Clinical microbiological case: an 81-year-old woman with fever and a cervical mass
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Please refer to the article on pages 739–740 of this issue to view the questions to which these answers refer.

ANSWERS

1. The differential diagnosis of fever and anterior cervical mass is so vast that a focus is essential. Key features of this case include the subacute onset of the disease in a previously healthy elderly woman with unremarkable epidemiologic risk factors and the imaging findings. The mass could be [1,2]:

(a) A lymphadenopathy—inflammatory (infectious or not) or tumor.

(b) A primary (benign or malignant) tumor stemming from any cervicomediastinal structure (mainly thyroid or parathyroid).

(c) A malformative disease—branchial cyst, dermoid cyst.

(d) A metabolic disease—Gaucher’s disease.

(e) A drug reaction—phenytoin, hydralazine, allopurinol, quinidine.

The two last options are unlikely because of the age of our patient and the subacute onset of the disease. Drugs can also be excluded, because our patient was not taking any.

A primary malignant cervicomediastinal tumor (lymphoma, teratoma, thyroid or parathyroid carcinoma) is also unlikely in view of the quick enlargement of the mass and the absence of regional lymphadenopathy or metastasis. A metastatic tumor can be excluded on the basis of the imaging, the absence of other nodal involvement, and the lack of evidence of a primary tumor. Moreover, the consistency of the mass does not suggest a tumor.

The normal hormonal analysis excludes a secretory endocrine tumor. A non-secretory thyroid adenoma or cyst can also be excluded by the imaging findings (the mass does not originate in the thyroid or parathyroid), and the onset and systemic symptoms also make this diagnosis unlikely.

The most probable origin of this mass is an inflammatory lymphadenopathy. This possibility would explain its rapid enlargement, consistency and systemic findings (fever and constitutional syndrome). The onset of a diffuse connective tissue disease would be very uncommon at this age and with this presentation. Moreover, the lack of evidence of cutaneous, pulmonary, articular, renal or digestive involvement makes this option extremely unlikely. Therefore, the first option is an inflammatory lymphadenopathy (probably infectious): viral, bacterial, fungal, or parasitic. The subacute onset, the laboratory findings and the absence of suggestive risk factors may exclude most of them.

Viral infections can reasonably be ruled out, due to the subacute course, the localized lesion, and the absence of rash, hepatic and/or spleen involvement.

Syphilis [3], Lyme disease and Whipple’s disease may present with lymphadenopathy, but the clinical course is indolent and several systems are involved [4]. Cat-scratch disease is usually indolent and associated with exposure to a cat. Similarly, tularemia is associated with exposure to rabbits or cats and is characterized by an erythematous rash and hepatosplenomegaly. In bubonic plague, the onset is acute, buboes develop early in the disease, the patient’s condition deteriorates to a pulmonary catastrophe if the disease is untreated, and there is marked granulocytic leukocytosis.

Localized infection is the most frequent cause of fever and cervical lymphadenopathy. Brucellosis can be excluded with a negative serology test, and there was no history of exposure to animals or their untreated products (milk, raw meat, or bone marrow). Toxoplasmosis is also frequently related to exposure to animals. Nowadays, most cases of toxoplasmosis are of the reactivation type, and they often occur in association with HIV infection [5].

There is no history of travel to an endemic zone that could explain histoplasmosis or coccidioidomycosis, which would fit perfectly with the clinical and imaging findings.

The main remaining possibility in this case is mycobacterial infection. Tuberculous cervical lymphadenitis is the most common extrapulmonary manifestation of tuberculosis [6].

2. A fine-needle aspiration was performed on this patient, and frank pus was obtained. Positive mycobacterial staining of the material showed five acid-fast bacilli/field. The direct analysis of nucleic acids by PCR of the material allowed the rapid confirmation of infection by Mycobacterium...
tuberculosis. Culture in MGIT medium was positive in the third week.
3. Treatment of tuberculous lymphadenitis may require the drainage or surgical excision of the affected nodes, as well as medical treatment with antituberculous drugs. Surgery of tuberculous mediastinal lymphadenitis is more difficult, because of the risk of sequelae such as fistula.

Our patient was treated with drainage by puncture and aspiration of the cervical lymphadenopathy, and antituberculous drugs (isoniazid, rifampin, and pyrazinamide). Surgery was not deemed necessary in this case.

BRIEF DISCUSSION

Tuberculous cervical lymphadenitis is historically the most common extrapulmonary manifestation of tuberculosis. Children are still more likely than adults to have cervical lymphadenitis due to atypical organisms. Patients mostly present with a mass or a draining fistula in the neck. In such patients, tuberculosis must be kept in mind in the differential diagnosis of a cervical mass. A complete physical examination, and laboratory and radiologic investigations, are required.

Mediastinal tuberculous lymphadenitis, however, is a relatively rare disorder, and it is sometimes hard to identify the acid-fast bacilli involved or its specific pathologic findings. Either M. tuberculosis complex or non-tuberculous Mycobacterium may be responsible for this manifestation [7]. The granulomatous inflammatory processes of the lymph nodes in the mediastinum may lead, in some cases, to erosion and ulceration of the wall of the esophagus, generally in the middle third (bronchoesophageal fistula). In other cases, the rupture of caseous lymph nodes or leakage of antigen from infected lymph nodes probably activates an exuberant fibroblastic reaction (fibrosing mediastinitis), in order to limit the infection [8]. The main diagnostic approach consists of imaging findings from CT and MR, in the context of a tuberculous infection. Although fibrosing mediastinitis is a rare entity, and its pathogenesis remains unclear, the most generally accepted hypothesis is that it is caused by a delayed hypersensitivity reaction to fungal, mycobacterial or other unknown antigens. Histoplasmosis is considered to be the most common cause of fibrosing mediastinitis. However, where tuberculosis is common, most of the patients have a history of pulmonary tuberculosis [9].

In summary, although tuberculous cervical lymphadenitis is not a rare entity, mediastinal involvement in an elderly patient with no history of tuberculosis or significant risk factors is not very common. Although surgery of cervical tuberculous lymphadenitis is usually considered, it is not always necessary, and must be evaluated on an individual basis. Nevertheless, the use of thoracoscopic surgery is an option for diagnosis and treatment in mediastinal tuberculous lymphadenitis [10].

REFERENCES