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## REACTIVATION OF BRUCELLOSIS AND RHEUMATOID ARTHRITIS IN PREGNANCY

Brucellosis is a zoonotic infectious-allergic disease caused by bacteria of the genus *Brucella*, mainly characterized by damage of the musculoskeletal, nervous, genitourinary, and other organ and systems. In women, brucellosis results in miscarriage, primary or secondary infertility. But little is known about the course of pregnancy with a combination of brucellosis and autoimmune pathology such as rheumatoid arthritis.

Report the course and outcome of brucellosis and rheumatoid arthritis in pregnancy

We analyzed a clinical case of a pregnant woman with chronic brucellosis and rheumatoid arthritis.

In a patient with chronic brucellosis in the first trimester of pregnancy, brucellosis intensified with the development of acute monoarthritis. Arthritis regressed after a course of antibiotic therapy in the second trimester, but there was an activation of rheumatoid arthritis and preterm labor in the third trimester.

This case showed a more severe course of brucellosis during pregnancy compared with rheumatoid arthritis and the importance of antibiotic therapy to prevent severe complications.

**Key words:** *Brucella*, Brucellosis, Rheumatoid Arthritis, Pregnancy, Zoonotic Infection.

### Introduction

Brucellosis is a zoonotic infection transmitted to humans through unpasteurized meat and dairy products of infected animals or by direct contact with the pathogen through the mucosa, respiratory tract, or damaged skin [1]. This disease, which infects more than 500,000 people annually, can affect any organ, cause disability, and thus becomes a socially significant pathology in the world [2]. In Kazakhstan, the incidence per 100 thousand of the population decreased from 13.2 (2010) to 6.1 (2018), but despite a significant decrease in the incidence, brucellosis remains among the most dangerous infections [3]. There are 12 species of *Brucella*, of which 4 are pathogenic for humans: *Brucella melitensis*, *Brucella suis*, *Brucella canis* and *Brucella abortus*, the latter of which is more common in Kazakhstan [4]. Brucellosis affects any organ where it metastasizes, and in particular *Brucella abortus* causes pelvic inflammation with consequences for miscarriages, primary or secondary infertility and premature birth. Treatment for brucellosis is to eradicate the pathogen and boost the immune system. On the other hand, rheumatoid arthritis (RA) is an autoimmune pathology, the treatment of which is aimed at reducing immunity. RA often affects women of fertile age, causes arthritis in the small joints of the hands,

and leads to early disability [5]. Pregnancy aggravates the course of both brucellosis and RA. In this case report, we described the course and outcome of the disease in a pregnant woman with chronic brucellosis and rheumatoid arthritis [6,7].

### Materials. Case presentation

A 38-year-old pregnant woman, mother of 4 healthy child, had seventh pregnancy with twins. In the 13th gestational week she complained of edema, pain and limitation of movement in the right knee joint, crepitus in large and small joints of the body, general weakness and rapid fatigue. Since childhood, her family has kept cattle, there have been miscarriages in cattle and small ruminants. She was infected with brucellosis at age 24-year-old though direct contact with infected meat and milk. At the age of 33, she was diagnosed with rheumatoid arthritis with lesions of the small joints of the hands and positive anti-CCP, rheumatoid factor (RF). The patient received methotrexate at a dose of 15 mg/week and GCS 16mg/day before pregnancy. progesterone At 13 weeks, the patient received azithromycin 1000mg / day for 42 days and progesterone. From 20 weeks, the patient had an increase in morning stiffness and pain in the hands. At 34 weeks, she developed preeclampsia with increased blood pres-

sure and proteinuria. Life history: a single miscarriage up to 12 weeks. Objectively: acute arthritis of right knee joint. Laboratory tests revealed a positive brucellosis test, a positive ACCP, an inflammatory blood reaction that increased in the third trimester and anemia (table 1). At 34 weeks of gestation, the patient developed preeclampsia, pain and inflam-

mation of the small joints of the upper extremities, therefore, she was treated with a calcium antagonist 10 mg / day, aspirin 50 mg / day, and methylprednisolone 8 mg. At 35 weeks premature birth occurred with the birth of a slink boy and girl. To date, the patient breastfed and is taking GCS 8 mg/day, hydroxychloroquine 200 mg/day.

**Table 1** – Laboratory results

Timing	13 weeks	34 weeks	Normal values
ALT (U/I)	15.2	47	(0-45mmol/L)
AST (U/I)	16.7	46	(0-42mmol/L)
Total bilirubin		17	(5.1-19.0 μmol/L)
Direct bilirubin		2	(1.7-6.8 μmol/L)
Glucose (mmol/L)		4	(3.89 – 5.83 mmol/L)
ESR (mm/h)	27	38	(<15 mm/h)
Leukocytes	7.7	10.8	(4-9 x10 <sup>9</sup> /L)
Lymphocytes	32	28	(18-42%)
Platelets	226	387	(180-320 x10 <sup>9</sup> /L)
Erythrocytes	4.9	3.5	(3.7-4.5 x10 <sup>12</sup> /L)
Hemoglobin	129	77	(120-140g/L)
ELISA Brucellosis	IgG positive		(Negative)
ELISA anti-CCP	701	484.7	(0-17 U/mL)
Protein in urine	0.33	0.330	(0-0.033g/L)
Leukocytes in urine	1-2	22	(3-5)

ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, ESR: Erythrocyte sedimentation rate, anti-CCP: Anti-cyclic citrullinated peptide

**Discussion**

Various sources provide data where brucellosis ends in full-term delivery [8,9,10], but also describes cases of spontaneous abortion and premature birth [11,12,13]. We presented a case of chronic brucellosis activation in a pregnant woman with rheumatoid arthritis. She contracted brucellosis at age 24. In the first trimester of the 4th pregnancy at the age of 38 years, the patient developed symptoms of active brucellosis: monoarthritis of the right knee joint. She was treated with azithromycin 1000mg per day for 42 days. In the first two weeks of antibiotic therapy, there was an increase in pain, swelling and movement in the joint with subsequent regression of arthritis. Pain in the

small joints of the hands began to bother the patient in the second and third trimesters. Despite the fact that rheumatoid arthritis intensifies and aggravates pregnancy, our case showed that zoonotic infection is more dangerous, causing the risk of miscarriage or premature birth [14,15]. Thus, the treatment of brucellosis during pregnancy is a priority in comparison with rheumatoid arthritis, as it leads to miscarriages, intrauterine fetal death or premature birth.

**Conclusion**

1. Chronic brucellosis intensified in early pregnancy and regressed after a course of antibacterial therapy.
2. Rheumatoid arthritis manifested in late pregnancy
3. Despite the antibacterial and anti-inflammatory therapy, labor was premature at 35 weeks.

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