

A Case of Cryptococcal Lymphadenitis in an HIV-Infected Woman

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A 31 year old black African woman presented at a local clinic in Botswana with a 1 week history of a painless swelling on the left side of her neck. She did not have fever, night sweats, productive cough or weight loss. She was referred for fine-needle aspiration cytology to Princess Marina Hospital in Gaborone, where examination revealed only one enlarged (3 x 2.5 cm), non-tender, rubbery and mobile lymph node in the left cervical region. There were no cutaneous lesions, headache, neck stiffness or other meningeal signs. FNAC microscopy smear showed chronic inflam-

FNAC = fine-needle aspiration cytology

matory cells with aggregated epithelioid cells, and numerous spherical yeast cells of variable size with thick round capsules and some budding consistent with cryptococcosis [Figures 1 and 2]. Ziehl-Neelsen stain was negative. Human immunodeficiency virus antibodies were found to be positive and CD4 cells were 51/μl (4.7%). A chest X-ray was normal with no hilar or perihilar adenopathy, and an abdominal and pelvic ultrasound revealed normal liver, spleen and kidneys and no evidence of para-aortic lymphadenopathy. Lumbar puncture demonstrated clear cerebrospinal fluid with high opening pressure (> 55 cm H₂O), no leukocytes, 7 erythrocytes/mm³, and normal glucose and protein levels. India ink and Gram stain were negative. CSF culture grew some *Cryptococcus neoformans* after 5 days. Blood culture and serum and CSF cryptococcal antigen were negative.

The patient was treated for 2 weeks with intravenous amphotericin B (50 mg

CSF = cerebrospinal fluid

daily) and oral fluconazole (800 mg daily). Four lumbar punctures were performed to relieve the headache that had begun after the first lumbar puncture. At discharge, CSF culture did not grow any *Cryptococcus* and the patient was given secondary prophylaxis with fluconazole. She was referred to a local clinic and began antiretroviral therapy 3 weeks later. Three months after discharge the patient is well and the cervical lymph node has shrunk to about 1.5 x 1.5 cm.

Lymphadenopathy is frequent in patients with HIV infection and can be due to non-specific follicular hyperplasia, opportunistic infections or malignancy. *Cryptococcus neoformans* is an uncommon cause of lymphadenopathy [1-4], and in all cases reported so far constitutional symptoms, cutaneous cryptococcal lesions or generalized lymphadenopathy were present. In contrast, in our case, they were all absent. The negative latex agglu-

HIV = human immunodeficiency virus

Figure 1. Numerous spherical yeast cells of variable size with occasional budding forms (x40, hematoxylin & eosin)

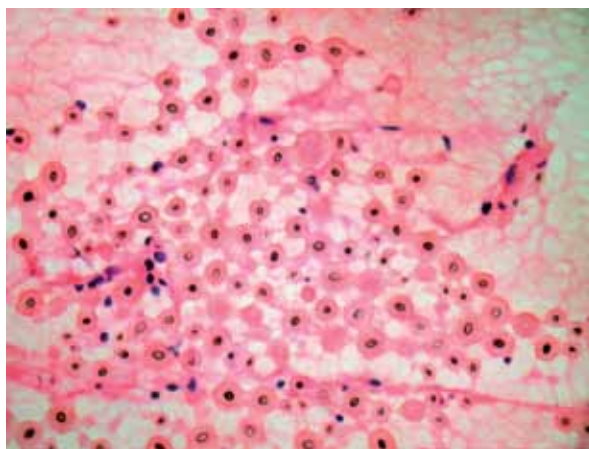


Figure 2. Numerous spherical yeast cells of variable size (A) and a few histiocytes (B) (x40, Papanicolaou stain)



mination test for detection of cryptococcal capsular polysaccharide antigen is noteworthy in our patient and could possibly be attributed to a low concentration of cryptococcal antigen below the kit detectability limit, a masking effect by unknown non-specific proteins in vivo, a prozone phenomenon due to high concentrations of cryptococcal antigen, or a poorly encapsulated strain with low production of polysaccharide [5].

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Capsule

Vascular endothelium and tissue regeneration

The vascular endothelium is increasingly being recognized to play a role during organogenesis and tissue regeneration. Hu et al. found that rapid down-regulation of endothelial-derived angiopoietin-2 following partial hepatectomy releases an endogenous transforming growth factor β 1-driven paracrine proliferative brake on hepatocytes. Later, recovery of endothelial angiopoietin-2 expression facilitates angiogenesis

in the regenerating liver in a vascular endothelial growth factor receptor 2-dependent manner. Thus, the vascular endothelium may help to orchestrate tissue regeneration through the control of inhibitory and stimulatory pathways in parenchymal and non-parenchymal cells.

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Eitan Israeli

Capsule

New substance that attacks antibiotic-resistant bacteria

A group of Israeli-U.S. researchers has isolated a protein that kills bacteria – a first step toward developing a substitute for antibiotics. This substance prevents bacteria from dividing, thus destroying them and combating infection. In recent decades the increased resistance of bacteria to antibiotics has left modern medicine sometimes powerless to fight infection and bacterial diseases. The World Health Organization has defined this problem as one of the three greatest threats to public health. Dr. Rotem Sorek of Weizmann Institute of Sciences' molecular genetics

department considers this the first major breakthrough in the war between bacteriophages and bacteria. The Russians developed the use of bacteriophages to fight infection during the Cold War. Sorek notes: "Every Russian was issued ampoules containing phages. The ampoules were to be used against intestinal and other kinds of infections." The use of bacteriophages spread to the west in the 1990s, partly thanks to scientists who immigrated to western countries from the former Soviet Union.

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Capsule

The complete genome sequence of a Neanderthal from the Altai Mountains

Prufer et al. presented a high quality genome sequence of a Neanderthal woman from Siberia. They show that her parents were related at the level of half-siblings and that mating among close relatives was common among her recent ancestors. The authors also sequenced the genome of a Neanderthal from the Caucasus to low coverage. An analysis of the relationships and population history of available archaic genomes and 25 present-day human genomes shows that several gene flow events occurred among Neanderthals, Denisovans and early

modern humans, possibly including gene flow into Denisovans from an unknown archaic group. Thus, interbreeding, albeit of low magnitude, occurred among many hominin groups in the Late Pleistocene. In addition, the high quality Neanderthal genome allows us to establish a definitive list of substitutions that became fixed in modern humans after their separation from the ancestors of Neanderthals and Denisovans.

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