

Case Report

A Rare Case of Postpartum Meningitis Complicated by Dural Sinus Thrombosis: A Case Report

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Abstract

Postpartum meningitis is a rare but potentially fatal complication of the puerperium. Its diagnosis is challenging when complicated by cerebral venous thrombosis (CVT) due to overlapping clinical features and rapid neurological decline. We report a 41-year-old woman who presented 13 days after an uncomplicated vaginal delivery with severe headache, fever, vomiting, and altered mental status. Cerebrospinal fluid analysis revealed neutrophilic pleocytosis, markedly elevated protein, and hypoglycorrhachia, consistent with bacterial meningitis, despite negative cultures and molecular studies. Neuroimaging showed multifocal cortical and subcortical infarctions, and MR venography confirmed dural sinus and cortical vein thrombosis. This case highlights the rare but devastating coexistence of postpartum bacterial meningitis and CVT, emphasizing the need for early recognition of both infectious and vascular causes in postpartum women with neurological symptoms.

Keywords: Cerebral venous thrombosis; Confusion; Headache ;Meningitis ;Postpartum;

1. Introduction

Postpartum meningitis is a rare but serious complication of the puerperal period and is associated with significant maternal morbidity and mortality [1]. Bacterial meningitis following vaginal delivery is uncommon and may be difficult to diagnose because of non-specific early symptoms and physiological changes associated with the postpartum state. Cerebral venous thrombosis (CVT) is more prevalent during pregnancy and the postpartum period due to transient hypercoagulability [2–4]. When meningitis is complicated by CVT, diagnostic and therapeutic challenges arise, often resulting in worse neurological outcomes. We report a rare case of postpartum bacterial meningitis complicated by dural sinus thrombosis following an uneventful vaginal delivery.

2. Materials and Methods

This report describes a single-patient observational case. Clinical data were obtained from hospital records, including presenting symptoms, neurological examinations, laboratory investigations, cerebrospinal fluid analysis, neuroimaging findings, treatment course, and outcomes. Neuroimaging included brain computed tomography (CT), magnetic resonance imaging (MRI), and magnetic resonance venography (MRV). Comprehensive infectious, autoimmune, and thrombophilia evaluations were performed according to standard clinical protocols [2].

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3. Results and Discussion

The patient suffers from severe right-sided headache, recurrent vomiting, high-grade fever, and rapidly progressive alteration in mental status. On examination, she was febrile and encephalopathic with meningeal signs. Cerebrospinal fluid analysis demonstrated features consistent with bacterial meningitis, including neutrophilic pleocytosis, markedly elevated protein levels, and hypoglycorrhachia. Despite the initiation of empirical antimicrobial therapy, the patient's neurological status progressively deteriorated, with the emergence of focal neurological deficits. Repeat neuroimaging revealed multifocal cortical and subcortical infarctions. MRI with MR venography confirmed dural sinus and cortical vein thrombosis [2–4]. Therapeutic anticoagulation was promptly initiated. The postpartum period is characterized by a transient hypercoagulable state that, in combination with systemic infection and inflammation, increases susceptibility to venous thrombosis through mechanisms of endothelial injury and venous stasis [2–4]. Diagnostic overlap between meningitis and cerebral venous thrombosis (CVT) commonly leads to delayed recognition, underscoring the critical role of early MRI and MR venography in postpartum patients presenting with neurological deterioration [5].

4. Conclusions

Postpartum Bacterial meningitis, although rare, can lead to devastating neurological outcomes, particularly when complicated by cerebral venous thrombosis. Clinicians should maintain a high index of suspicion for both infectious and vascular etiologies in postpartum women presenting with headache, fever, or altered mental status. Early neuroimaging, along with prompt initiation of antimicrobial and anticoagulant therapy, is crucial for improving prognosis.

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