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# Peritoneal Histoplasmosis about a Case and Literature Review

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## Abstract

Histoplasmosis is an opportunistic granulomatous fungal infection. Peritoneal histoplasmosis (PH) is a rare form. The first case of PH was described in 1970 but this is the first case reported in Mauritania. We report the case of a 60-year-old male patient with a history of pulmonary tuberculosis, treated and declared cured, and partial epileptic seizures treated with *Carbamazepine*. Contrast computed tomography of the abdomen showed a large mass with a large intraperitoneal fluid component with a finely calcified wall in places, for which laparoscopy and biopsy were performed, identifying *Histoplasma capsulatum* infection. The subject received treatment with *amphotericin B deoxycholate* with good evolution, and outpatient management with *itraconazole*. PH is a rare entity that requires high clinical suspicion, especially in immunocompetent patients. The patient was informed that non-identifying information from the case would be submitted for publication, and he provided consent.

## Keywords

Peritoneal Histoplasmosis, *Histoplasma capsulatum* var. *duboisii*, Pathological Anatomy, Mauritania

## 1. Introduction

Histoplasmosis caused by *Histoplasma capsulatum* var. *duboisii* (*H. duboisii*) is a profound opportunistic mycosis, endemic in Africa. The precise epidemiology of *H. duboisii* infection and its pathogenesis remains poorly understood. *Histoplasmosis* has a wide range of clinical presentations that depend primarily on

three factors: fungal load, virulence and Histoplasma strain, and host immune status [1].

More commonly involving organs such as the liver, spleen, bone marrow and skin [2]. Peritonitis associated with *H. capsulatum* is extremely rare, with few cases reported in the literature. Risk factors for developing fungal peritonitis include previous antibiotic use, immunosuppression status, environmental exposure, intra-abdominal surgery, and extraperitoneal spread of fungal infection [3]. We report the first observation in Mauritania of an isolated peritoneal localization of *H. duboisii histoplasmosis* in an immunocompetent patient.

## 2. Patient and Observation

The 60-year-old male patient had emigrated from Mauritania to Guinea Bissau, Congo and Senegal; he had a history of *pulmonary tuberculosis*, treated and declared cured, and partial epileptic seizures treated with *carbamazepine*.

The clinical examination noted abdominal pain giving the impression of heaviness. The remainder of the clinical examination, particularly pulmonary, neurological, lymph node and locomotor, was unremarkable. Abdominal computed tomography (CT) (**Figure 1**), sagittal section revealed a large mass with a large intraperitoneal fluid component with a finely calcified wall in places, located opposite the 3rd, 4th, 5th lumbar vertebrae, and plunging in the pelvis by its lower pole above the bladder, measuring 157 × 100 mm. Anatomopathological examination of the operative parts (**Figure 2**) revealed *Histoplasma capsulatum* var. *duboisii* stained with eosin hematoxylin at ×400 magnification shows a rounded or oval, corresponding to a bulky nucleus surrounded by a pseudo capsule producing a clear halo appearance (**Figure 3(a)**). *Histoplasmosis capsulatum* var. *duboisii* at ×400 magnification showing the yeast-like appearance

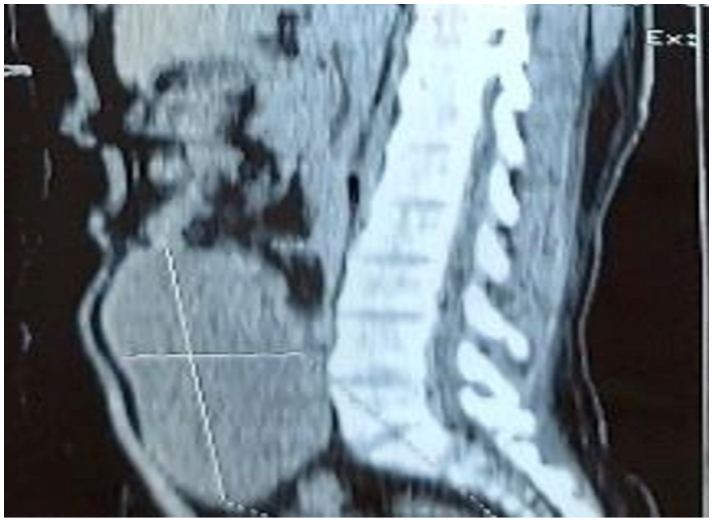

**Figure 1.** Abdominal CT scan sagittal section revealed a large mass with a large intraperitoneal fluid component with a finely calcified wall in places, located opposite the 3rd, 4th, 5th lumbar vertebrae, and plunging in the pelvis by its lower pole above the bladder, measuring 157 × 100 mm.

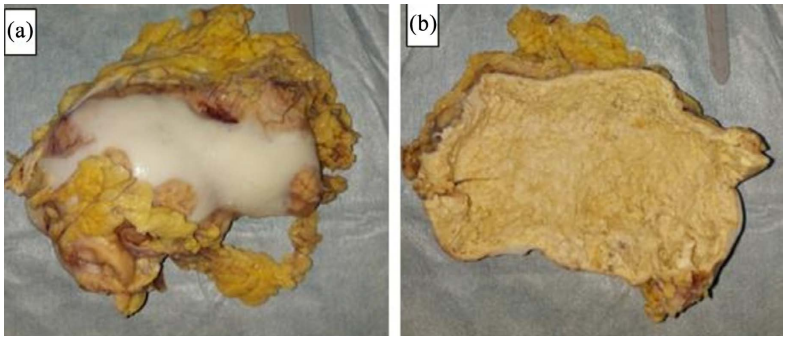


**Figure 2.** Macroscopic view of operating parts.

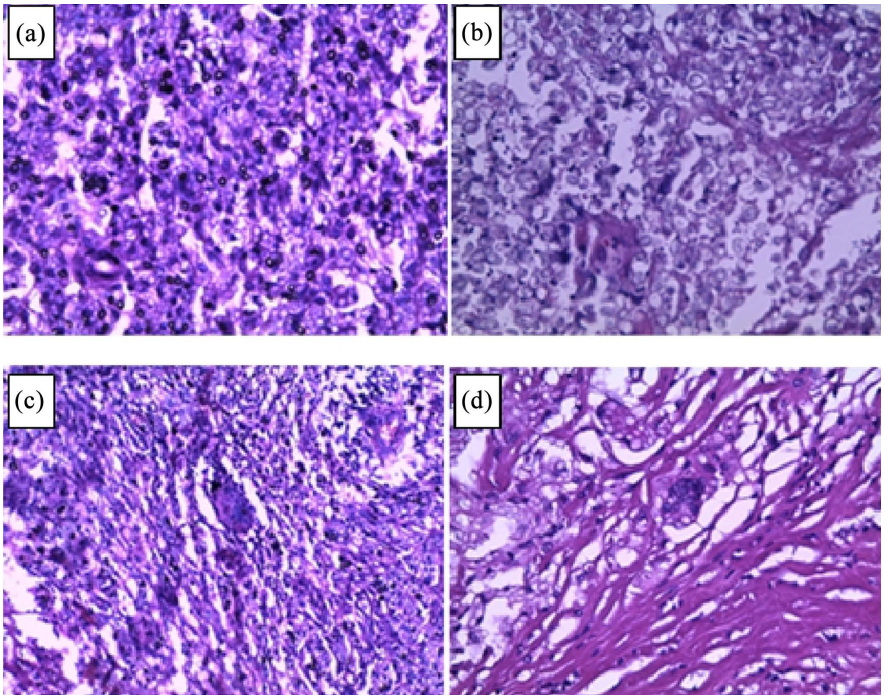


**Figure 3.** (a) *Histoplasma capsulatum* var. *duboisii* stained with eosin hematoxylin at ×400 magnification shows rounded or oval, corresponding to a bulky nucleus surrounded by a pseudo capsule producing a clear halo appearance. (b) *Histoplasmosis capsulatum* var. *duboisii* at ×400 magnification showing the yeast-like appearance with double contour. (c) Epitheloid and gigantocellular granuloma, without necrosis, stained with eosin hematoxylin at 100× magnification. (d) Multinucleated giant cells mixed with yeast-like aspects dissociating fibrous tissue stained with hematoxylin-eosin at ×400 magnification.

with double contour (**Figure 3(b)**). Epitheloid and gigantocellular granuloma, without necrosis, stained with eosin hematoxylin at 100× magnification (**Figure 3(c)**). Multinucleated giant cells mixed with yeast-like aspects dissociating fibrous tissue stained with hematoxylin-eosin at ×400 magnification (**Figure 3(d)**). Staining by *Periodic Acid Schiff* (P.A.S) stains these forms purple-pink, with the pseudo-capsule visible (**Figure 4(a)**, **Figure 4(b)**). *Gomori-Grocott* silver impregnation at high magnification ×400 shows the wall stained in black of the yeasts in intrahistiocytic position dispersed in the necrosis (**Figure 5(a)**). And the black-colored wall of the yeasts (**Figure 5(b)**).

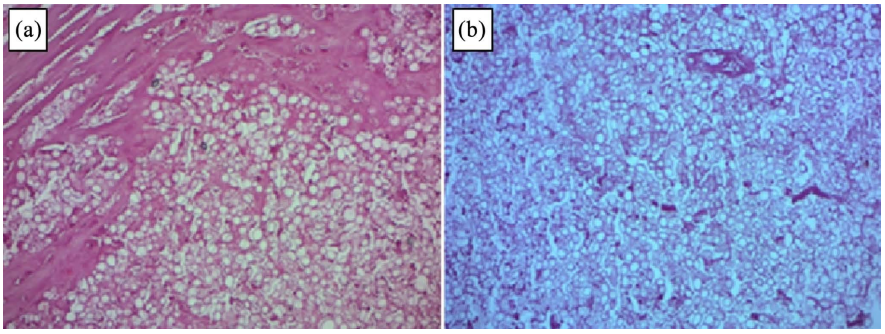


**Figure 4.** (a) Staining by P.A.S. (Periodic Acid Schiff) staining these forms in purple-pink, with the pseudo capsule visible. (b) Staining by P.A.S. (Periodic Acid Schiff) staining these forms in purple-pink, with the pseudo capsule visible.

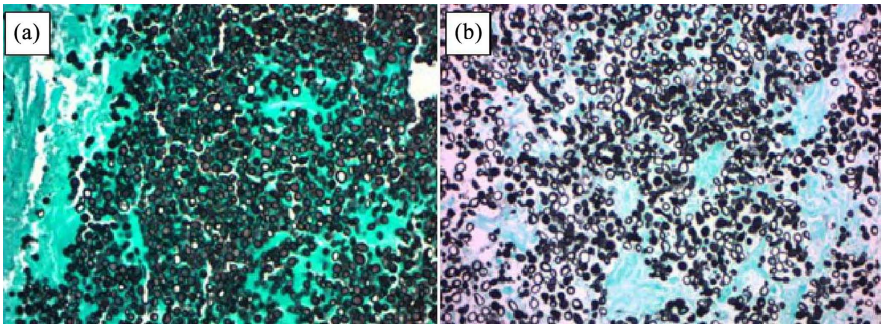


**Figure 5.** (a) Gomori-Grocott silver impregnation at high magnification ×400, is the reference complementary stain, which shows the wall stained in black of the yeasts in intrahistiocytic position dispersed in the necrosis. (b) Gomori-Grocott silver print at high magnification ×400, which shows the black-colored wall of the yeasts.

The patient was operated on for the peritoneal mass, with simple postoperative treatment followed by treatment with *itraconazole* at a dosage of 400 mg/day for 14 days. The regression was favorable after 9 months of follow-up.

## 3. Discussion

African histoplasmosis is a rare granulomatous infection first described by Catanei in 1945 [4]. Caused by the dimorphic fungus *Histoplasma capsulatum* var. *duboisii*. This infection is most common in Central and West African countries. Numerous cases have been reported in Senegal [5], Mali [6], Ivory Coast [7]. The case we are reporting is original, as it is the first description of this condition in Mauritania. However, this infection has been reported in neighboring countries. Its frequency increases proportionally with *HIV* infection [8]. Our patient was immunocompetent, with a history of *pulmonary tuberculosis*, which contradicts the data in the literature [8]. Histological examination of the operative specimen reveals a polymorphic granulomatous infiltrate, with multi-nucleated giant cells, within which we can distinguish multiple yeast-like bodies of large size, with thickened walls, and with a double positive contour for *P.A.S* and *Gomori-Grocott* stain characteristic of *Histoplasma duboisii*.

The mycological examination allows the visualization of ovoid-shaped yeasts,

mainly intracellular. Classically, according to many authors, histopathological examination is a sensitive method that makes it possible to confirm the diagnosis in 87% of cases [9] [10]. Treatment involves *itraconazole*; high doses of *ketoconazole* can, however, give good results.

## 4. Conclusion

Histoplasmosis is a rare condition in immunocompetent patients, but not exceptional. The clinician should think about this when considering any peritoneal mass in a patient who has stayed in Central and West Africa.

## Conflicts of Interest

The authors declare no conflicts of interest.

## Contributions from the Authors

All the authors have marked when carrying out this work. All authors also declare that they have read and approved the final version of the manuscript.

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