

radiological follow-up in order to evaluate the evolution of the disease.

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Bilateral Pulmonary Nodules Due to Brucellosis[☆]

Nódulos pulmonares bilaterales por brucelosis

Dear Editor:

Brucellosis is a zoonosis that is endemic of rural areas of the Mediterranean area, Asia, Africa, Central and South America that mainly affects the reticuloendothelial and osteoarticular systems (liver, spleen, bone marrow). Fever is the most characteristic sign, while lung affection is very rare.

We present the case of a 40-year-old patient, an active smoker and farmer who works as a shepherd for years. He came to the emergency department due to angina thoracic pain with neither fever nor respiratory semiology. ECG and cardiac markers were normal. After the appearance of bilateral pulmonary nodules on the chest radiograph, CT was performed, showing 3 on the right side and 2 on the left. Their sizes ranged from 2 to 3.5 cm, with well-defined edges, concentric linear calcifications and in contact with the pleura (Fig. 1). They all presented weak metabolic activity on PET. Given these findings, and with negative serology, right video-assisted thoracoscopy was performed as well as resection of one of the nodules. The anatomopathologic analysis reported a well-delimited lung nodule, in onion layers with granulomatous infiltration, giant cell elements and necrotic centers that were

becoming calcified. The diagnosis of brucellosis due to *Brucella melitensis* was obtained from the microbiological culture, and treatment was begun with doxycycline and rifampicin for 6 weeks and gentamicin the first 2. Currently, the patient is asymptomatic.

Brucellosis is produced by an intracellular strict aerobic Gram-negative cocobacillus, four species of which have been recognized as pathogens in humans: *B. melitensis*, *B. suis*, *B. abortus* and *B. canis*. Recently, two types have been discovered in sea animals, *B. pinnipediae* and *B. catacaeae*.¹ In Spain, its incidence has dropped drastically since 1984, although it continues to be a health-care problem in areas of the center and south. In 2009, 150 cases were registered, 59 of which were detected in Andalusia (southern Spain). Subjects become infected by the consumption of unpasteurized dairy products, contact with infected animals and, more rarely, inhalation of particles. There have also been cases described of sexual transmission and infection while breastfeeding. Its presentation is that of a systemic disease where fever is the nearly constant sign and, although it can be contracted by air, respiratory affection is very rare (<0.5-5%²), even in endemic regions. The maximum reported incidence is 10% of cases.³

The respiratory manifestations do not differ from an infection of the upper airways, and there have been published cases of pneumonia, lung abscess, empyema, pleural effusion, hemoptysis, hilar and mediastinal adenopathies, mediastinitis and pneumothorax, as well as solitary or multiple lung nodules.^{4,5} In reviewing

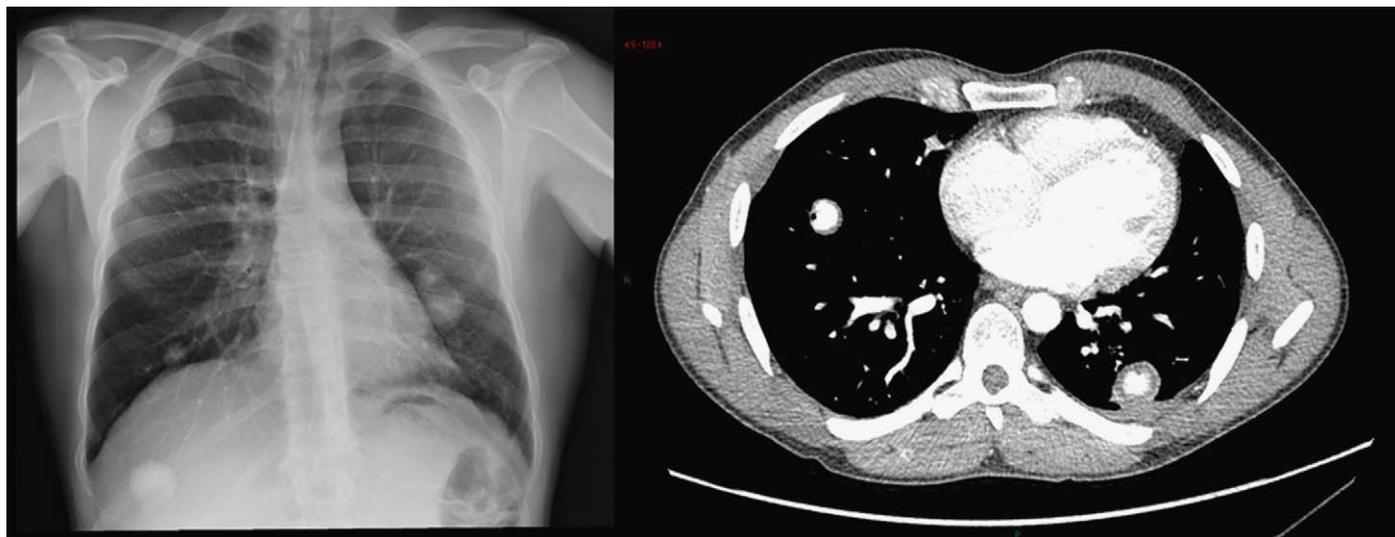


Figure 1. Radiograph and CT with bilateral pulmonary nodules.

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the bibliography on MEDLINE (Keywords: “multiple pulmonary nodules”, “brucellosis”), we have found only 11 published cases with multiple lung nodules, 5 of which were bilateral and, with the exception of one case of less than 1 cm, visible only on CT.

The presumptive diagnosis is done by serology and the definitive diagnosis by culture. *Brucella* spp. has been isolated in blood, sputum and pleural liquid; our case is the second in the literature in which *B. melitensis* was isolated from a pulmonary nodule.⁶

The recommended treatment is doxycycline and rifampicin for 6 weeks, adding gentamicin during the first two. Streptomycin is an alternative to rifampicin in cases of intolerance.

In conclusion, we present the first case of multiple lung nodules due to brucellosis, confirmed by cultures. Therefore, within the differential diagnosis of multiple pulmonary nodules in endemic areas, we should keep brucellosis in mind as a possible etiology. The suspicion should be greater when tuberculosis is ruled out, and it should not be abandoned when given the absence of positive results on serology.

Conflict of Interest

The authors declare having no conflicts of interest.

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