DECUBITAL CANDIDIASIS MIMICKING MOLLUSCUM CONTAGIOSUM IN AN UNCONSCIOUS PATIENT

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ABSTRACT

Decubital candidiasis is a rare type of candidiasis often found in bedridden patients. Unlike decubital ulcer, it is also characterized with pustules and papules along with erythema, erosions, and scales. This lesion usually develops in the posterior thorax, lumbosacral, and gluteal region. In this case report, a patient was referred to us with generalized papules that was initially thought to be molluscum contagiosum after being admitted to intensive care unit (ICU).

Keywords: Decubital Candidiasis, Candidiasis Miliaria, Candidiasis, Bedridden, Molluscum Contagiosum

INTRODUCTION

Candidiasis is an opportunistic infection caused by Candida sp. There are more than 20 species of Candida and C. albicans is the most common species responsible for candidiasis (Bhattacharya et al., 2020). Candidiasis can occur superficially or profoundly on the mucosa and skin. Superficial colonization by Candida sp. is often found in immunocompromised patients while invasive candidiasis colonization is often found in patients admitted to the intensive care unit (ICU).

Decubital candidiasis (DC) is a rare variation of candidiasis found in patients undergoing prolonged bed rest. The term was first coined in the literature by Nico et al in 2005 (Nico & Rivitti, 2005). The incidence of DC is still unknown and only a few articles are currently available reporting DC. Here, we want to report another interesting case of DC in an unconscious patient with no previous history of immunosuppression.

Candidiasis is an opportunistic infection caused by Candida, a type of fungi. Fungi are eukaryotic organisms found in the form of yeasts, molds, or dimorphic fungi. *Candida* is a form of yeast. Candidiasis occurs most commonly as a secondary infection in immunocompromised individuals. Synonyms of candidiasis include candidosis, moniliasis, and thrush. These are common inhabitants in the oral cavity, gastrointestinal tract, vagina penis, or other parts.

They become pathogenic only when favorable conditions arise. It can affect the oral cavity, vagina, penis, or other parts of the

body. Candidiasis affecting the mouth is commonly called thrush. It presents as white patches on the tongue, throat, and other mouth areas. Soreness and difficulty in swallowing include other symptoms associated with thrush. The vagina, when affected with *Candida*, is called a yeast infection.

LITERATURE REVIEW

Candidiasis is an opportunistic infection. *Candida albicans* is present in healthy persons colonizing the oropharyngeal, esophageal, and gastrointestinal mucosa. *Candida albicans* can cause mucosal candidiasis in these areas where they usually are present in an immunocompromised host. In patients who have leukemia, lymphoma because of the consumption of corticosteroids or cytotoxic drugs, their immunity is compromised, leading to candidal infection (Clurea, 2020); (Sulthan, 2020).

Antibiotic usage is commonly associated with candidiasis. Cancer cytotoxic chemotherapy may result in fungemia caused by Candida albicans, which develop from fungal translocation through compromised mucosal barriers. Fungal commensals in the upper and lower GI tract can transform into opportunistic pathogens due to changes in endogenous bacterial population size or composition, as well as changes in the host environment. Vaginal colonization increases in diabetes mellitus, pregnancy, and the use of oral contraceptives. Oral candidiasis is very closely associated with HIV patients. More than 90% of patients with HIV present with candidiasis (Disha, 2022).

Candida albicans cause thrush when normal host immunity is disturbed. The organism may overgrow on the oral mucosa causing desquamation of epithelial cells and accumulation of keratin, bacteria, and necrotic tissue. This debris form a pseudo-membrane, which adheres closely to the mucosa. This membrane may rarely involve extensive areas of edema, ulceration, and necrosis of underlying mucosa (Rafiq, 2023).

Neonates affected with thrush are usually colonized by *C. albicans* during passage through the affected vagina; with an active vaginal yeast infection, the chances of development of thrush in the neonate increase (Kennedy, 1988).

CASE REPORT

A 25-year-old female patient from Surakarta was referred from the Internal Medicine department in the ICU to the Dermatology and Venereology (DV) department of Dr. Moewardi Regional General Hospital (RSDM) Surakarta with a chief complaint of pustules and reddish patches on her back. Data was obtained through alloanamnesis with the nurse on duty in the ICU room. The nurse reported that the complaint began with pustules and brownish spots in the upper back area since 10 days ago, then multiplied and spread to the entire back area. Itching, pain or other complaints were difficult to evaluate because the patient had a decreased consciousness.

The patient was first admitted to the ICU with a diagnosis of subdural hemorrhage (SDH) and subarachnoid haemorrhage (SAH) post decompressive craniotomy on the 18th day. The patient received intravenous injection of ciprofloxacin 400 mg/12 hours, intravenous injection of phenytoin 100 mg/8 hours, and intravenous

injection of mecobalamin 500 mg/12 hours. According to the patient's family, the patient had never experienced similar complaints before. History of food and drug allergy, diabetes mellitus and hypertension were denied. There were no family members who had similar complaints to that of the patient. The patient is currently a university student.

The results of the physical examination showed that the patient looked severely ill with a comatose, glasgow coma scale (GCS) E1V1M1. Vital signs were within normal range with a ventilator and a nasogastric tube (NGT) attached. The patient weighed 45 kg and heighted 158 cm with a body mass index (BMI) of 18 kg/m2 (malnutrition). The dermatologic status of the posterior trunk region showed discrete scattered multiple erythematous papules and plaques partially confluent with dome (delle) and erosion in some parts (Fig 1).

Laboratory examination revealed hemoglobin 10.0 g/dl (N: 12.0-15.6 g/dl), hematocrit 30% (N: 35-45%), blood glucose 143 mg/dl (N: 60-140 mg/dl) and albumin 2.6 g/dl (N: 3.5-5.2 g/dl). The patient was differentially diagnosed with cutaneous candidiasis and molluscum contagiosum. Skin scraping of the lesion with 10% hydrogen peroxyde (H2O2) revealed pseudohyphae (+) and blastospores (+) (Fig 2A), ruling out the diagnosis of molluscum contagiosum.

Fungal culture examination revealed the growth of Candida albicans which was sensitive to fluconazole, voriconazole, caspofungin, micafungin, amphotericin B and flucystosine (Fig 2B). The overall assesment from alloanamnesis, physical examination and supporting examination in this patient led to the diagnosis of decubital candidiasis. The patient was given mupirocin 2% cream applied 2x/day on the erosions and nystatin 100,000 IU ointment applied 2x/day on the lesions. After sensitivity test results, the patient was started fluconazole 150 mg tablets 1x week for three weeks and evaluated periodically.

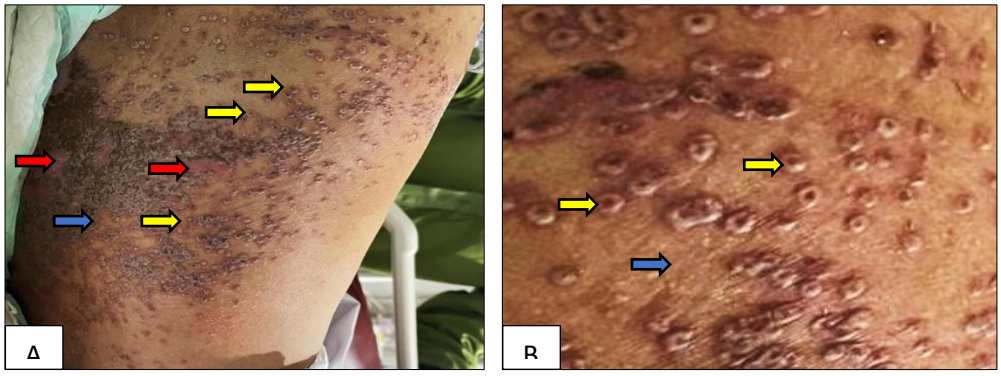

Figure 1. (A-B). (A) Posterior Trunk Region Showing Discrete Scattered Multiple Papules Partially Confluent With Dome (Delle) (Yellow Arrow), Scales (Blue Arrow) And Erosion In Some Parts (Red Arrow) (B) Dome (Delle) Zoomed In (Yellow Arrow), Squamous (Blue Arrow).

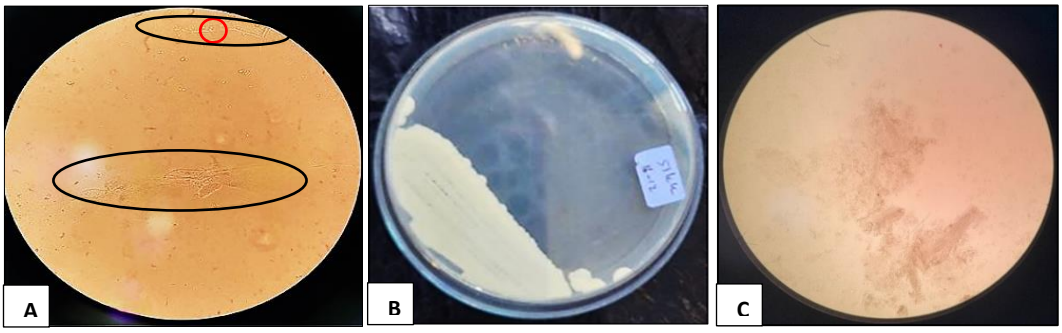

Figure 2. (A-C). (A) The Results Of 10% Hydrogen Peroxyde (H2O2) Staining Examination Showed Pseudohyphae (Black Circles) And Blastospores (Red Circles) (B) Growth Of Candida Albicans In Culture (C) Results Of 10% H2O2 Examination On Day 24, No Pseudohyphae Or Blastospores Were Seen.

RESULTS RESEARCH

Candidiasis is an infection caused by Candida that can be acute, subacute and chronic (Nurdin et al., 2021; Ruhnke, 2019). Up to 80% of candidiasis cases are caused by C. albicans (Ciurea et al., 2020). Candida is a commensal microbiome in the human body that naturally plays a role in protecting the body from external pathogen infections. Candida can be pathogenic when there are risk factors and cause infection, thus it is often referred to as opportunistic infection (Kühbacher et al., 2017; Romo & Kumamoto, 2020).

DISCUSSION

Candidiasis most often affects immunocompromised people: about 7-52% of chemotherapy patients develop candidiasis. Candidiasis can also be found in hospitalized patients as a source of nosocomial infection. A retrospective study by Mulianto and Fiqnasyani at RSDM in 2016 - 2019 found more cases of cutaneous candidiasis in inpatients (66.67%) compared to outpatients (53.75%) (Mulianto & Fiqnasyani, 2022). Candidiasis accounts for about 15 - 20% of nosocomial infections in the ICU which contribute to morbidity and mortality (Kritikos et al., 2023; Zhang et al., 2020).

Decubital candidiasis (DC) is candidiasis that develops in patients undergoing prolonged bed rest. About 80% of patients suffering from DC experience immobility, and almost all experience complete immobility (Piña et al., 2009). The clinical lesions of KD are generally the same as regular cutaneous candidiasis (erythema, pustules, erosions, papules, scabs), but papules and pustules tend to be more prominent (Piña et al., 2009).

The results of the dermatologic examination of our patient showed that in the posterior trunkus region there were discrete scattered multiple erythematous papules and plaques partially confluent with a dome shape (delle) and erosion. This predilection differs from common candidiasis (intertriginous), but corresponds to DC (dorsal). The delle shape itself is a pathognomonic finding in molluscum contagiosum (MC), rather than candidiasis. For that reason,

the patient was differentially diagnosed with DC and MC.

Other cases of DC have been reported in two articles by (Nico & Rivitti, 2005; Piña et al., 2009) concluded that DC may be induced by prolonged bed rest facilitated with the use of antibiotics. Explained that DC needs to be evaluated in patients who are admitted for more than two weeks and experience total immobility, especially those who get antibiotics (Piña et al., 2009). The lesions in our patient was discovered on the 8th day of treatment. This is earlier than the time described by Pinat et al. The average duration of hospitalization of DC patients in the two studies was 16.8 days and 24.8 days (Nico & Rivitti, 2005; Piña et al., 2009).

Immunocompromised conditions are indeed strongly associated with candidiasis, but there are other systemic factors that are equally important: diabetes, medication use (steroids, broad-spectrum antibiotics), admission to ICU, and surgical interventions (Jahagirdar et al., 2018; Nico & Rivitti, 2005; Zhang et al., 2020). The present risk factor in our patient was the use of broad-spectrum antibiotics, namely ampicillin sulbactam IV 1.5 g/8 h for 10 days from the first day of hospitalization. The patient also used medical devices (ventilator and nasogastric tube), was admitted to the ICU ward for more than one week, and had undergone evacuation craniotomy.

Half of nosocomial infection cases are associated with medical devices. This is related to the ability of organisms including Candida sp. to form biofilms on medical devices such as stents, endotracheal tubes, catheters, and pacemakers (Jahagirdar et al., 2018). Candida sp. can survive for up to four months in the hospital environment (Jahagirdar et al., 2018; Zhang et al., 2020). Antibiotic administration is important in infected patient to eliminate pathogenic bacteria. However it can also disrupt the balance of bacterial and fungal populations (Seelig, 1966).

Examination with 10% hydrogen peroxide showed pseudohyphae and blastospores confirming the presence of Candida sp. Culture examination on sabouraud dextrose agar medium revealed growth of C. albicans sensitive to fluconazole, voriconazole, caspofungin, micafungin, amphotericin B and flucistocin. Culture examination in this case is important because each species has a different susceptibility pattern (Lockhart et al., 2017).

Pustules or papules due to candidiasis in hospitalized patients occur due to prolonged bed rest, as opposed to poxvirus infection (MC). Papules in decubital candidiasis are formed is the result of spongiosis and the presence of fungi in the stratum corneum while in MC papules are formed due to viral inclusions in the stratum basalis layer of the epidermis forming Henderson-Paterson bodies. Spongiosis signifies intercellular edema between epidermal or follicular keratinocytes causing an increased space between keratinocytes (Nico & Rivitti, 2005; Wu et al., 2022).

The patient was initially treated with mupirocin 2% cream applied twice/day on the eroded skin and nystatin 100,000 IU ointment applied twice/day on the back. Nurses and family caregivers were educated to assist the patient's healing process in accordance with clinical practice guidelines (Siswati AS, Rosita C, Triwahyudi D, Budianti WK, Mawardi P, Dwiyana RF, 2021). Caregivers were instructed to help the patient maintain body hygiene and keep the skin moist, for example

by changing positions every few moments, providing sweat-absorbent pads and changing them regularly.

Evaluation on the 8th day showed no new lesions, the previous papules had disappeared, leaving scales. Therapy was continued and the patient's condition was monitored daily. On the 24th day, skin scrapings with 10% hydrogen peroxide were taken: pseudohyphae and blastospores were absent, and the lesions had improved significantly only leaving the remaining scales on some parts of the back.

CONCLUSION

Decubital candidiasis is a potential complication for patient with prolonged bedridden, especially comatose patient. Diagnosis can be difficult due to inability to express discomfort. Regular checking and positional change should be done by the caregiver. Empiric treatment followed by definitive treatment has been proven to be effective in our case.

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