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CASE REPORT
OLGU SUNUMU

A Rare Clinical Form of Candidaemia: A Pediatric Case of Leukemia with Skin Involvement

Kandideminin Nadir Bir Klinik Formu: Cilt Tutulumu Olan Lösemi Tanılı Çocuk Vaka

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ABSTRACT

Cutaneous involvement of candidemia is seen in hematological-oncological patients with weak immune systems and is rare. Lesions may be maculopapular or nodular. This case report presents cutaneous lesions due to disseminated candidemia in an 8-year-old child who was followed up with a diagnosis of leukemia and hospitalized with febrile neutropenia. The patient's general condition was very poor. There was resistant *Candida* growth in blood and port culture. The diagnosis was made clinically in consultation with the dermatology department. Amphotericin B and voriconazole combination therapy was given. The lesions disappeared. Today, *Candida* spp. infections are becoming more common, and the rate of skin involvement is also increasing. However, the diagnosis of *Candida* skin involvement may be difficult. Histopathology can be used in the diagnosis. Skin involvement is more common in candidemia patients with risk factors, especially those with *Candida tropicalis* growth.

Keywords: Candidaemia, cutaneous involvement, child, leukemia

ÖZ

Kandideminin kutanöz tutulumu, immün sistemi zayıf olan, hematolojik-onkolojik hastalarda görülür ve nadirdir. Lezyonlar makülopapüler ya da nodüler olabilir. Bu olgu sunumunda lösemi tanısıyla takip edilen, febril nötropeni ile yatışı yapılan 8 yaş çocuk hastada dissemine kandidemiye bağlı kutanöz lezyonlara yer verilmektedir. Hastanın genel durumu çok kötüydü. Kan ve port kültüründe dirençli *Candida* üremesi tespit edildi. Tanı dermatoloji bölümüne danışılarak klinik olarak koyuldu. Hastaya amfoterisin B ve vorikanazol kombinasyon tedavisi verildi. Lezyonları kayboldu. Günümüzde *Candida* spp. enfeksiyonlarının sık görülmesiyle beraber cilt tutulumu oranı da artmaktadır. Fakat *Candida* deri tutulumu tanısı güç olabilmektedir. Tanıda histopatoloji kullanılabilir. Risk faktörlerine sahip kandidemili olgularda özellikle *Candida tropicalis* üremesi olan olgularda deri tutulumu daha sık görülmektedir.

Anahtar Kelimeler: Kandidemi, kutanöz tutulum, çocuk, lösemi

INTRODUCTION

Candida is the most common causative agent of invasive fungal infections, and the most common species is *Candida albicans* (1,2). Involvement of the eye, liver, spleen, heart, brain, and, more rarely, skin can also be observed during candidemia (3,4). Skin involvement is very rare and may be overlooked. Cutaneous manifestations of candidaemia may start as macules and appear as papular, pustular, nodular, or erythematous lesions. It is usually seen on the trunk and extremities (5).

In this case report, we aimed to present a case of catheter-associated candidemia with skin involvement in a pediatric patient with leukemia.

CASE REPORT

An eight-year-old male patient with acute lymphoblastic leukemia (ALL) was treated with vancomycin and meropenem for febrile neutropenia. On the eighth day, metronidazole, amikacin, and caspofungin were added to the treatment because the patient developed a fever again. Laboratory tests revealed white blood cell count was 100/µl, absolute neutrophil count was 0/µl, and procalcitonin was 30 ng/ml. The blood and urine cultures of the patient showed yeast growth signals, and no involvement in favor of *Candida* was detected in organ scans.

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On the 14th day of vancomycin, the 14th day of meropenem, the sixth day of amikacin, the sixth day of caspofungin, the sixth day of metronidazole, the patient developed a rash on his upper extremities, but he had no fever at that time. The lesions were 0.5 cm-1 cm in size, more intense on the upper extremity, and irregular macular (**Figure 1**). The patient was isolated. Measles, rubella, parvovirus, chlamydia, mycoplasma, human immunodeficiency virus (HIV) serologic tests were negative. Dermatology and our team thought the patient's skin lesions were *Candida* skin involvement. On the ninth day of caspofungin, *Candida parapsilosis* was detected in the blood and port cultures taken simultaneously, *Candida tropicalis* (*C. tropicalis*) was detected in the subsequent repetitive growths, and 5.000 colonies of *Candida* spp. were detected in the urine culture. The patient was evaluated as having disseminated candidiasis. Caspofungin was stopped, voriconazole and amphotericin B intravenous combination, and intra-port amphotericin B treatment was started as the patient had resistant growths and clinical deterioration under antifungal treatment. The patient's fever was controlled, and procalcitonin values decreased. The patient's skin lesions faded on the 12th day of amphotericin B and voriconazole. The port was removed in the follow-up. The patient received antifungal therapy for two more weeks after port removal. The patient's candidemia was controlled, but severe neutropenia did not improve. During follow-up, the patient developed coagulopathy and gastrointestinal bleeding. Multidrug resistant *Klebsiella pneumoniae* growth was detected in blood culture. Despite all treatments, the patient died of resistant health-related infection and gastrointestinal bleeding.

Written and verbal consent was obtained from the patient's mother regarding the patient's illness and photo sharing.

Figure 1. *Candida* skin involvement lesions

DISCUSSION

Nowadays, the rate of *Candida* skin involvement is increasing along with the frequency of *Candida* spp. infections. Although *Candida albicans* is the most common species of candidemia, *C. tropicalis* is the most common species in cutaneous diseases (6). *C. tropicalis* was also grown in our case.

One of the most important risk factors for *Candida* skin involvement is neutropenia, and neutrophil support should be provided to these patients (7). Factors such as malignancy, chemotherapy, radiotherapy, long-term use of broad-spectrum antibiotics, and central venous catheters are risk factors for *Candida* skin involvement. Most of these risk factors were present in our case.

The diagnosis of *Candida* skin involvement may be difficult. Histopathology can be used in the diagnosis (5,6). In our case, the diagnosis was made on the basis of history, physical examination, and supportive examinations; a biopsy could not be performed because of severe thrombocytopenia.

Candida skin involvement should be considered in patients with candidemia who have risk factors, especially in cases with *C. tropicalis* growth.

It is most important to protect patients with hematological malignancies from candidemia. Therefore, antifungal prophylaxis is recommended for those with an expected duration of neutropenia longer than 7 days, those with recurrence of the disease, those who have undergone allogeneic stem cell transplantation, and those in moderate and severe risk groups such as graft versus host disease (8).

ETHICAL DECLARATIONS

Informed Consent: Written and verbal consent was obtained from the patient's mother.

Referee Evaluation Process: Externally peer-reviewed.

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