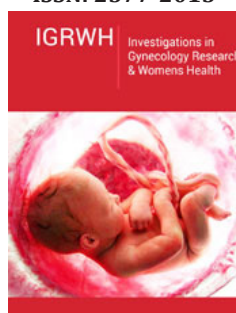


Hepatic Abscess: A Very Rare Post-Partum Complication

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Abstract

The high incidence of post-partum infections makes them one of the most frequent complications of the post-partum period. In industrialized nations, maternal mortality attributable to these infections remains rare due to significant advances in obstetric care since the 19th century. In contrast, developing countries face a major challenge in terms of maternal health, where post-partum infections still contribute significantly to maternal mortality rates. Herein we describe a complicated case of postpartum infection following an emergency cesarean delivery for chorioamnionitis. During hospitalization, the patient exhibited a persistent high fever unresponsive to antipyretic medications, and showed protected resistance to amoxicillin. After a thorough evaluation, the fevers were found to have resulted from a liver abscess. Control at source was achieved by drainage of the abscess followed by antibiotic treatment, the patient recovered successfully.

Keywords: Postpartum abscess; Chorioamnionitis complications; Liver abscess

Abbreviations: GCS; ALT; AST

Introduction

Maternal deaths mostly occur in hospital settings, especially in intensive care units (65%) [1]. It is highlighted that symptoms can manifest insidiously, with rapid clinical deterioration, underscoring the importance of a swift transfer to an adult intensive care unit [1]. Early recognition of warning signs such as maternal tachycardia, constant abdominal pain, and fever (which may be absent) is essential. The administration of non-steroidal anti-inflammatory drugs would be particularly inappropriate and dangerous in this context.

As soon as severe sepsis is suspected, antibiotic therapy including an aminoglycoside must be initiated without delay, without waiting for microbiological results. Treatment is based on three pillars: etiological treatment of the infection, rapid implementation of effective antibiotic therapy, and restoration of tissue perfusion. In the case of our patient, she was given emergency supportive therapy to improve the management of septic shock.

Management of septic shock must comply with the most recent recommendations, taking into account obstetric specificities. Severe postpartum hemorrhage may be a confounding factor, and its association with severe sepsis is particularly serious. Antibiotic prophylaxis is recommended in the early phase of any postpartum hemorrhage [2].

This case illustrates a particularly complex clinical presentation, in which persistent fever in the post-partum period was not explained by the initial chorioamnionitis that had prompted high-tract delivery. The diagnosis of liver abscess, although unexpected in this postpartum setting, proved to be the true origin of this patient's recurrent febrile episodes. This case highlights the importance of a thorough clinical evaluation of any unexplained fever in the postpartum period, including the search for unusual infectious foci.

Case Presentation

We report the case of a 20-year-old patient with no significant past medical history, primigravida primiparous, who underwent a cesarean section for chorioamnionitis. The immediate postoperative course was uneventful, and the patient received a course of antibiotic therapy including amoxicillin-clavulanic acid, metronidazole, and gentamicin for 3 days.

On postpartum day 5, the patient presented with persistent fever ranging from 39 °C to 40 °C. Clinical examination did not reveal any signs of infection in the digestive, urinary or gynecological systems, and there were no signs of mastitis or other infectious foci.

The physical examination showed a conscious patient with a GCS of 15/15. Abdominal examination revealed diffuse tenderness without guarding or rebound. The remainder of the examination was unremarkable. Laboratory investigations showed

a predominantly neutrophilic leukocytosis of 26,700/ μ L, a platelet count of 378,000/ μ L, a markedly elevated C-reactive protein of 500 mg/L, low bicarbonate levels of 16 mmol/L, and elevated liver enzymes (ALT 5x upper limit of normal, AST 4x upper limit of normal).

Imaging studies were performed. Pelvic ultrasound did not show retained products of conception but did reveal moderate-sized ascites. Chest X-ray, urine culture, and COVID-19 test were all negative. Blood cultures were obtained, and empiric intravenous antibiotics were initiated.

Contrast-enhanced abdominal and pelvic CT scan revealed a physiological pneumoperitoneum, as well as multiple hypodense, rounded, confluent liver lesions with a cluster-sign appearance and peripheral rim enhancement, consistent with liver abscesses, located in segments 8 and 7, measuring 40x22mm. Associated dilation of the intrahepatic bile ducts was also noted (Figure 1).

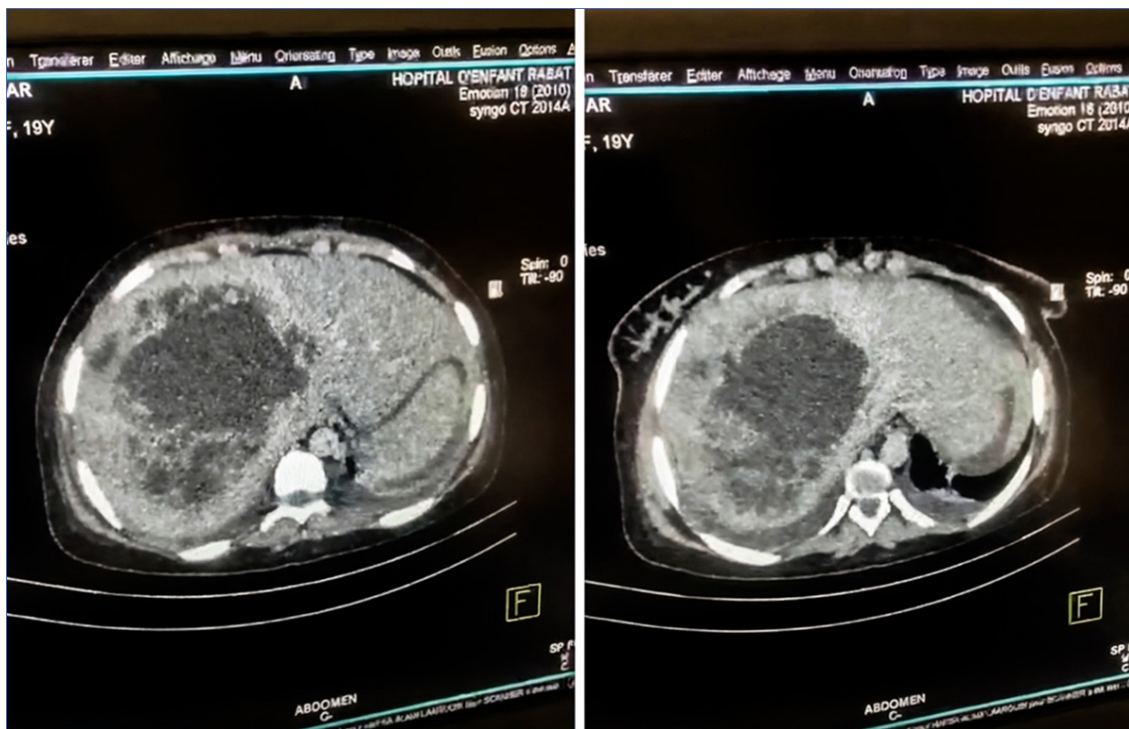


Figure 1: Contrast-enhanced abdominal and pelvic CT scan revealed a liver abscess.

CT-guided percutaneous drainage of the hepatic abscess was performed, and the cultured fluid grew *Streptococcus Viridans*, which was also identified in the blood cultures. Based on the antibiogram, the antibiotic regimen was escalated from amoxicillin-clavulanic acid to ceftriaxone 2g daily, while the aminoglycoside was maintained.

The patient showed clinical and biological improvement following this management. She made a full recovery and was discharged in good condition. This case highlights the importance of a thorough investigation for unusual infectious foci, such as liver abscesses, in the setting of persistent postpartum fever, even in the absence of specific abdominal symptoms.

Discussion

The present case highlights the importance of maintaining a high index of suspicion for unusual infectious foci, such as liver abscesses, in the setting of persistent postpartum fever, even in the absence of specific abdominal symptoms. While chorioamnionitis is a well-recognized cause of postpartum fever, this case illustrates that alternative diagnoses should be considered when the clinical course does not follow the expected trajectory.

Liver abscesses are uncommon in the postpartum period, with an estimated incidence of 0.3-0.8 per 100,000 deliveries [3,4]. They are more typically associated with biliary tract disease, hematogenous spread from a distant focus, or trauma [5]. In this

case, the liver abscess likely developed as a complication of the underlying chorioamnionitis, with hematogenous dissemination to the liver [6,7]. The prompt recognition of this atypical infectious focus and the initiation of appropriate management, including percutaneous drainage and targeted antibiotic therapy, were crucial for the favorable outcome of this patient.

In the present case, the development of the liver abscess in the present case was likely a consequence of the underlying chorioamnionitis, with hematogenous dissemination from the uterine infection. However, it is also plausible that the liver abscess arose as a result of direct extension of the intrauterine infection, given the anatomical proximity between the liver and the gravid uterus.

This pathogenic mechanism has been previously reported in the literature, with several case reports and case series describing liver abscesses as a complication of ascending genital tract infections, such as chorioamnionitis [8]. The contiguous spread of the infectious process from the uterus to the adjacent liver parenchyma can occur through the lymphatic channels or by direct extension through the peritoneal cavity.

The importance of thorough abdominal lavage and adequate surgical debridement during cesarean delivery, particularly in the setting of chorioamnionitis, cannot be overstated. Incomplete or suboptimal intraoperative management of the infectious focus may contribute to the development of subsequent intra-abdominal complications, including liver abscesses, in the postpartum period. Meticulous surgical technique and a low threshold for aggressive intervention to control the primary infectious source are crucial to prevent the progression of localized uterine infection to more widespread and potentially life-threatening complications.

In the present case, the possibility of an inadequate or insufficient abdominal lavage during the initial cesarean delivery may have played a role in the subsequent formation of the liver abscess. This highlights the need for a standardized and comprehensive approach to surgical management of intrauterine infections, in order to minimize the risk of infectious sequelae in the postpartum period.

The current guidelines for the management of septic shock in the obstetric population, as outlined by the Surviving Sepsis Campaign, emphasize the importance of early recognition, prompt antibiotic administration, and hemodynamic support [9,10]. In this case, the patient received a combination of broad-spectrum antibiotics, including an aminoglycoside, as recommended for the empiric treatment of severe sepsis in the postpartum period. The escalation of antibiotic therapy based on microbiological findings and the drainage of the liver abscess were also key elements in the successful management of this complex case [5].

Liver abscesses in the postpartum period can pose a particular challenge due to the non-specific nature of the presenting symptoms, which may include fever, abdominal pain, nausea, and malaise [11,12]. In the absence of specific abdominal findings, the diagnosis may be delayed, contributing to the increased risk of complications

and mortality associated with this condition. Therefore, a high degree of suspicion and a low threshold for imaging, such as abdominal ultrasound or computed tomography, are essential for the early detection of liver abscesses in the postpartum setting.

Furthermore, the association between severe postpartum hemorrhage and the development of septic complications, including liver abscesses, has been well-documented [13,14]. The presence of a severe postpartum hemorrhage can be a confounding factor, as it may mask the underlying infectious etiology or delay the recognition of the true source of the fever. In such cases, the implementation of appropriate antibiotic prophylaxis, as recommended by international guidelines, is crucial to mitigate the risk of infectious complications. Prompt diagnosis and treatment are essential due to the high mortality

rate described in the literature, which can be as high as 100% in untreated cases [15].

The present case highlights the critical importance of maintaining a high index of suspicion and conducting a thorough clinical evaluation when managing cases of persistent postpartum fever, even when the initial presentation suggests a more common infectious etiology. This approach is essential to identify and address unusual or atypical infectious complications that may arise in the postpartum period.

A multidisciplinary management strategy, with prompt initiation of appropriate antimicrobial therapy and targeted interventions, is crucial for the successful management of these complex cases. Clinicians should have a low threshold for pursuing further diagnostic investigations, including advanced imaging modalities, to identify the underlying source of the persistent febrile episodes.

This case underscores the need for vigilance and a comprehensive diagnostic workup in the setting of unexplained postpartum fever. Failure to recognize and address atypical infectious foci, such as liver abscesses, can lead to significant morbidity and mortality. By maintaining a high level of suspicion and employing a multidisciplinary approach, clinicians can optimize the identification and management of unusual infectious complications in the postpartum population.

This case highlights the importance of a thorough clinical assessment, a low threshold for further diagnostic testing, and a multidisciplinary management strategy when confronted with persistent postpartum fever, regardless of the initial presumed infectious etiology. Vigilance and a comprehensive approach are essential to ensure the timely recognition and appropriate treatment of rare or unexpected infectious complications in the postpartum setting.

Conclusion

This case underscores the need for a high level of suspicion and a comprehensive clinical evaluation in the setting of persistent postpartum fever, even when the initial presentation suggests a more common infectious etiology. A multidisciplinary approach,

with timely initiation of appropriate antimicrobial therapy and targeted interventions, is essential for the effective management of unusual infectious complications in the postpartum period.

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