Candida tropicalis in the Peripheral Blood of a Surgical Patient

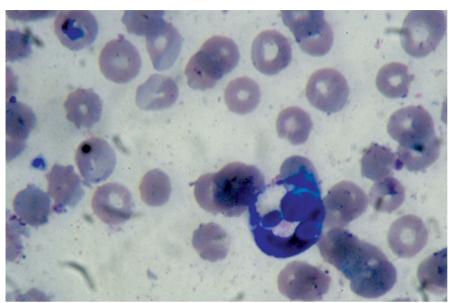


Figure 1. Blood film stained with May-Grünwald-Giemsa (x1,000) revealing intracellular yeast-like organisms.

A 30 year-old woman with a previous diagnosis of rectal cancer requiring multiple abdominal surgeries was admitted to the hospital because of intestinal obstruction. She had locallyadvanced disease and suffered from chronic renal failure due to ureteral obstruction. Bilateral nephrostomy tubes were in place and her serum creatinine was high at 3 mg/dL. The patient was treated medically for about a month, but an exploratory laparotomy was later required. However, soon after she left surgery she manifested signs of sepsis, with associated shivering and hypothermia (34.9°C). Three sets of blood cultures were obtained and incubated in BacT/Alert aerobic media. All samples were positive after a short period of incubation (4.5-9.7 h) and revealed growth of Escherichia coli,

Klebsiella pneumoniae and Enterococcus faecalis. One of the samples was also positive for yeasts, which were later identified as Candida tropicalis. Her hemoglobin, leucocyte count, and platelet count were 6.7 g/dL, 3,370/mL and 36,000/mL, respectively. Most of her leucocytes were polymorphonuclear cells (91%). Yeasts were abundant in a blood film; they were being phagocytized (Figure 1).

Candida spp. are rarely seen in peripheral blood smears [1]. Only a handful of cases of disseminated candidosis diagnosed from peripheral blood smears were included in the study by Yera et al., published in 2004 [2]. Interestingly, most cases were caused by Candida albicans and involved patients with intestinal obstruction. It appears that this can only occur when fungal elements are present in large numbers in the peripheral blood [3]. For instance, it has been demonstrated that yeasts need to be at a concentration of at least 5 x 10⁵ CFU/mL before they can be seen in the peripheral blood by experienced pathologists [4]. A 1,000-fold higher concentration would probably be required for non-experts during routine slide review. Since most cases of candidemia are associated with much lower concentrations of circulating yeasts (usually < 100 CFU/mL) [4], early detection of candidemia is unlikely in the vast majority of patients, when using this method. However, in some cases, as we report here, a review of blood smears could lead to an early diagnosis, sometimes days before culture result. Unfortunately, our patient died a few hours after her blood was obtained, because of both severe underlying disease and acute illness.

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