

# New-Onset Systemic Lupus Erythematosus during Pregnancy: A Case Report

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## Abstract

**Introduction:** Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that involves multiple organs. Pregnant women previously diagnosed with SLE are at risk of experiencing gestational complications. However, cases of initial SLE manifestation during pregnancy are rare.

**Case Presentation:** A 45-year-old pregnant woman (G7P2Ab4) was admitted to Shahid Rahimi Hospital in Khorramabad, Iran, in the 29th week of gestation due to thrombocytopenia. The patient had received a diagnosis of SLE during a routine prenatal visit but had not responded to the prescribed medications. After a comprehensive clinical and paraclinical evaluation, the patient was treated with pulse intravenous methylprednisolone, followed by prednisolone, dramatically improving her clinical condition.

**Conclusion:** Diagnosing and managing SLE during pregnancy can be controversial. An accurate evaluation of the patient's clinical condition is essential for determining the most effective treatment strategy. A multidisciplinary approach is necessary to ensure the best possible outcomes for the mother and the fetus.

**Keywords:** Systemic lupus erythematosus, Connective tissue disease, Pregnancy, Thrombocytopenia

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## 1. Introduction

Systemic lupus erythematosus (SLE) is a worldwide autoimmune disease mainly affecting women of reproductive age (1). The estimated prevalence of SLE in North America is 241 per 100,000 population (2). An interplay between genetic predisposition, environmental, immunological, and hormonal factors leads to the emergence and activity of SLE (1). The criteria of the Systemic Lupus International Collaborating Clinics (SLICC) (3) and the American College of Rheumatology (4) are used to diagnose SLE. The first-line options for treating SLE are antimalarial agents (hydroxychloroquine or chloroquine), non-steroidal anti-inflammatory drugs, and glucocorticoids.

In some cases, immunosuppressive treatment may also be considered (5). The association between SLE and pregnancy represents a specific situation in immunopathology. Maternal immune tolerance to the fetus is crucial during pregnancy. In pregnant women with SLE, the immune system

cannot maintain tolerance, which may lead to pregnancy complications such as miscarriage, preterm labor, preeclampsia, activation of SLE, or neonatal lupus (6). Initial manifestations of SLE in pregnant women are rare and may be misdiagnosed as preeclampsia (7). In this study, a 45-year-old woman was presented who showed initial presentations of SLE during pregnancy. This work was written according to the CARE guidelines (8).

## 2. Case Presentation

A 45-year-old (G7P2Ab4) pregnant woman was referred to Shahid Rahimi Hospital in Khorramabad, Iran, at the 29<sup>th</sup> week of gestation due to thrombocytopenia. She had been hospitalized one month before admission due to a platelet level of 75,000/mcL discovered during a routine prenatal visit and was diagnosed with SLE. She was referred to the hospital because of her lack of response to the administered medications. The patient explained about a history of four miscarriages: one at the 16<sup>th</sup> week of gestation and three others during the 6<sup>th</sup> to 8<sup>th</sup> weeks. She also had

a history of hair loss, *Helicobacter pylori* infection, Coronavirus disease, urinary tract infection, and hemorrhoids treated by surgery. She did not complain about other symptoms of SLE, including petechiae and purpura, fever, lethargy, oral lesions, history of psychosis, seizures, depression, chest pain, and dyspnea. Her drug history was positive for hydroxychloroquine 200mg twice daily, ferrous sulfate 150 mg three times daily, enoxaparin 4000 IU daily, and aspirin 80mg daily. During the physical examination, no abnormal findings were found. The laboratory results showed hematuria and moderate bacteriuria. Other laboratory data are shown in Table 1. The kidney ultrasound was reported as expected.

Based on the SLICC classification criteria for SLE, at least 4 of the criteria listed in Table 2 are required to diagnose SLE, including at least 1 clinical criterion and 1 immunologic criterion (3). In the present case, the patient met 2 clinical and 3 immunologic criteria, confirming the diagnosis of SLE.

### 3. Discussion

Encountering this case, our primary challenge was to choose the best possible medication regarding the pregnancy status. Consultation with the gynecology and obstetrics team was done, and the fetal ultrasound was reported as expected.

**Table 1:** The patient's laboratory findings

Test	Result	Normal value
WBC ( $10^3/\text{mCL}$ )	15.41	4-10
Hemoglobin (g/dL)	10.6	12.5-16
Platelets ( $10^3/\text{mCL}$ )	73	150-450
Urea (mg/dL)	38	15-45
Creatinine (mg/dL)	0.9	0.6-1.4
C3 (mg/dL)	74	90-180
C4 (mg/dL)	4	10-40
CH50 (micIU/ml)	74	51-150
ANA (BI)	1.20	<1
anti-dsDNA (IU/ML)	42.2	<30
c-ANCA (U/ml)	2.6	<10
p-ANCA (U/ml)	4.2	<10
Anti SSA (U/ml)	118.4	<12
Anti SSB (U/ml)	0.5	<12
Anti Cardiolipin Ab IgG (GPL/ml)	2.3	<12
Anti Cardiolipin Ab IgM (MPL/ml)	3.2	<12
Anti-Sm Ab	Negative	-
24-hour-urine protein (mg)	2462	20-150

WBC: White blood cells; CH50: Total complement activity test; ANA: Antinuclear antibodies; Anti-dsDNA: Anti-double stranded deoxyribonucleic acid antibody; c-ANCA: Antineutrophil cytoplasmic autoantibody; p-ANCA: Perinuclear anti-neutrophil cytoplasmic antibodies; Anti SSA: Anti-Sjögren's-syndrome-related antigen A autoantibodies; Anti-SSB: Anti-Sjögren's-syndrome-related antigen B autoantibodies; Anti-Sm Ab: Anti Smith antibody

**Table 2:** Criteria of the Systemic Lupus International Collaborating Clinics Classification for Systemic lupus erythematosus

Clinical Criteria	Immunological Criteria
1. Acute Cutaneous Lupus	1. ANA *
2. Chronic Cutaneous Lupus	2. Anti-dsDNA *
3. Oral Ulcers	3. Anti-Sm
4. Nonscarring Alopecia *	4. Antiphospholipid Antibody
5. Synovitis	5. Low Complement (C3, C4, CH50) *
6. Serositis	6. Direct Coombs Test in the Absence of Hemolytic Anemia
7. Renal	
8. Neurologic	
9. Hemolytic Anemia	
10. Leukopenia	
11. Thrombocytopenia ( $<100,000/\text{mm}^3$ ) *	

\*Present in the patient; ANA: Antinuclear antibodies



**Figure 1:** The chart shows the timeline of events for the present case.

After thoroughly evaluating the patient's condition, it was decided to administer corticosteroids. Pulse intravenous methylprednisolone was administered, followed by prednisolone in a daily dose of 50mg. The patient responded dramatically to the treatment with no adverse outcomes, and finally, a Cesarean Section was performed in the 37<sup>th</sup> week, delivering a healthy newborn weighing 2900 grams. Figure 1 illustrates the timeline of events for the present case.

Thrombocytopenia may occur in 7 to 10% of all pregnancies. Several conditions can cause thrombocytopenia. Gestational thrombocytopenia comprises 75% of all cases (9). The treatment of SLE during pregnancy varies depending on the severity and the organ affected. Acetaminophen can be used for joint pain; arthritis and skin manifestations can be managed with hydroxychloroquine. When they are ineffective, corticosteroids, particularly prednisone, should be considered. Azathioprine and cyclosporine are indicated in more severe cases. Intravenous immunoglobulin is effective in managing thrombocytopenia during pregnancy (10).

Cases of initial SLE manifestation during pregnancy have been reported in the literature. The presentation is more drastic compared to new-onset SLE in non-pregnant women. Bellou and colleagues reported a case of a 23-year-old pregnant patient with enteritis as an initial SLE manifestation. She responded partially to methylprednisolone pulse therapy; hence cyclosporine was added (7). Daskalakis and colleagues presented a case of acute severe thrombocytopenia and leukopenia in a pregnant woman. She was diagnosed with SLE and managed with platelet transfusion, intravenous immunoglobulin infusion, and methylprednisolone administration (11). Wu et al. presented a pregnant woman who developed muscle weakness in the lower limbs after epidural anesthesia during the Cesarean Section. She was confirmed to have SLE; her condition worsened despite using all possible treatment methods and expired (12).

#### 4. Conclusion

Diagnosing and managing systemic lupus

erythematosus (SLE) during pregnancy poses significant challenges. Various approaches have been documented in the literature, resulting in diverse outcomes. Therefore, a thorough assessment of a patient's clinical status is crucial in determining the most appropriate strategy.

#### Ethical Approval

Written, informed, and voluntary consent was obtained from the patient to publish this case report.

#### Authors' Contribution

G.M: Contribution to the acquisition of data and drafting the work. H.A.T: Contribution to the acquisition of data and reviewing the manuscript for important intellectual content, A.K.R: Contribution to the conception of the work and reviewing the manuscript for important intellectual content. All authors approved of the final version to be published, and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**Conflict of Interest:** None declared.

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