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Upper lobe infiltrate with cough, fever, fatigue

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Case history

A 41 yr old housewife, originally from Sicily, presented in June 1990 with a fever of five months duration, dry cough and fatigue. She denied present or previous occupational risks as well as travel outside Italy during the previous 10 yrs.

The patient appeared in good condition; physical examination was negative for superficial lymphadenopathy, hepatosplenomegaly and pulmonary findings. A left upper lobe pulmonary opacity was detected at another hospital on routine chest roentgenogram; a fine-needle aspiration-biopsy was not diagnostic.

Laboratory tests were within normal range with the exception of erythrocyte sedimentation rate (ESR) (43 $mm \cdot h^{-1}$) and of a mild hypochromic microcytic anaemia (Hb= 95 $g \cdot l^{-1}$; mean corpuscular volume (MCV)=74 μ^3; blood iron= 230 $\mu g \cdot l^{-1}$). Anti-human immunodeficiency virus-1 (HIV-1) specific antibodies were repeatedly negative by enzyme immunoassays. Circulating CD4+ cells were normal in number (1,115·μl^{-1}) and CD4/CD8 ratio was 2.18. A 5 IU purified protein derivative (PPD) skin test was negative. Serological tests for Histoplasma- and Aspergillus-specific antibodies (immunodiffusion) and circulating antigens (counter-immuno-electrophoresis), as well as indirect immmunofluorescence for *Legionella pneumophila* antibodies were negative.

Chest roentgenograms confirmed previous findings (fig. 1 a and b).

Bronchoscopy performed through an Olympus BF 20 fibrescope showed a normal bronchial tree until subsegmentary branchings of the left upper bronchus. Brushing and lavage of the left upper bronchus with 180 ml of saline solution were performed. Gram and Ziehl-Neelsen stains on the lavage pellet were negative. Cultures of recovered bronchoalveolar lavage fluid (BALF) on both plated and liquid Sabouraud medium, on malt-agar medium, International Union Against Tuberculosis (Mycobacterium) (IUTM) medium and other common culture media were negative.

Cytological smears obtained from BALF showed normal columnar bronchial cells arranged in the palisade and numerous histiocytes filled with cytoplasmic periodic-acid-Schiff (PAS)-positive bodies (fig. 2).

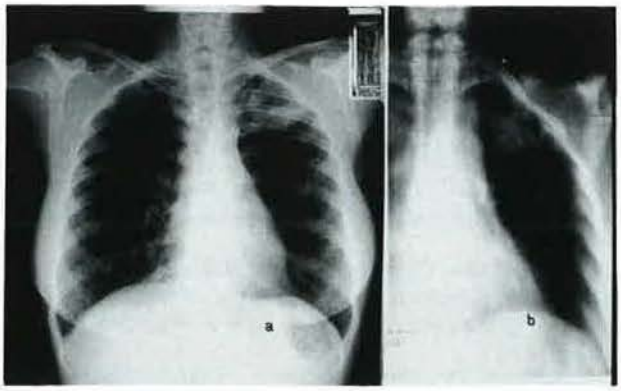

Fig. 1. – a) Chest roentgenogram of the patient before treatment. b) Tomographic detail of left upper lobe solitary nodule.

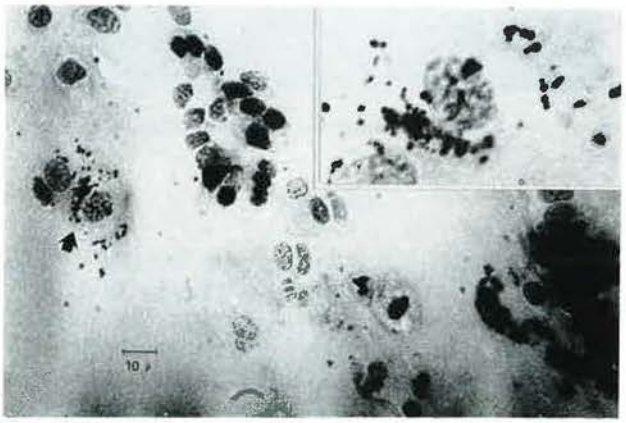

Fig. 2. – Small clusters of PAS-positive bodies within histiocytes (arrow) and between columnar bronchial cells. Inset: higher magnification of a histiocyte with cytoplasmic PAS-positive bodies. PAS: periodic-acid-Schiff.

Before turning the page: - interpret the roentgenogram and smear; - propose further examinations; - suggest diagnosis.

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TURN PAGE FOR DIAGNOSIS

Interpretation of roentgenogram: solitary upper left lobe pulmonary mass, consistent with either an inflammatory or a neoplastic process.

Interpretation of smear microscopy: PAS-positive bodies within histocytic cytoplasm and among bronchial cells, consistent with *Histoplasma capsulatum*.

Diagnosis: pulmonary histoplasmosis

Treatment was started with fluconazole, 400 mg·day^{-1} intravenously, and was continued for 20 days; dosage was then reduced to 200 mg·day^{-1} orally and continued for 2 months. Complete radiological regression of the left apical opacity was observed after the first month of treatment. By that time, the ESR and haematological parameters were also normalized. One year after ending treatment the patient was in good condition and chest roentgenogram was normal (fig. 3).

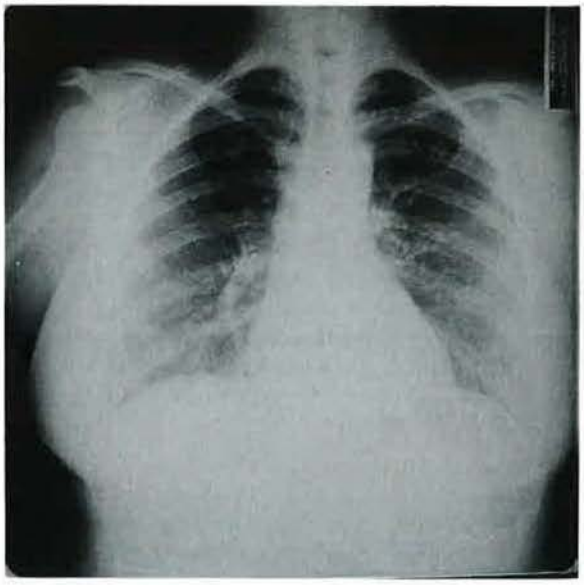

Fig. 3. – Chest roentgenogram 11 months after starting treatment.

Discussion

Histoplasmosis is a rare disease in Italy, as well as in the rest of Europe, where imported cases from high-risk countries usually predominate [1]. The reported case, clearly acquired in Sicily, suggests that this disease should be considered routinely in the differential diagnosis of nodular pulmonary opacities, particularly in patients coming from southern Europe.

A non-invasive diagnostic approach could be difficult in these patients, as serological techniques based on antibody detection are often unsatisfactory in non-disseminated histoplasmosis because of lack of sensitivity [2, 3]. Even the more sensitive methods based on circulating antigen detection, although highly diagnostic in disseminated histoplasmosis [4], are flawed by a false-negative rate as high as 63% in localized pulmonary disease [5]. Finally, invasive diagnostic procedures such as fine-needle aspiration/biopsy could be unsuccesful in the case of small multiple nodular lesions, and are associated with pneumothorax in about 18% of cases [6].

Although reports evaluating fibreoptic bronchoscopy in the diagnosis of this disease are very few, the diagnostic usefulness of bronchoscopy in pulmonary histoplasmosis has already been stressed, although some perplexities exist as far as solitary nodules are concerned [5]. Our observation suggests that cytological examination of material recovered from BAL may represent a reasonable and safe alternative to fine-needle aspiration-biopsy and confirms its superiority to serological techniques in the diagnosis of solitary nodular manifestations of pulmonary histoplasmosis. Finally, the absence of positive fungal cultures from recovered lavage fluid should not cause the diagnosis of pulmonary histoplasmosis to be discarded, as cultures can either take several weeks or yield negative results [5, 7]. In our case, prompt improvement with fluconazole alone, with disappearance of chest radiological abnormality strongly supports this diagnosis.

References

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