



## Isolated lymphadenitis due to *Histoplasma capsulatum* diagnosed by fine-needle aspiration biopsy and immunohistochemistry

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**Summary** In the disseminated form of histoplasmosis, isolation and further identification of *Histoplasma capsulatum* can be performed by several methods, namely, bone marrow aspiration, blood culture, and liver biopsy. Lymph node disease usually is diagnosed by excisional biopsy. Although fungal stains can identify this fungus, detection of specific antigens by immunohistochemistry shows a higher specificity and sensitivity. This approach can use the cell block method when the material is not sent to fungal cultures or fresh staining.

**Key words** *Histoplasma capsulatum*, Histoplasmosis, Fine-needle aspiration biopsy, Lymphadenitis, Adenopathy

## Linfadenopatía localizada por *Histoplasma capsulatum*: diagnóstico por inmunohistoquímica tras aspiración con aguja fina

**Resumen** El aislamiento y la posterior identificación de *Histoplasma capsulatum* en la histoplasmosis diseminada puede llevarse a cabo por diversos métodos, como la aspiración de médula ósea, el hemocultivo o la biopsia de hígado. La linfadenopatía es habitualmente diagnosticada por extirpación del ganglio afectado. Aunque la tinción del hongo puede llevar a su identificación, la detección de antígenos específicos mediante procedimientos de inmunohistoquímica muestra una mayor sensibilidad y especificidad. Este método permite la fijación de las células cuando el material no va a ser procesado para cultivo micológico o tinción en fresco.

**Palabras clave** *Histoplasma capsulatum*, Histoplasmosis, Biopsia por aspiración con aguja fina, Linfadenitis, Adenopatía

Histoplasmosis is a fungal infection caused by *Histoplasma capsulatum*. This entity can present with a variety of clinical forms [3]. Lymph-node disease can occur in the disseminated forms of the disease and, rarely, as an isolated form [4]. An exception is mediastinal histoplasmosis, in which case localized lymph node disease is

expected. Isolation and further identification of the fungus can be accomplished by several methods in cases of disseminated infection (i.e. bone marrow aspirate, blood culture, liver biopsy). Exclusive lymph node infection usually is diagnosed by excisional biopsy [2]. Although specific fungal stains can be used to help in the identification of the fungus, immunohistochemistry to detect specific antigens shows a higher specificity and sensitivity [1,7]. We report a case of a patient with histoplasmosis in one isolated lymph node diagnosed by fine-needle aspiration biopsy and immunohistochemistry. A 55-year-old male patient was admitted with an isolated cervical lymph node enlargement. The lymph node specimen was stained using PAS, Giemsa, Panotico and Grocott methods. These stains showed numerous fungal structures that were suggestive of *H. capsulatum* (Figure 1). A cell block was prepared from the lymph node aspirate and was tested by immunohistochemistry using rabbit antibody against *Histoplasma* spp. (K4068 - DAKO, CA, USA).

Immunohistochemical staining of the cell-block of the fine-needle aspiration biopsy using avidin-biotin-peroxidase complex revealed the presence of fungal forms that

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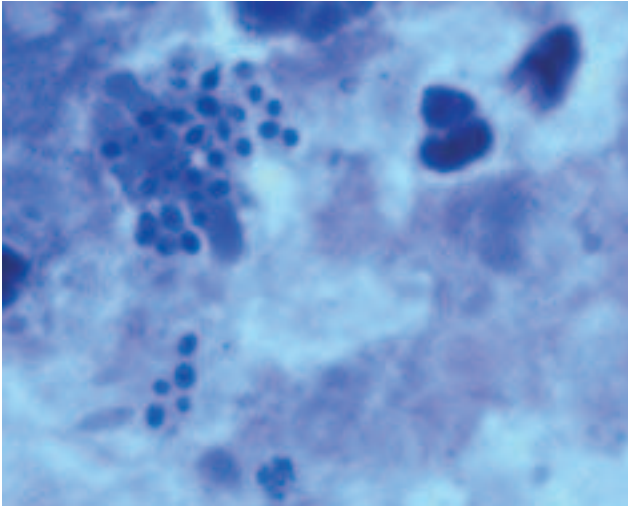


Figure 1. Numerous fungal cells suggestive of *Histoplasma capsulatum* (panoptic stain).

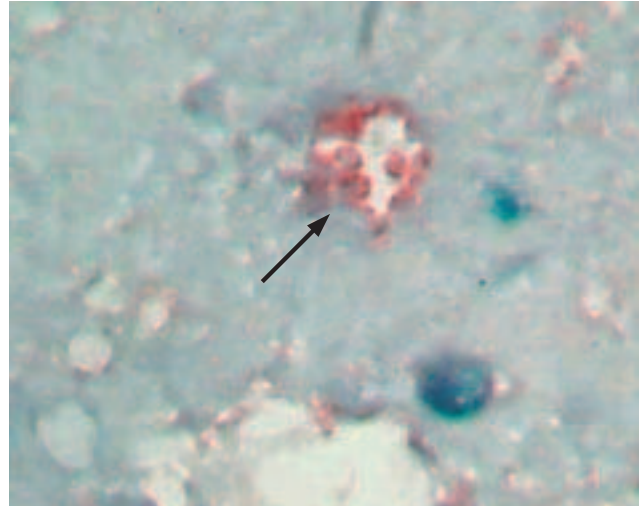


Figure 2. Immunohistochemical staining of the cell-block, positive for *Histoplasma* spp. by the avidin-biotin-peroxidase complex.

were positive to *Histoplasma* spp. (Figure 2). The fungal culture was positive for *Histoplasma capsulatum* after four weeks.

The case we present here showed that this disease can be diagnosed with a less invasive method (fine needle aspiration) and that the diagnosis can be confirmed by a highly specific method of *in situ* identification of fungal antigen, thereby avoiding the need for surgery (excisional biopsy) [6]. Serological tests also can be employed as a non-invasive diagnostic method but false-negatives can occur in immunosuppressed patients [5,8]. The cell block method for processing lymph node aspirates can be useful

for the diagnosis of lymphatic histoplasmosis in cases where clinical material has not been sent for fungal culture or fresh staining.

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