

## Case Report

# Epididymo-orchitis caused by *Histoplasma capsulatum* in a Colombian patient

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### Abstract

Although histoplasmosis is generally a self-limited disease, disseminated infection can occur in patients lacking effective cell-mediated immunity, reaching virtually every organ, even the genitourinary tract in rare cases. We report a case of epididymo-orchitis in an immunocompetent 38-year-old bricklayer from the rural area of Villeta, Cundinamarca, Colombia. The patient presented with testicular pain and macroscopic scrotal changes requiring a left orchiectomy, with microbiological isolation and molecular confirmation of *Histoplasma capsulatum*.

**Keywords:** Histoplasma. Epididymitis. Orchitis. Colombia.

### INTRODUCTION

*Histoplasma capsulatum* is a dimorphic fungus that exists as a mold in the environment (usually in the feces of bats and birds) and a budding yeast in the body<sup>1</sup>. It can form both macroconidia and microconidia, and aerosolization of the microconidia and subsequent inhalation into the lower airways causes infection<sup>2-5</sup>. Both *Histoplasma capsulatum var capsulatum* and *Histoplasma capsulatum var duboisii* cause histoplasmosis in humans. The former exists worldwide, with large endemic areas in Central and South America, whereas the latter is mainly present in Africa and Europe<sup>1,6</sup>.

*Histoplasma capsulatum* rarely causes acute symptomatic disease, as most infected people have either no symptoms or a very mild illness. Clinical manifestations occur in <1% of infected people and are typically pulmonary-related (e.g., acute pulmonary histoplasmosis, chronic cavitary pulmonary histoplasmosis, and granulomatous mediastinitis). Although infrequent, disseminated histoplasmosis can develop, depending on the host immune response and base physical condition. Disseminated disease rarely involves the genital or urinary tract, and very few cases have been reported<sup>1,7</sup>.

Reporting histoplasmosis is not mandatory in Colombia; thus, it is not possible to calculate its exact incidence. However, there have been isolated reports of this disease in different regions of the country<sup>8</sup>.

### CASE REPORT

The patient was a 38-year-old male bricklayer from the rural area of Villeta, Cundinamarca, Colombia. He had a history of cigarette smoking and alcohol consumption, but no previous recorded diseases, promiscuity, or testicular trauma. He presented with a 1-month history of progressive left testicle pain, swelling, erythema, and subjective fever, for which he had taken an anti-inflammatory agent (diclofenac) and antibiotics (dicloxacillin and ciprofloxacin) without clinical improvement.

Genitourinary examination revealed a normal-appearing penis, left scrotal swelling, painful palpation, and a normal descended right testicle. Ultrasonography of the scrotum showed left epididymo-orchitis without an abscess. The patient was prescribed oral antibiotics (100mg doxycycline and 500mg ciprofloxacin twice daily for 14 days) and discharged. However, there was no clinical improvement, and he was readmitted 21 days later owing to exacerbation of the pain in the left testicle.

Laboratory results were as follows: white blood cell count, 11,420 cells/mL; hemoglobin, 12.5mg/dL; hematocrit, 39%; platelet count, 544,000 cells/mL; creatinine, 0.8mg/dL; C-reactive protein, 89mg/L; and normal urinalysis. A rapid human immunodeficiency virus (HIV) test was negative. Based

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Received 29 June 2017  
Accepted 11 September 2017

on these results, a second ultrasonography was performed, which showed a 10-cc abscess and disruption of the soft tissue in the left testicle. Owing to the advanced status of the disease, a left orchiectomy was imperative.

Surgical samples were obtained for histopathological analysis. Hematoxylin & eosin and periodic acid-Schiff staining showed necrotizing granulomatous epididymo-orchitis with small (2-4µm) oval buds (**Figure 1A** and **1B**). These findings are compatible with *Histoplasma* spp.. A diagnosis of *Histoplasma capsulatum* was confirmed via sperm culture in Sabouraud agar and molecular characterization.

Upon further interrogation, the patient recalled visiting a place near his home where he had contact with bat and bird feces. He denied any recent respiratory symptoms. Based on this information, a chest radiograph was performed to rule out disseminated disease; no radiological abnormalities were observed. The patient received 200mg itraconazole every 12 hours for 6 months, with appropriate tolerance and adherence. His clinical status improved, with no relapses.

## DISCUSSION

We report a case of epididymo-orchitis in an immunocompetent patient who presented with testicular pain and macroscopic scrotal changes requiring a left orchiectomy, with microbiological isolation and molecular confirmation of *Histoplasma capsulatum*. Although usually asymptomatic, histoplasmosis can cause severe and progressive disseminated disease. Symptoms may appear immediately after infection or may be delayed in situations in which the fungus remains dormant until host immunity deteriorates<sup>9</sup>. Extrapulmonary manifestations progress in ≤1% of infected patients and require immediate treatment<sup>1</sup>.

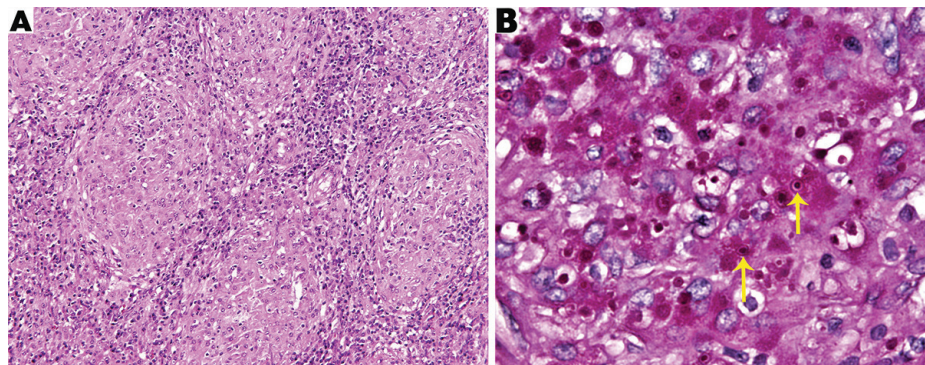
Disseminated histoplasmosis can affect any organ, but some infection sites are rarely symptomatic<sup>1,9,10</sup>. In order of descending frequency, such sites include the kidneys and adrenal glands, the penis and prostate, and the epididymis and testicles, all of which comprise the genitourinary tract<sup>11,12</sup>. In an article published in 2009, Tichindean et al. described four rare cases of symptomatic histoplasmosis in the epididymis or testicles (four were identified in a MEDLINE search

from 1966 to 2008 and one was a new case). Two patients had epididymitis, two had orchitis, and one had epididymo-orchitis<sup>12</sup>. The clinical presentation in these cases varied, with the development of scrotal swelling ranging from 2 weeks to several months. The infection was unilateral in all cases, and constitutional or respiratory symptoms preceded genitourinary manifestations in three cases. Four cases had paraclinical alterations (e.g., a high erythrocyte sedimentation rate, anemia, and abnormalities on chest radiographs), and in two cases, *Histoplasma capsulatum* was isolated from either the adrenal gland tissue or bronchoalveolar lavage<sup>12</sup>. One case was diagnosed postmortem, which underscores the difficulty of detecting genital involvement when there is no clear suspicion. In the case reported here, scrotal swelling developed over a month and the infection was unilateral; however, the patient had no paraclinical or radiological abnormalities or previous respiratory symptoms.

According to a national survey in 2005-2008, Colombia, Antioquia has the highest incidence (0.462 per 100,000) of histoplasmosis cases, followed by Valle (0.126 per 100,000), Cundinamarca (0.047 per 100,000), and Norte de Santander (0.040 per 100,000)<sup>8</sup>. Histoplasmosis is a serious disease, particularly in patients with specific risk factors, such as immunosuppression, corticosteroid therapy, diabetes, cirrhosis, neoplasia, alcoholism, malnourishment, and environmental exposure (e.g., contact with animals or spelunking)<sup>8</sup>.

We present an unusual case in which an immunocompetent host (negative HIV test and no history of corticosteroid use) developed epididymo-orchitis due to *Histoplasma capsulatum* infection. The patient had been exposed to bat and bird feces, which is where the fungus usually resides. Histoplasmosis in the genitourinary system is indicative of disseminated disease and requires systemic antifungal therapy in all cases. Surgical excision of the infected areas may also be necessary for successful treatment<sup>9</sup>.

This case highlights the importance of *Histoplasma capsulatum* infection as a differential diagnosis in tropical or endemic regions and in patients with granulomatous epididymo-orchitis who do not improve after treatments for more common causative agents.



**FIGURE 1 - A:** Testicular tissue showing epithelioid granulomas with intracytoplasmic basophilic yeast. Hematoxylin & eosin, 20×. **B:** Testicular tissue showing intracellular yeast compatible with *Histoplasma* spp (arrows). Periodic acid-Schiff, 60×.

#### Acknowledgments

We thank Dr. Claudia Parra in the Department of Microbiology at the Pontificia Universidad Javeriana for collaborating in the isolation and molecular characterization of *Histoplasma capsulatum*.

#### Conflict of interest

The authors declare that there is no conflict of interest.

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