CASE REPORT: SEPTIC SHOCK COMPLICATED BY CANDIDURIA IN A CRITICALLY ILL PATIENT

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ABSTRACT

Candiduria is a common finding in Intensive Care Unit (ICU) patients, often complicating the clinical course of septic shock. Distinguishing between colonization and invasive infection remains a diagnostic challenge. ***Case Description:*** *A 59-year-old male with NSTEMI and septic shock developed candiduria while on mechanical ventilation and broad-spectrum antibiotics. Despite initial sterile blood cultures, the patient's critical condition and high Candida Score necessitated systemic antifungal intervention.* ***Discussion:*** *The management focused on early initiation of Fluconazole and source control. Risk factors such as indwelling catheters and antibiotic pressure were pivotal in the pathogenesis.* ***Conclusion:*** *In unstable patients with significant risk factors, candiduria should be treated as a potential precursor to disseminated candidiasis to improve survival outcomes.*

Introduction

Candida species are opportunistic pathogens that frequently colonize the urinary tract, particularly in the complex environment of the Intensive Care Unit (ICU). While often regarded as a benign colonization, the presence of candiduria in critically ill patients can be a significant harbinger of invasive candidiasis, a condition associated with high mortality rates (Sax et al., 2007). The pathogenesis of candiduria is deeply influenced by the organism's ability to form robust biofilms on indwelling medical devices, which serves as a reservoir for systemic dissemination (Pappas et al., 2016). Given its clinical ambiguity, distinguishing between simple colonization and a progressive infection is essential, as Candida can rapidly exploit host vulnerabilities, such as immunosuppression and disrupted mucosal barriers, to compromise patient outcomes (Alfouzan & Dhar, 2017).

Case Presentation

A 59-year-old male, Mr. AS (70 kg, 160 cm), was admitted on August 28, following acute chest pain and respiratory distress. Upon admission, the patient was in a state of decompensated shock (BP 69/42 mmHg) and severe metabolic derangement. Clinical evaluation confirmed NSTEMI (Troponin I: 962.7), Septic Shock, and Acute Kidney Injury (BUN/SCr: 99.7/6.97). He was immediately intubated and started on vasopressor support (Norepinephrine and Vasopressin).

Initial laboratory investigations revealed a systemic inflammatory response with a leukocyte count of 22.28 x $10^3/\mu L$ and a significantly elevated Procalcitonin (36.25 ng/mL). Empirical antimicrobial therapy with Meropenem (2x1g) and Metronidazole was initiated to cover suspected Healthcare-Associated Pneumonia (HAP) and biliary sepsis (cholecystitis). On the fifth day of ICU stay (September 2, 2023), a urine culture grew *Candida albicans* (>10^5

CFU/mL). Concurrently, a gram stain of the sputum showed the presence of yeast. Given the clinical deterioration and multi-site fungal presence, the patient was started on Fluconazole (loading dose 2x400mg, followed by 2x200mg maintenance).

Discussion

Candiduria in the ICU setting is rarely a primary infection but rather a marker of heavy colonization or a sign of disseminated candidiasis. Mr. AS exhibited a high-risk profile characterized by advanced age, prolonged use of an indwelling urinary catheter, and antibiotic pressure, had underlying disease which facilitates fungal niche expansion (Alfouzan & Dhar, 2017).

The decision to treat candiduria in this patient was guided by the Candida Score (CS). With a score exceeding 2.5 (contributed by severe sepsis and multi-site colonization), the probability of invasive candidiasis was increased by more than seven-fold (Hollenbach, 2008). While the IDSA (2016) guidelines suggest that asymptomatic candiduria may not require treatment in immunocompetent hosts, it emphasizes that in critically ill or unstable patients, antifungal therapy is mandatory to prevent hematogenous dissemination (Pappas et al., 2016; Fisher, 2000).

Furthermore, in ICU settings, candiduria is linked to high mortality rates, mainly due to its strong association with candidaemia, which can occur in up to 50% of cases. Therefore, therapeutic intervention should be carefully considered in critically ill patients with candiduria, especially when additional clinical risk factors for systemic dissemination are present (Sax et al., 2007). Fluconazole is the main drugs used because of its efficacy and least complications and also first choice in patient with severed infection (Alfouzan & Dhar, 2017; Fisher, 2000). However, the literature consistently highlights that antifungal drugs alone are insufficient without source control, specifically the replacement of the urinary catheter and addressing the biliary obstruction, to break the cycle of colonization (Pappas et al., 2016).

Conclusion

This case underscores the importance of a low threshold for treating candiduria in septic, multi-morbid patients. For Mr. AS, the integration of systemic antifungals with targeted antibiotics and intensive hemodynamic support resulted in a favorable biochemical trend, with Procalcitonin levels decreasing to 12.88 ng/mL by September 7. Vigilant monitoring and source control remain paramount in managing fungal complications in the ICU.

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