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Brucellosis in Late Pregnancy Presenting with Severe Hip Pain: A Case Report and Review of Diagnostic Challenges

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ABSTRACT

Introduction: Brucellosis (Malta fever) is an infectious disease that can lead to serious complications during pregnancy. This study presents a case of a pregnant woman with brucellosis and highlights the importance of early diagnosis and appropriate treatment in ensuring maternal and neonatal health. As a systemic zoonotic infection, brucellosis is typically transmitted through direct contact with infected animals or consumption of contaminated animal products. During pregnancy, it may result in severe complications such as spontaneous abortion, preterm delivery, and vertical transmission to the neonate. Therefore, timely diagnosis and management are of critical importance.

Case Presentation: This report describes a 35-year-old pregnant woman who developed brucellosis in the late stages of pregnancy. Her symptoms included fever, myalgia, and generalized weakness. Following diagnosis, treatment with rifampin was initiated. Delivery was performed via cesarean section at 38 weeks and 6 days of gestation. A healthy female neonate was born, and the mother was advised to avoid breastfeeding for 72 hours after initiation of treatment.

Conclusion: This study emphasizes the importance of early diagnosis and appropriate treatment of brucellosis in pregnant women. The findings suggest that proper management can significantly reduce disease-related complications and ensure favorable maternal and neonatal outcomes. These results may serve as a reference for future studies and highlight the need to improve awareness among healthcare providers and pregnant women regarding the risks and management of brucellosis.

Keywords: Brucellosis; Pregnancy; Coombs Test; Uterine Fibroid; Hip Pain; Sacroiliitis.

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Introduction

Brucellosis, also known as Malta fever, is a zoonotic bacterial infection primarily caused by bacteria of the genus *Brucella*. The disease is typically transmitted through direct contact with infected animals or the consumption of unpasteurized dairy products and contaminated meat. Globally, brucellosis is recognized as a major public health concern, particularly in regions where animal husbandry is prevalent and unpasteurized dairy products are commonly consumed [1, 2]. Given that pregnant women are particularly susceptible to infectious diseases, brucellosis can have serious consequences for both maternal and fetal health [3–5].

Previous studies have shown that brucellosis during pregnancy may lead to various adverse outcomes, including spontaneous abortion, preterm delivery, and neonatal complications. The infection is commonly associated with nonspecific symptoms such as fever, night sweats, myalgia, and profound fatigue, which can make diagnosis during pregnancy challenging. Therefore, prompt and accurate diagnosis through serological testing, culture methods, or specific assays such as Wright and Coombs tests is essential to prevent severe complications [6–9].

The treatment of brucellosis in pregnant women requires special considerations. Many commonly used antibiotics, including doxycycline and tetracyclines, are contraindicated during pregnancy. Consequently, the selection of safe and effective alternatives, such as rifampin, is of critical importance. Management of the disease requires careful monitoring to minimize potential adverse effects. Treatment should be conducted under the supervision of obstetricians and infectious disease specialists to reduce the risk of maternal complications and vertical transmission to the neonate [10, 11].

In addition to therapeutic interventions, preventive measures play a crucial role. Pregnant women should strictly avoid the consumption of unpasteurized dairy products and undercooked meat. These measures should be accompanied by public health education programs aimed at increasing awareness about the risks of brucellosis and its prevention among pregnant women. Breastfeeding in infected mothers may also pose a risk of transmission to the neonate; therefore, consultation with a specialist is essential. Overall, the management of brucellosis during pregnancy requires not only early diagnosis and appropriate treatment but also a multidisciplinary approach and supportive care to minimize complications for both mother and fetus. The present case from Sarem Super Specialty Hospital highlights the importance of interdisciplinary collaboration in optimizing maternal care and improving clinical outcomes for both mother and child.

Case Presentation

The patient is a 35-year-old woman in her first pregnancy, originally from Ilam, with a history of consuming local, unpasteurized dairy products. During the routine anomaly scan, a pedunculated subserosal uterine fibroid measuring 68 × 86 mm was detected. The patient had a history of severe neonatal jaundice (icterus) requiring exchange transfusion; however, no other medical or surgical history was reported.

From the 36th week of gestation, she developed severe pain in the left hip region, which progressively worsened and led to limping and impaired gait. Initially, the obstetrician attributed the pain to the large uterine fibroid as well as suspected fetal macrosomia. Subsequently, an orthopedic consultation was requested, and after clinical examination, the musculoskeletal status was found to be normal. In addition, based on the sonographic location of the fibroid, it was concluded that it was unlikely to be the primary cause of the patient's severe pain.

Therefore, an infectious disease consultation was requested, along with relevant laboratory

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investigations, including the Wright–Coombs test. The results confirmed brucellosis (Malta fever). Treatment was initiated with rifampin 300 mg twice daily.

On 04/03/1404, the patient was admitted for cesarean section. At 38 weeks and 6 days of gestation, cesarean delivery was performed, resulting in the birth of a female neonate with Apgar scores of 9/10, weight of 3920 g, length of 52 cm, head circumference of 35 cm, heart rate of 146 bpm, and respiratory rate of 44 breaths per minute. The mother was advised to avoid breastfeeding for 72 hours after initiation of antibiotic therapy, after which feeding decisions were left to her discretion.

Management of Brucellosis during Pregnancy

The management of brucellosis during pregnancy requires careful attention and close monitoring, as the disease can lead to serious complications such as miscarriage, preterm labor, and congenital infections.

Key aspects of management include:

Diagnosis:

Accurate diagnosis is essential and is based on serological blood tests, and in some cases urine culture or other laboratory methods.

Pharmacological treatment: The use of safe antibiotics during pregnancy is mandatory. Drugs such as doxycycline, tetracycline, gentamicin, and streptomycin are contraindicated in pregnancy. Preferred regimens include rifampin and co-trimoxazole; however, co-trimoxazole is not recommended during the third trimester.

Medical supervision: Treatment should be conducted under the close supervision of both obstetric and infectious disease specialists.

Prevention: Avoidance of unpasteurized dairy products and undercooked meat is essential in preventing infection.

Supportive care: Adequate rest and sufficient fluid intake are recommended.

Follow-up: Long-term follow-up for up to two years after treatment is important to ensure there is no relapse.

Breastfeeding: Breastfeeding in mothers with brucellosis may lead to transmission of the infection to the neonate; therefore, specialist consultation is necessary.

In this specific case, management included appropriate antibiotic therapy and simultaneous myomectomy (fibroid removal) at the time of delivery. Comprehensive management of brucellosis in pregnancy, including early diagnosis, effective and safe antimicrobial therapy, supportive care, and risk factor prevention, is essential to reduce potential maternal and fetal complications.

Discussion

Brucellosis during pregnancy, although common in many endemic regions, remains a significant diagnostic challenge in clinical practice. This is mainly due to its nonspecific clinical presentation, which can mimic a wide range of common pregnancy-related conditions, including musculoskeletal pain, viral infections, and even mechanical complications of pregnancy [12, 13]. In this context, case reports can play an important role in increasing physicians' awareness of atypical presentations of the disease. The present case is notable for several reasons: first, the presence of severe hip pain and gait disturbance as the predominant symptom, which was initially attributed to mechanical causes such as uterine fibroid and fetal macrosomia; second, a relative delay in reaching the definitive diagnosis due to these overlapping clinical considerations; and third, the successful management of the disease without significant maternal or neonatal complications.

Furthermore, given the therapeutic limitations during pregnancy and the contraindication of many standard antibiotics, the selection of a safe and effective treatment regimen is of critical importance. Therefore, this report may serve as a clinical reference for decision-making in similar situations, particularly in endemic regions. In addition, considering the potential complications of brucellosis, including miscarriage, preterm labor, and vertical transmission, the importance of early diagnosis and timely intervention is strongly emphasized, as clearly demonstrated in this case.

In this report, a 35-year-old pregnant woman in late gestation presented with nonspecific symptoms, including severe hip pain, general weakness, and gait disturbance, which were initially attributed to non-infectious causes. Following further evaluation and serological testing, brucellosis was confirmed, and treatment with rifampin was initiated. Clinical follow-up showed a favorable response to therapy, and the patient subsequently underwent cesarean delivery at 38+6 weeks of gestation without major complications. The newborn had a good general condition, with normal Apgar scores, appropriate birth weight, and stable vital signs. No evidence of vertical transmission was observed. Moreover, adherence to the recommendation of delaying breastfeeding for the first 72 hours after initiation of treatment helped minimize the potential risk of transmission. Overall, this case demonstrates that despite a relative delay in diagnosis, appropriate management and safe therapeutic choices can lead to favorable maternal and neonatal outcomes.

In this regard, Sarah M. Alshamrani et al. (2024) reported a case of brucellosis presenting with severe hip pain, which was ultimately diagnosed as brucella-induced sacroiliitis [14]. In their study, the patient was a 36-year-old man presenting with severe hip pain and a history of unpasteurized dairy consumption. The diagnosis was confirmed by serological testing

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(ELISA) and MRI findings, and combination therapy with doxycycline, rifampin, and gentamicin led to clinical improvement. The findings of the present study are consistent with those of Alshamrani et al. in several aspects. First, in both studies, severe hip pain was the predominant clinical manifestation, indicating that brucellosis can present with prominent and misleading musculoskeletal symptoms. Second, a history of unpasteurized dairy consumption was identified as an important risk factor in both cases, confirming its epidemiological significance. Third, serological tests played a key role in establishing the diagnosis in both studies, highlighting their importance in cases with nonspecific presentations.

However, there are important differences between the two studies. The most significant difference lies in the patient population; in the study by Alshamrani et al. [14], the patient was a non-pregnant male, whereas the present case involved a pregnant woman in late gestation. This distinction is clinically important, as treatment options during pregnancy are limited, and many standard antibiotics such as doxycycline and aminoglycosides are contraindicated. Accordingly, rifampin monotherapy was used in the present case as a safe option, whereas combination therapy was applied in the aforementioned study. In addition, MRI imaging was used to confirm sacroiliitis in the study by Alshamrani et al. [14], whereas in the present case, diagnosis was mainly based on clinical findings and serological tests without advanced imaging. This difference may reflect variations in diagnostic resources or clinical circumstances. Moreover, maternal and neonatal outcomes were a key consideration in the present study, whereas such issues were not relevant in the previous report.

Overall, the similarities suggest that hip pain can be an important and misleading manifestation of brucellosis, while the differences are mainly related to pregnancy-specific conditions and therapeutic limitations. This emphasizes the importance of including brucellosis in the differential diagnosis of musculoskeletal pain in pregnant women, particularly in endemic areas.

In a systematic review, Zhe Liu et al. (2020) analyzed 521 cases of brucellosis in pregnant women from 10 countries and reported that the most common clinical manifestations included fever, arthralgia, sweating, and general weakness, with osteoarticular involvement being a key feature of the disease [15]. The study also demonstrated that pregnancy outcomes could be severe, including preterm delivery, miscarriage, and intrauterine fetal death.

The findings of the present study are partially consistent with these results, as musculoskeletal pain (severe hip pain) was the main clinical manifestation, supporting the frequent involvement of the osteoarticular system in brucellosis. However, in contrast to the high rate of adverse pregnancy outcomes reported in the systematic review, the present case resulted in a favorable maternal and neonatal outcome, with term delivery and a healthy newborn. This discrepancy may be attributed to timely diagnosis, early initiation of safe antibiotic therapy during pregnancy, and appropriate clinical management, which likely prevented serious complications.

In a case series, Mile Bosilkovski et al. evaluated five pregnant women with brucellosis in an endemic region and demonstrated highly variable pregnancy outcomes, including spontaneous abortion, intrauterine fetal death, preterm delivery, and term birth [13]. They also reported disease relapse in one patient, although neonatal follow-up revealed normal growth and no infection. The present case is partially consistent with their findings, particularly in terms of the absence of neonatal infection and favorable neonatal status. However, unlike the wide spectrum of adverse outcomes reported by Bosilkovski et al. [13], only a favorable outcome (term delivery) was observed in the present case. This difference may be explained by the timing of infection (late pregnancy in the present case versus earlier gestational stages in some cases of the previous study), earlier diagnosis, and prompt initiation of appropriate therapy, all of which play a crucial role in improving pregnancy outcomes.

Conclusion

Overall, this case report demonstrates that brucellosis during pregnancy may present with atypical and misleading symptoms, particularly musculoskeletal pain such as severe hip pain, which can lead to diagnostic delay. Given the endemic nature of the disease and the common consumption of unpasteurized dairy products in affected regions, brucellosis should always be considered in the differential diagnosis of pregnant women presenting with nonspecific symptoms.

The findings of this study also highlight that early diagnosis and prompt initiation of appropriate and pregnancy-safe antibiotic therapy, such as rifampin, can significantly reduce the risk of serious maternal and fetal complications and lead to favorable pregnancy outcomes. Furthermore, this report emphasizes the importance of a multidisciplinary approach in patient management, involving collaboration between obstetricians, infectious disease specialists, and other relevant disciplines.

Finally, increasing clinical awareness, performing targeted diagnostic evaluations, and ensuring timely therapeutic interventions can play a key role in improving the prognosis of pregnant patients with brucellosis. Further large-scale studies with larger sample sizes are recommended to better define clinical patterns and optimize therapeutic strategies in this patient population.

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Ethical Issue
In conducting this research, all ethical principles in medical and biological research were observed in accordance with the Declaration of Helsinki, and the rights, dignity, and confidentiality of the participants were protected.

Conflict of Interests
There was no conflict of interest in this study.

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The costs of this project were funded by the Sarem Gynecology, Obstetrics and Infertility Research Center.

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