African histoplasmosis in rural Kimpese city, Democratic Republic of Congo

Histoplasmose africaine dans la cité rurale de Kimpese, en République Démocratique du Congo

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Summary

Background. *Histoplasmosis capsulatum* var duboisii (*African histoplasmosis*) is a chronic mycotic disease endemic in several parts of equatorial Africa. But, no outbreak has ever been reported.

Objective. To report the first largest cluster mimicking an outbreak in Kimpese rural area

Methods. From July 2011 to January 2014, 36 consecutive biopsies were accessioned at the Laboratory of histopathology of the referral hospital at IME Kimpese, DR Congo.

Biopsies were processed per the standard technics for routine histology and stained with Hematoxylin and Eosin (HE) in Kimpese. Additional histochemical staining with Periodic acid Schiff (PAS), Gomori methanamine silver (GMS) and a control HE were performed at The Chaim Sheba medical center, Israel to validate initial diagnoses. Immunohistochemistry (IHC) using an in-house built monoclonal antibody against *H. capsulatum* was done at the Pasteur Institute in Paris. Overall results were validated by "le Centre National de Référence des Mycoses Invasives et Antifongiques, France». HIV testing was routinely done in Kimpese. PCR (polymerase chain reaction) was achieved in Madrid (Servicio de Micología. Centro Nacional de Microbiología. Instituto de Salud Carlos III.)

Results. Patients were 18 males and 12 females aged from 3 to 57 years old.

Majority of them were referred by local dispensaries to the department of surgery and orthopedics of the IME Kimpese hospital for various ulcerative skin processes, bones fistulae or lymph nodes enlargement where biopsies were done following unsuccessful medical treatment. Few of them were isolated cases scattered within from the Province. Most interviewed patients witnessed close contacts with bats, bat guano or lived in houses infested with cellar bats. Bats were identified as *Chaerophon pumilus* bats (Department of Zoology, University of Kinshasa). Laboratory investigations like schistosomiasis coinfection were not pertinent. HIV testing was negative in all. Histological examination of the specimens disclosed granulomatous tissue composed of numerous multinucleated giant cells. Parasites identified as *H. capsulatum* var duboisii generally were in myriad either intracellular or extracellular and typically appeared large, ovoid, double-contoured yeast cells. These findings were confirmed by PAS and GMS staining. IHC performed for the first time showed specific membranous positivity, whereas molecular identity of the fungus was confirmed by PCR testing. Based on histological findings, patients were successfully treated with standard antimycotic regimens. Two patients died from disseminated disease and lack of medication means.

Conclusion. The unprecedented high frequency recorded by histopathology from unsolicited biopsies collected only over a 30-month period raise the possibility of a widespread unnoticed infection in general population that needs further investigations. We suspect the role of *Chaerophon pumilus* cellar bats and intensive guano fertilizer manipulation as potential sources of infection.

Key words: *African histoplasmosis*; Histoplasmosis duboisii; emerging; Democratic Republic of Congo.

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