Life-threatening fungal meningitis-ventriculitis secondary to vaginal candidiasis

Introduction

The CNS is rarely affected by *Candida* infection in immunocompetent individuals. Candidial species normally forms part of the commensal flora of the lower gastrointestinal tract, vagina and oropharynx. Although normally non-pathogenic, predisposing conditions like hormonal imbalances, diabetes, antibiotic therapy or immunosuppression can lead to symptomatic candidiasis or rarely more invasive systemic disease. This case illustrates a rare but life-threatening situation where a patient with subarachnoid haemorrhage developed severe meningoventriculitis from relatively innocuous vaginal candidiasis.

Discussion

The CNS is a rare location for systemic candidial infection, unless there is some predisposing factor or if it is a part of disseminated miliary candidiasis (Lai et al, 1997). Rarely indwelling foreign devices like ventriculo-peritoneal shunt catheters or external drains are colonized with fungi leading to neurological disability. Owing to the rarity of this infection, and because the neurological symptoms and signs of CNS candidiasis are vague and fleeting, most cases of CNS candidiasis are unfortunately diagnosed just before death or during postmortem.

On the contrary, vaginal candidiasis by itself is rarely of such a serious consequence in healthy non-pregnant women. In pregnancy and puerperium, however, it has caused autogenous endophthalmitis, mastitis (Amir and Pakula, 1991) and chorio-amnionitis (Bruner et al, 1986). Rarely, vertical transmission can result in fetal candidimia with end-organ damage (Bruner et al, 1986; Benjamin et al, 2003), preterm labour (Chaim et al, 1992) or neonatal meningitis (Chen et al, 2004). Autogenous spread of candida from the perineal region to the nervous system as seen in this patient is so far unreported.

External CSF drainage systems are notorious for developing bacterial colonization with the risks of infection escalating exponentially with the duration of drainage. In this case, the patient's altered sensorium with repeated scratching of the vulval area as well as the scalp probably provided the perfect vehicle for contagious transmission of infection from the genital tract to the CNS, which was already rendered vulnerable as a result of surgery. This was further facilitated by presence of blood and its degradation product in the CSF as a result of subarachnoid haemorrhage, providing an ideal environment for fungal growth. The candidial fungus inoculated by contaminated scratching fingers gained direct entry into the cerebral ventricular system via the drainage catheter.

The diagnosis of candidial meningitis could have easily been missed as a result of non-specific symptoms or signs that overlapped with the clinical features of subarachnoid haemorrhage itself and subsequent cerebral vasospasm. Computed tomography appearances of cerebral candidiasis described in the literature are uncommon and not pathognomonic (Chaabane et al, 1989). A high index of suspicion, regular CSF examinations and prompt multi-channel antifungal treatment saved this patient from this rare life-threatening CNS infection and she made a near-complete neurological recovery.

This case demonstrates potential for autologous transmission of genital fungal infections into various surgical fields. Those with immune system malfunction are more prone. In patients with neurological disabilities, irritability or restlessness the risks of such transmission are likely to be higher. Such a spread may prove fatal in patients who have undergone major gastrointestinal, cardiac or neurological operations. Early recogni-

Case Report

A 39-year-old woman presented with headache and drowsiness. Computed tomography scan confirmed aneurysmal subarachnoid haemorrhage with acute hydrocephalus, necessitating insertion of an external ventricular drain. This improved her consciousness level but she remained restless and confused. Cerebral angiography revealed an aneurysm arising at the origin of the posterior communicating artery. On the third day following haemorrhage the aneurysm was successfully treated by endovascular coiling. During this time she was often noticed to be scratching her vulval area as well as the scalp at the site of insertion of the drain. On vaginal speculum examination copious curdy white discharge was seen. A vaginal swab confirmed this to be caused by *Candida albicans*.

On the eighth day, her condition deteriorated again. She became drowsy with high grade fever, pyrexia, neck stiffness, vomiting and left hemiparesis. On the tenth day she became very ill and toxic with fulminant signs of meningitis-ventriculitis requiring a transfer to the intensive care unit. The CSF showed a high white cell count of 9500/mm^3 with 90% neutrophils. No bacterial organisms were detected on direct microscopy but the culture grew *Candida albicans*. With aggressive antimicrobial therapy using vaginal clotrimazole pessaries, intravenous fluconazole and intraventricular vancomycin, her neurological condition gradually improved over the next 4 weeks. Clinical improvement also correlated with normalization of CSF picture and eradication of *Candida* on subsequent cultures. Vaginal discharge also gradually diminished and vulval redness subsided. Six weeks later, she was discharged with mild residual left hemiparesis. She did not have any itching or vaginal discharge.

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tion and timely treatment of symptomatic vaginal thrush in all patients scheduled for major surgeries can thus be advised irrespective of how minor the infection may appear. Failure to do so may rarely result in severe morbidity or even mortality. BJHM

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CASE REPORT

Foot ecchymosis sign: a valuable diagnostic sign with therapeutic implications

Introduction

Clinical differentiation between a deep vein thrombosis and a ruptured Baker's cyst can be difficult (Langsfeld et al, 1997; Volteas et al, 1997). This article presents a case of ecchymosis around the foot in association with a ruptured Baker's cyst (von Schroeder et al, 1993) and emphasizes the value of this sign in the acute setting.

Several cases of compartment syndrome have been described in patients receiving anticoagulation for a suspected deep vein thrombosis who have subsequently found to have a ruptured Baker's cyst (Petros et al, 1990; Dunlop et al, 1997; Krome et al, 1997).

The authors suggest that anticoagulation should be postponed until further investigation in the presence of this sign, to prevent serious complications which can be associated with the anticoagulation of patients with Baker's cysts. BJHM

Figure 1. Ecchymosis below lateral malleolus.

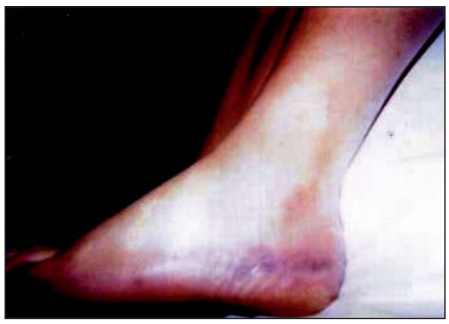
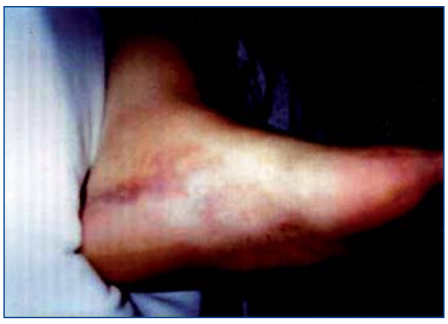


Figure 2. Ecchymosis below medial malleolus.



Case Report

A 74-year-old woman with no history of trauma presented to accident and emergency with a tense and swollen calf. There was extensive ecchymosis below her medial and lateral malleoli (*Figures 1* and *2*) and a 5 cm difference in calf circumference. She was treated with a treatment dose of tinzaparin and discharged with the diagnosis of a deep vein thrombosis. The swelling deteriorated and she was investigated by a Doppler ultrasound which confirmed the presence of a ruptured Baker's cyst which responded to stopping the tinzaparin, rest and anti-inflammatory medication.

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