

# Challenges in Management of Systemic Lupus Erythematosus on Pregnancy: A Single Case Report

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**Abstract:** Introduction: Systemic Lupus Erythematosus (SLE) is an autoimmune disease with unknown etiology. Pregnancy can trigger a recurrence of the disease or aggravate symptoms and threaten the lives of the mother and/or the baby whom she carries. Case: A pregnant woman who is 18 years old, complained thicked crust on the erythematous plaques distributed in the malar region, nasal, supraorbital and auricular sinistra et dextra region, discontinuous hair marks on the lateral side of the scalp, mild arthritis. Laboratory test results are leukocytosis (leukocyte 15,000 cells/ $\mu$ l; neutrophil 7.9 cells/ $\mu$ ; lymphocyte 6.29 cells/ $\mu$ ; monocyte 0.74 cells/ $\mu$ ), CRP 0.7 mg/dl; C3 50mg/dl, ANA Test 2.4; Anti-dsDNA 28. The result of kidney function tests is in the normal range. The USG results of a fetus: pregnancy in the uterus (8-9 weeks), child alive (31/01/2019). This patient has been diagnosed as SLE for three years but is well controlled with medication. However, the recurrence occurred when she is pregnant. This patient was diagnosed as mild SLE in pregnancy, and the recurrence was assessed using the Lupus Activity Index in Pregnancy (LAI-P) scale, and the score was 0.43. Then she was given the treatment with methylprednisolone 4mg once daily, ranitidine 150mg two times daily, paracetamol 500mg three times daily, folic acid 400mg once daily, B-complex vitamin two times daily, desoximetasone 0.25% cream on the face, sunscreen, and also she was suggested to do a pregnancy control. In addition, she was also given education about her diseases, to avoid direct sun exposure, drug side effects, psychological problems, how to deal with stress and keep a healthy diet and lifestyle. Conclusion: Pregnancy can trigger the recurrence of SLE or aggravate the symptom so that it can increase maternal and fetal mortality and morbidity. The treatment needs a multidisciplinary approach together with Internal medicine (Rheumatology) and Obstetrics department, close monitoring to check if there is a change in clinical manifestation, vital signs, liver function test, kidney function test, hematology test, and also monitoring fetal development.

## 1 INTRODUCTION

Systemic Lupus Erythematosus (SLE) is a chronic autoimmune inflammatory disease with unknown etiology and various clinical manifestations, disease pathways, and prognosis. Genetic and hormonal factors play a role in its pathophysiology. The annual incidence of SLE in the United States reaches 5.1 per 100,000 population. The clinical manifestations of SLE are extensive, including the involvement of the skin and mucosa, joints, blood, heart, lungs, kidneys, central nervous system (CNS) and immune system. With frequent symptoms of arthritis at 48.1%, malar rash 31.1%, nephropathy

27.9%, photosensitivity 22.9%, neurologic involvement 19.4%, and fever 16.6% while clinical manifestations that are rarely found are myositis 4.3%, discoid rash 7.8%, 4.8% hemolytic anemia, and acute subcutaneous lesions 6.7%.

SLE mainly occurs in women of childbearing age, and there is an acceleration regarding the role of pregnancy which can aggravate the symptoms of SLE by 2-3 times, and also appear between 35%-70% of all pregnancies. This is linked to hormonal changes that induce physiological and immunological changes (Th2 in an autoimmune response). The risk of flares increases dramatically if the patient has active lupus for six months before

pregnancy are 7.5 times. The most common SLE activity is mild to moderate form. The symptoms are often a rash on the skin, arthritis, and hematological changes.

Symptoms of flares can appear at any time or several months after birth. Monitoring is needed during pregnancy and postpartum. The impact of SLE on pregnancy is abortion or fetal death. Essential factors that play a role are flares, the timing of flares and antiphospholipid syndrome (APS). In addition, preterm and low birth weight (LBW) can occur in 9.4% of cases due to thrombosis in the placenta. The increase in preeclampsia incidence occurred in the range of 13-35%. Nephritis also increased the incidence of abortion, 36-52%, and preterm labor 35-40%. However, physiological changes related to pregnancy can also resemble those of SLE, such as fatigue, arthralgia, hair loss, headache, facial and palm erythema, anemia, thrombocytopenia. An assessment of SLE activity in pregnancy can use a more specific scale of the SLE Disease Activity Index (SLEDAI), as well as Lupus Activity Index in Pregnancy (LAI-P) scale.

Treatment of SLE in pregnancy, mild SLE activity can use low-dose prednisone (<7.5mg/day), nonsteroidal anti-inflammatory (NSAID) can be used at the end of the first trimester, and second trimester. Hydrochloroquin (HCQ) has a protective effect, antithrombosis, ability to have a longer life, and minimal side effects. SLE moderate activity can be treated with high-dose or pulse-doses corticosteroid, intravenous immunoglobulin to control the kidney and hematology organ function. Immunosuppressant agents such as cyclosporine, tacrolimus, azathioprine are contraindicated. Morbidity and mortality in SLE are still quite high, with a survival rate of 5-10 years is 84-95%, and 10-15 years is 70-85%.

## 2 CASE

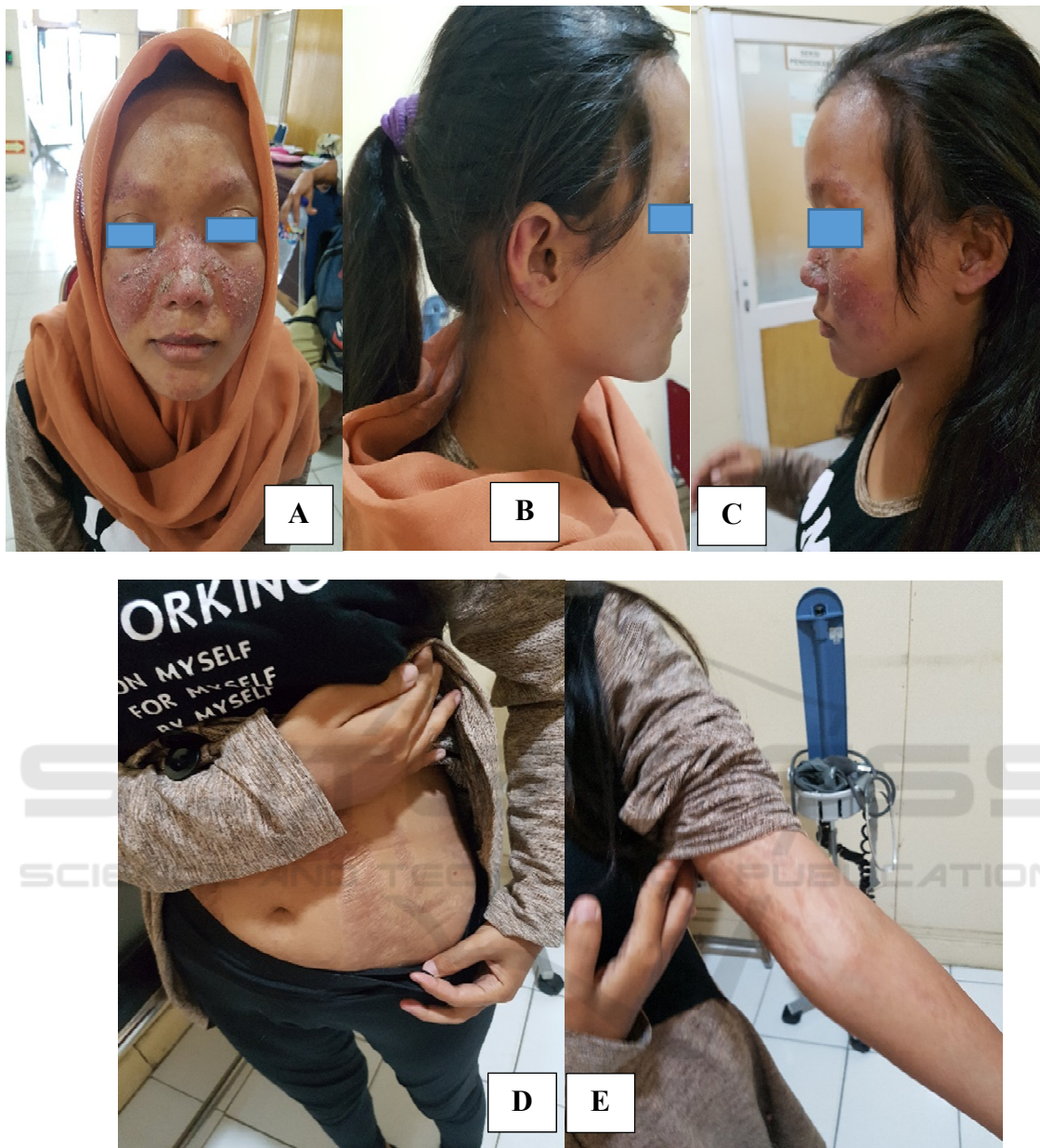
An 18-year-old pregnant woman from Deli Serdang came to the Department of Dermatology and Venereology of the Adam Malik Hospital in Medan on 19<sup>th</sup> March 2019, with the chief complaint is thickened and painful malar rash from the facial area, extended to cheeks, nose, and eyebrow since two months ago. She also complained that her face would feel hot and red when exposed to sunlight. This is accompanied by hair loss, oral thrush, fever, and weakness. The patient was referred to the

rheumatology department because of the pain in her joints.

Three years ago, the patient complained about the malar rash on her face when exposed to the sunlight, and she also felt the burning sensation in her face. The patient also experienced oral thrush, hair loss, and painful leg joint until she was unable to walk. In addition, patients feel quickly tired, decreased appetite, and high fever. Then she went to Melati Hospital in Pakam and was referred to the Pirngadi Hospital. Patients were diagnosed as lupus. The patient was hospitalized, and complaints have improved. All this time, she is routinely controlled in Melati Hospital and was administered methylprednisolone in maintenance dose, ranitidine, and sunscreen. In December 2018, the patient was found to be pregnant, and they complained slightly reappeared.

In physical examination, we found that the patient appeared to be mildly ill. Vital signs within normal limits. In dermatology examination, we found an erythematous plaque in the malar region with thickened crust, extended to nasal bridge, supraorbital and auricular sinistra et dextra regions. We also found a discontinuous hair mark on the temporal region and erythematous linear striae in the abdominal and antebrachial regions. Laboratory test results are leukocytosis (leukocyte 15.000 cells/ $\mu$ l; neutrophil 7.9 cells/ $\mu$ ; lymphocyte 6.29 cells/ $\mu$ ; monocyte 0.74 cells/ $\mu$ ), ferritin levels 372,50 ng/ml, CRP 0.7mg/dl; C3 50mg/dl, ANA Test 2.4; Anti-dsDNA 28. Kidney function tests are in the normal range. USG of the fetus results in pregnancy in the uterus (8-9 weeks), child alive (31/01/2019).

The patient was diagnosed as a mild degree of SLE in pregnancy and was given therapy methylprednisolone 4mg once daily, ranitidine 150mg twice daily, paracetamol 500mg three times daily, folic acid 400mg once daily, B-complex vitamin two times daily, desoximetasone 0.25% cream on the face, sunscreen, and also she was suggested to do a pregnancy control. In addition, she was also given education about her diseases, to avoid direct sun exposure, drug side effects, psychological problems, how to deal with stress and keep a healthy diet and lifestyle.



Picture 1. Dermatology examination found (A) erythematous plaque in the malar region with thickened crust, extended to nasal bridge, supraorbital and (B, C) auricular sinistra et dextra regions. We also found (C) a discontinuous hair mark on the temporal region, and erythematous linear striae (D) in the abdominal and (E) antebrachial region.

### 3 DISCUSSION

Systemic Lupus Erythematosus (SLE) is a chronic autoimmune inflammatory disease with unknown etiology and various clinical manifestations, and often did not recognize by medical personnel and treatment is only in accordance with dominant manifestation.

In our case, this patient was diagnosed with SLE 3 years ago, by using the criteria of the American College of Rheumatology (ACR) with the discovery of 4 or more criteria having a sensitivity of 85% and a specificity of 95% in Pirngadi Hospital. She was hospitalized in Pirngadi and had an improvement. All this time, she was routinely controlled in Melati Hospital and was administered methylprednisolone

in maintenance dose, ranitidine, and sunscreen. She admits that there was no history of recurrence.

In December 2018, the patient was found to be pregnant, and the complained slightly reappeared but in the mild form. The current diagnosis is mild grade SLE with skin lesion manifestations (malar rash), mild arthritis, no life-threatening symptoms, and stable organ function according to average results of laboratory tests. She was assessed by LAI-P scale to measure the incidence of flares caused by pregnancy, comparing the previous symptoms and the new symptoms. The value of this score is 0.43, which can be concluded that this flare is caused by pregnancy (with a minimum positive score LAI-P is 0.25).

Pregnancy does carry a separate problem for SLE patients. Pregnancy not only increase the incidence of recurrence or aggravate the symptoms of SLE but also associated with a higher risk of complications of the mother and her baby. A large national database study of 16.7 million deliveries reported many folds increased risk of maternal death, pre-eclampsia, preterm labor, thrombosis, infection, and hematologic complications during SLE pregnancy. The biggest issue is the 3-5 times higher risk of pre-eclampsia, complicating 16-30% of SLE pregnancies. The predisposing factors for pre-eclampsia include advanced maternal age, previous personal or family history of pre-eclampsia, pre-existing hypertension or diabetes mellitus, and obesity. It is recommended at least six months of controlled disease activity or in a state of total remission. In lupus nephritis, the period is more extended to 12 months in total remission. This can reduce SLE recurrences during pregnancy. Our patient claimed that she has been in controlled activity disease in the last two years, but the symptoms reappeared gradually since she was found to be pregnant.

Patients were given methylprednisolone 4mg once daily according to the Indonesian Rheumatic Study Guide. Steroid exposure should be limited to a minimum during the pregnancy because the high doses are associated with an increased risk of diabetes, hypertension, pre-eclampsia, and premature rupture of membranes. However, in the case of disease flares, short courses of high doses and/or intravenous pulse methylprednisolone can be used. Corticosteroid doses do not exceed 7.5 mg/day of prednisone or equivalent, because 88% of prednisone is deactivated by placental enzymes, and <10% reaches fetal circulation. It is said that methylprednisolone is safer than beta/dexamethasone, but the risk of miscarriage is

increased by 21%. Our patient was also given ranitidine to minimize gastrointestinal side effects of methylprednisolone, paracetamol to relieve the pain, folic acid to prevent the neural tube defect and vitamin B-complex from fulfilling the patient's need of vitamin. Topical desoximetasone, 0.25% cream, applied twice daily for her cutaneous lesions and sunscreen to avoid the sunlight were also administered.

Ante-natal management of pregnant patients with SLE requires close monitoring together with Internal medicine (Rheumatology) and Obstetrics Department. The monitoring should be more frequent and detailed than the usual standard of care. Each visit should include thorough physical examination, routine laboratory tests, and specific investigations. Our patient was given the education to do routine laboratory tests include kidney function test, liver function test, serological tests, disease activity (CRP, anti-ds-DNA, antibodies, complement), and urine protein. Monitoring of fetus should be done every month from 16-28 weeks, every two weeks from 28-34 weeks, and every week for the next gestational age. In addition, blood sugar control with HbA1c and oral glucose tolerance test are also needed. Education about the nature of the diseases and avoiding the precipitating factors (sun exposure, stress), drug side effects, psychological problems, and maintaining a healthy lifestyle and diet are also essential things

It is vital to monitor fetal development. The main obstetric issues in SLE pregnancy are higher rates of fetal loss, preterm birth, intrauterine growth restriction, and neonatal lupus syndromes. However, the rate of fetal loss has declined, and live births rates of 80-90% have recently been reported. About 10-30% of SLE pregnancies are complicated with fetal growth restriction and small for gestational age babies. Active disease and lupus nephritis increase the risk of fetal loss and other adverse outcomes. Proteinuria, hypertension, thrombocytopenia, and the presence of anti-phospholipid antibodies are other negative predictors for fetal survival.

## 4 CONCLUSION

Here we report a case about SLE on pregnancy in an 18 years old woman. Pregnancy can trigger the recurrence of SLE or aggravate the symptom and relate to maternal and fetal mortality and morbidity. The treatment needs a multidisciplinary approach; maternal and fetal close monitoring is essential for optimal outcomes.

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