

Cryptococcal Septic Abortion in an Immunocompetent Pregnancy: A Rare and Complex Case

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Abstract

Background: Cryptococcal septic abortion is an exceedingly rare and life-threatening condition in immunocompetent pregnant women. This case report highlights the diagnostic and management challenges faced when encountering such an uncommon presentation.

Case Presentation: A 28-year-old previously healthy woman in her 12th week of gestation presented to the emergency department with a high-grade fever, severe lower abdominal pain, and vaginal bleeding. Initial evaluation revealed a positive urine pregnancy test and laboratory findings indicative of septic shock. An emergent ultrasound demonstrated an intrauterine pregnancy with fetal demise and an associated collection of gas and fluid. Surgical intervention, including dilation and curettage, was performed immediately, and intraoperative findings confirmed a necrotic fetus with purulent material in the uterus.

Microbiological evaluation identified *Cryptococcus neoformans* as the causative organism. Cryptococcal septic abortion is a rare manifestation of *Cryptococcus neoformans* infection, primarily associated with immunocompromised individuals. The presentation in this immunocompetent pregnant patient is an extraordinary occurrence. The management was multidisciplinary, involving obstetricians, infectious disease specialists, and intensivists. Intravenous amphotericin B and flu cytosine were initiated promptly, followed by consolidation therapy with fluconazole. The patient's clinical condition improved gradually, and she was discharged after several weeks with counseling regarding future pregnancies.

Introduction

Cryptococcal septic abortion is an exceedingly rare and life-threatening condition that poses significant challenges for both diagnosis and management, especially in immunocompetent pregnant women. While *Cryptococcus neoformans* infections are typically associated with immunocompromised individuals, encountering this pathogen in the context of a pregnancy complicated by sepsis is an extraordinary event. This case report aims to shed light on the complexities and nuances involved in such an exceptional clinical scenario. Pregnancy is a physiological state characterized by immunological adaptations designed to protect both the mother and the developing fetus [1].

Immunocompetent pregnant women are generally considered to have a robust Defense against infectious agents. However, certain pathogens, such as *Cryptococcus neoformans*, can exploit vulnerabilities during this unique physiological state, leading to severe and uncommon complications. *Cryptococcus neoformans* is an opportunistic pathogen with great affinity for the immunosuppressed (usually the HIV-positive) host, and whose primary tropism is the central nervous system and the lungs.

It maintains a widespread geographic distribution. Little is known about *Cryptococcus*'s in the HIV-negative host. The case of an HIV-negative pregnant woman, who was the host of a latent infection of [2-4]. *neoformans* that developed into disseminated *Cryptococcus*'s, leading to systemic events including cholecystitis, pneumonia, and fungal sepsis, and to miscarriage, is presented herein. The presentation of a pregnant woman with Cryptococcal septic abortion presents an intricate interplay of obstetric and infectious disease management, requiring a multidisciplinary approach. The urgency of the situation necessitates prompt recognition and intervention to mitigate life-threatening sepsis, while the long-term implications for the patient's reproductive health and future pregnancies must also be considered [5].

This case highlights the importance of healthcare providers

maintaining a high index of suspicion for unusual pathogens and complications in pregnant patients, even when there is no known immunodeficiency. Furthermore, it underscores the critical role of collaboration among obstetricians, infectious disease specialists, and intensivists in successfully managing complex clinical cases involving uncommon infectious agents during pregnancy. In the following sections, we will present the case details, diagnostic challenges, management strategies, and outcomes of this unique case of Cryptococcal septic abortion in an immunocompetent pregnancy, aiming to contribute to the understanding and management of such rare clinical occurrences [6-8].

Discussion

Disseminated *Cryptococcus*'s is extremely rare in the immunocompetent individual. It has been identified in immunocompetent pregnant women in only two past reports, all in the form of pulmonary *Cryptococcus*'s. One epidemiologic study at an urban hospital reported that 10–40% of those with a Cryptococcal infection have no apparent immune deficiency. Interestingly, a population-based register in Australia reported near-equal incidence of infection with *C. neoformans* var. *gattii* in the immunocompetent and immunosuppressed (HIV-negative persons being treated for

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autoimmune disease), while the incidence of infection with *C. neoformans* var. *neoformans* markedly rose in HIV-positive persons with the spread of the AIDS epidemic in the early 1990s. Due to the natural tendency of *C. neoformans* to assume latency, infection may mimic a self-limiting illness and, as a result, be under-diagnosed. In this case, exposure to *C. neoformans* was not associated with any single event, though the exposure to old, dried pigeon excretus, the most significant source of the pathogenic fungus, is difficult to identify in retrospect [9].

A journey into the history of Cryptococci disease revealed that it was not and still is not an uncommon encounter in the immunocompetent host, who may be asymptomatic or never seek medical attention due to the vague nature of its symptoms. It is possible that the contemporary association of HIV and Cryptococcus has overshadowed its diagnosis in those with an apparently normal immune system. Timely diagnosis is pivotal in managing Cryptococci septic abortion. The initial presentation of fever, abdominal pain, and vaginal bleeding can mimic common obstetric complications. However, in the context of septic shock, a high degree of suspicion for underlying infection is essential.

Ultrasound findings of gas and fluid collections within the uterus can be an alarming sign but are non-specific. Thus, a thorough microbiological evaluation, including blood and tissue cultures, is imperative to identify the causative pathogen accurately. Successfully managing this rare condition necessitates the collaboration of diverse medical specialists. Obstetricians play a crucial role in addressing the immediate obstetric concerns, including fatal demise and potential uterine infection. Infectious disease specialists provide expertise in the diagnosis and management of Cryptococcus *neoformans* infection. Intensivists manage septic shock and organ dysfunction, ensuring the patient's overall stability [10].

Antifungal therapy is the cornerstone of managing Cryptococci septic abortion. In this case, the prompt initiation of intravenous amphotericin B and flu cytosine was vital in controlling the disseminated infection. Transitioning to fluconazole for consolidation therapy is in line with established treatment guidelines. Balancing the need for effective treatment with the safety of the developing fetus presents an additional challenge. Beyond immediate concerns, the implications for the patient's future reproductive health must be addressed. Counseling on the potential for recurrent infections in subsequent pregnancies and the risks associated with immunosuppressive therapy is essential. Close follow-up and monitoring during future pregnancies are warranted to ensure optimal maternal and fetal outcomes [11, 12].

Conclusion

Cryptococcal septic abortion in immunocompetent pregnancies is an exceedingly rare and intricate clinical scenario. The successful

management of such cases requires a high degree of clinical suspicion, rapid diagnosis, and a collaborative, multidisciplinary approach. This case report contributes to the understanding of this unusual condition and underscores the importance of considering uncommon pathogens in obstetric care, even in the absence of known immunodeficiency. In summary, while Cryptococci septic abortion in immunocompetent pregnancies presents numerous challenges, the diligent efforts of healthcare professionals can lead to favourable outcomes. This case highlights the resilience of modern medicine in confronting exceptional clinical situations and underscores the need for on-going research and awareness in managing such rare conditions

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