PREGNANCY AND PREMATURE BIRTH IN A PATIENT WITH RHEUMATOID ARTHRITIS

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Abstract: Rheumatoid arthritis (RA) is an autoimmune systemic disorder that can affect any organ or system of the human body, targeting predominantly females and at reproductive age. The disease shows variations in the clinical course and overall, it is characterized by joint pain, swelling and tenderness, symmetrical joint damage. Extra-articular involvement such as reduced cognitive function; inflammation and fibrosis of lungs; secondary Sjogren's syndrome; sarcopenia; osteoporosis, etc, may be present.
Diagnosis of rheumatoid arthritis is made based on the American College of Rheumatology (ACR) and European League Against Rheumatism criteria which includes joints distribution, serology, symptom duration and acute phase reactants. During pregnancy RA flares are uncommon and primary diagnosis of rheumatoid arthritis is extremely rare. Women with high disease severity are more likely to experience adverse pregnancy outcomes including preterm labor. World Health Organization (WHO) defines preterm delivery as baby born alive occurring before completed 37 weeks of gestation and is further divided to: moderate to late preterm - 32-37 gestational weeks; very preterm – from 28 to less than 32 weeks and extremely preterm – less than 28 gestational weeks.
A clinical case of 35 year-old-woman with rheumatoid arthritis and human papillomavirus infection is presented with contractions upon admission. She was previously hospitalized twice at the department of rheumatology due to RA flares. Her cervical length was shortened and had no effect on pain syndrome until admission. Immunochromatographic test was performed which became positive for placental alpha microglobulin-1. Her uterine contractions were inhibited using tocolytics and corticosteroid prophylaxis of RDS was given. Seven days later a live fetus was born after tocolytic treatment in 34 weeks of gestation with fetal weight 2400g and 46 cm body length.
Pregnant women with autoimmune arthritis have a higher percentage of preterm births, more frequent spontaneous abortions and a lower percentage of live births**.** Timely diagnosis of high-risk pregnancy, including cervicometry with transvaginal sonography and vaginal examination, rapid immunochromatographic tests, as well as refinement of tocolytic therapy allows to achieve successful delivery of a viable fetus as close to term as possible.
Keywords: rheumatoid arthritis, premature, preterm delivery, pathologic pregnancy, arthritis

1. INTRODUCTION

Rheumatoid arthritis (RA) is a chronic inflammatory disease which progressively affects small peripheral joints and could lead to proximal joint and extra-articular involvement [Chauhan et al, 2023]. Its global prevalence between 1980 and 2019 was approx. 460 per 100 000 population [Almutairi et al, 2021] and is more common among women compared to men [Crowson et al, 2011; Abhishek et al, 2017]. Furthermore, women of childbearing age are most commonly affected [de Jong, P. H., & Dolhain, R. J. 2017]. Genetic predisposition plays a major role, especially HLA-DRB1 region [Gregersen et al, 1987].
The etiology is not yet fully understood but there is a hypothesis suggesting that dysregulation in citrullination is followed by the production of anti-citrullinated protein antibodies [Kurowska et al, 2017]. Overall, the disease is characterized by joint pain, swelling and tenderness, symmetrical joint damage [Jeffery, 2014]. Extra-articular involvement may be present: reduced cognitive function; inflammation and fibrosis of lungs; secondary Sjogren's syndrome; sarcopenia; osteoporosis, etc. [Chen et al, 2011]. There are four stages defined by the American College of Rheumatology – stage 1 – no destructive changes on X-rays; stage 2 – periarticular osteoporosis, subchondral bone destruction but no joint deformity; stage 3 –X-ray evidence of cartilage and bone destruction in addition to joint deformity and periarticular osteoporosis; stage 4 – presence of body or fibrous ankylosis with stage 3 features [Singh et al, 2016; Chauhan et al, 2023].

Diagnosis of rheumatoid arthritis is made based on the American College of Rheumatology (ACR) and European League Against Rheumatism criteria which includes joints distribution, serology, symptom duration and acute phase reactants [Aletaha et al, 2010]. Anti-cyclic citrullinated peptide antibodies are said to be more specific than rheumatoid factor [Nishimura et al, 2007].

During pregnancy RA flares are uncommon and primary diagnosis of rheumatoid arthritis is extremely rare [Qureshi et al, 2016]. Women with high disease severity are more likely to experience adverse pregnancy outcomes including preterm labor [Al Rayes et al, 2021; de Jong & Dolhain, 2017; Chakravarty, 2011; Nørgaard et al, 2010; Falcon et al, 2023]. World Health Organisation (WHO) defines preterm delivery as baby born alive occurring before completed 37 weeks of gestation and is further divided to: moderate to late preterm - 32-37 gestational weeks; very preterm – from 28 to less than 32 weeks and extremely preterm – less than 28 gestational weeks.

2. CLINICAL CASE

Thirty-five-year-old primipara is admitted for the second time in 33rd gestational week to MHAT ‘’St Anna- Varna ‘’AD Maternity ward due to abdominal pain and uterine contractions with duration of 20-30 seconds and frequency interval of 5-7 minutes. Diagnosis upon admission is Threatened preterm labour – Graviditas ml VIII – 33 g.w.

Anamnestic data

Pregnant woman having abdominal pain and uterine contractions despite the at-home magnesium tocolytic and spasmolytic therapy. Cervical length was measured shortened at 24 mm with transvaginal sonography. She was previously diagnosed with rheumatoid arthritis and was hospitalized twice at the department of rheumatology due to RA flares. Her medical documentation showed previously performed PAP test– high risk IIIA group and DNA test – HPV 6 and HPV 11 positive.

Clinical examination

Facies lunata, hypertrichosis, acne, violet stretch marks appearing on both torso and thighs (striae rubrae), dorsocervical fat pad, centripetal obesity. Arterial blood pressure was measured 140/90 mmHg and heart rate - 86 beats per minute. Hands showed deformity – subluxation of metacarpophalangeal joints. Pelvic examination - multiple condylomas with dimensions 3-5 mm appearing on the vaginal introitus and labia.

Laboratory testing: Hemoglobin 95 g/L; Hematocrit 0,24 L/L; Erythrocytes 3,77 T/L; Leucocytes 10,14 G/L; Total proteins 58 g/L; ASAT – 13,7 U/I; Blood glucose – 6,0 mmol/L; Fibrinogen - 5,92 g/L; CRP – 62 mg/dl; Rheumatoid factor – 40 IU/ml; Creatinine – 61 µmol/L

Due to the high risk of preterm labor rapid immunochromatographic test was performed, which became positive for placental alpha microglobulin-1 on the fifth minute. The uterine contractions were inhibited using intravenous infusion of tocolytics (Gynipral and Cormagensin) and they completely vanished on the 6th day of admission. Corticosteroid prophylaxis for respiratory distress syndrome was assigned – 72-hour dexamethasone therapy in order to achieve lung maturity of the fetus. Seven days later spontaneous rupture of membranes occurred, and cesarian section was performed. A live fetus was born in 34th week of gestation with fetal weight 2400 g, 46 cm body length and APGAR score of 9/10.

3. CONCLUSION

Pregnant women with autoimmune arthritis have a higher percentage of preterm births, more frequent spontaneous abortions and a lower percentage of live births [Al Rayes et al, 2021; de Jong & Dolhain, 2017; Chakravarty, 2011; Nørgaard et al, 2010; Falcon et al, 2023]. As shown in this case, timely diagnosis of high-risk pregnancy, including cervicometry with transvaginal sonography and vaginal examination, rapid immunochromatographic tests, as well as refinement of tocolytic therapy allows to achieve successful delivery of a viable fetus as close to term as possible.

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