)</sup>. AMLs are rare benign lesions, accounting for 1-3% of all renal tumors, hamartomas being included in the differential diagnosis because of the presence of adipose tissue, neovascularization, and muscle fibers<sup>(4)</sup>. Although the most common type of AML is the sporadic form, 10% of cases are associated with TS, with bilateral distribution and, in some cases, multiple masses. In 60% of cases, patients are asymptomatic, the appearance of symptoms and complications being closely related to the size of the tumor; in symptomatic patients, the most common manifestations are abdominal pain and a palpable mass<sup>(5-7)</sup>.

The diagnosis of AML is typically based on a finding of macroscopic fat in a renal lesion. Classically, AMLs are hyperechoic on ultrasound and are characterized by areas of attenuation below -10 HU on CT. On T1-weighted MRI sequences the areas of fat within the lesions generate signals that are isointense in relation to those of fat present in other organs and hyperintense in relation to those of the renal parenchyma. However, the most reliable diagnosis is based on sequences obtained with and without fat suppression. It is not necessary to include the routine use of intravenous contrast administration in diagnostic and