Systemic Lupus Erytomatosa in Pregnancy Accompained by Angioedema : A Case Report

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Abstract

Systemic lupus erythematosus (SLE) is a chronic autoimmune inflammatory disease with diverse clinical manifestations, variable disease progression, and prognosis. SLE is associated with genetic, hormonal, immunological, and environmental factors. Its prevalence in the general population ranges from twenty to one hundred fifty cases per one hundred thousand people. SLE is more commonly found in women, particularly those of reproductive age. Angioedema in SLE patients is a rare occurrence both regionally and globally. scale. This article reports the case of a 24-year-old woman who came to the Emergency Department of Ploso Hospital with complaints of reddish spots on the face area accompanied by swollen lips since 1 week before admission. The patient also complained of a rash on both palms, mouth ulcers on the lips, and hair loss. The patient is currently pregnant with a gestational age of 6 months. Complaints of rashes on the face and swollen lips have been experienced by the patient before. The results of physical examination and support showed that the patient was diagnosed with SLE. This article aims to add insight into cases of angioedema in SLE patients with pregnancy so that further research and development can be carried out.

Keywords: Angioedema; Pregnancy; Systemic lupus erythematosus

Introduction

Systemic lupus erythematosus (SLE) is a chronic autoimmune inflammatory disease with

widespread clinical manifestations and diverse disease course and prognosis.[1] The etiologic mechanism of SLE is not entirely known. It has been suggested that factors such as genetic, hormonal, immunologic, and even environmental have a role in the pathogenesis of SLE.[1,2] The incidence of SLE varies among 100,000 population by ethnic group, geographical location, sex, and age. The prevalence of SLE in the general population ranges from 20–150 cases per 100,000 populationThere is no epidemiologic data of SLE covering all regions in Indonesia. Indonesia has a prevalence of approximately 1,250,000 people affected by lupus.[1,3]

SLE patients may develop maternal and fetal complications due to SLE or the use of SLE drugs during pregnancy. SLE patients with pregnancy have a higher risk of preeclampsia, eclampsia, and HELLP syndrome. The risks of SLE to the fetus include miscarriage, prematurity, stunted fetal growth, fetal death, stillbirth, low birth weight, and neonatal lupus.[2]

Angioedema is a condition of swelling of the submucosa or subcutaneous layer due to extravasation of fluid into the interstitial tissue, which usually occurs on the lips, periorbital, extremities, genitalia, gastrointestinal tract, and upper respiratory tract.[4,5] Angioedema in SLE patients can be either inherited (Hereditary Angioedema/HAE) or acquired (Acquired Angioedema/AAE).[4]

Case Illustration

A 24-year-old female came to the emergency room of Ploso Hospital with a complaint of a reddish rash on her face since 1 week. The reddish rash was mainly around the nose, cheeks, and mouth. The complaint was accompanied by swelling of the lip area. There is a round rash on both palms since 1 week. There is no itching, burning, or pain in the rash area on the face and hands. The patient also complained of canker sores on the lip area since the last 2 months. The lips feel hot and blistered. The patient's hair also falls out easily. Complaints of nausea, vomiting, joint pain, and fever are denied. The patient is currently 6 months pregnant with HPHT 12-04-2024. The patient used to do pregnancy control at the local midwife.

The patient used to control SLE disease at the internal medicine clinic of Ploso Hospital with routine medication of methylprednisolone 3×8 mg, calcium lactate 2×500 mg, vitamin D 1000 1×1, azathioprine 2×50 mg, and cetirizine 1×10 mg.

The patient has been diagnosed with SLE since October 2023. Complaints of rashes on the face area often disappear. The complaint of swelling in the lip area had been experienced before so the patient was hospitalized in October 2023. History of allergy and asthma was denied. The patient is a housewife. The patient occasionally does activities that are directly exposed to the

sun.

Vital signs were within normal limits. On physical examination, malar rash was found on the nasal area, maxillae dextra et sinistra, and labia superior et inferior. In the superior labia area there is edema accompanied by hyperemia (Figure 1). Oral ulcer on both lips. The abdomen was palpable TFU 19 cm (2 fingers above the navel) with a fetal heart rate of 157×/min. There was discoid rash on both palms. The results of the supporting blood lab examination are attached in Table 1. The results of previous supporting examinations in the form of obstetric abdominal ultrasound and ANA test are attached in Table 2 and Table 3.

Figure 1. Clinical photographs of patient upon arrival at the emergency room

Table 1. Blood Lab Test Results of Patient

Inspection	**Value**	**Raference Value**
Hemoglobin	9,7	L= 13 - 16 gr / dl P= 12 - 14 gr/ dl
Leukocytes	3.200	4.000 - 10.000 cells / mm3
Lymphocytes	14.0	17,0 - 48,0 %
Neutrophils	81,6	43,0 - 76,0 %
Basophils	0,0	0 - 1 %
Eosinophils	0,1	1 - 3 %
Monocytes	4,3	2 - 8 %
Thrombocytes	227.000	150.000 - 400.000 cells / mm3
Hematocrite	29	35 - 45 %
Erithrocytes	3,2	4,0 - 5,0 million / mm3
MCV	92	80,0 - 97,0 FL
MCH	29	26,5 - 33,5 Pg
MCHC	32	31,5 - 35,0 g / dl
RDW-CV	12,9	1,5% - 14,5%
Glukose	75	30 - 120 mg / dl
Creatinine	0,9	0.3 -1.3 mg / dl
Bun (Urea)	22	7,90 - 20,0 mg / dl

Table 2. Results of Obstetric Abdominal Ultrasound Examination History at Obstetrics Clinic

Abdominal Ultrasound (05-09-24)	
Fetus	Single, Live, Intrauterine
Lowest Position	Kepala
Amniotic fluid	Good enough
Placenta position	Posterior Uterus
EFW	343 gr
Pregnancy Age	20 weeks, 6 days
Estimated date of birth	19-01-2025

Table 3. ANA Test History Results

ANA Test (29-10-23)		
Inspection	**Results**	**Interpretation**
Cytobead ANA2 Method: Indirect Immunoflouresence	Positive	Interpretation: Detection of patient serum for autoantibodies
Titer	1:80	Possible antigens: ds-DNA Scl-70 Sm RNP-Sm Ro60-SS-A

At the emergency room, the patient received IVFD NaCl 0.9% 500 cc/24 hours, paracetamol drip 1×1 g, ranitidine injection 1×50 mg, methylprednisolone injection 1×6.25 mg, methylprednisolone tab 3×8 mg, calcium lactate tab 1×500 mg, vitamin D 1000 tab 1×1, azathioprine tab 2×1, cetirizine tab 1×10 mg. When hospitalized, the patient received a pulse dose of methylprednisolone 3×16 mg for 3 days. The patient showed improvement in symptoms in the form of reduced angioedema and rashes that slowly decreased.

Discussion

Systemic lupus erythematosus (SLE) is a chronic autoimmune inflammatory disease with broad clinical manifestations and diverse disease course and prognosis. Women are at higher risk of SLE than men, especially women of productive age. The incidence of SLE is associated with various factors such as genetic, hormonal, immunologic, and environmental factors.[1] The interaction between gender, hormonal status, and the hypothalamic-pituitary-adrenal (HPA) axis influences the sensitization and clinical expression of SLE.[3]

UV light is the environmental factor that most often causes exacerbation of SLE. UV light will stimulate keratinocytes, causing B cell stimulation and antibody production in SLE patients, leading to clearance of apoptotic cells and cell complexes. T cell activity will also be stimulated, resulting in increased antibody production.[1]

The mechanism of hormones on the development of SLE is not well known. Estrogen is associated with stimulation of T cells and B cells, macrophages, and cytokines. Progesterone affects autoantibody production. Elevated prolactin levels are associated with SLE flares.[1]

The incidence of angioedema in SLE patients is rare. Angioedema can occur in 15–33% of SLE patients.[4] A study showed that out of 90,485 cases of angioedema, 1,505 cases were related to SLE with young age (mean 44 years), female gender (89%), and African-American race (57%), while Asian race was quite rare (9%).[6]

Based on pathophysiology, angioedema can be mast cell-mediated or kinin-mediated. The clinical picture of mast cell-mediated angioedema is often accompanied by urticaria, sneezing, and itching, while kinin-mediated angioedema is not accompanied by these symptoms.[5]

Angioedema in SLE patients can be either inherited (Hereditary Angioedema/HAE) or acquired (Acquired Angioedema/AAE). HAE may occur in 2% of SLE patients, while AAE in SLE patients is very rare and its prevalence is less than 1%.[4]

The mechanism of HAE may result from mutation of the C1-esterase inhibitor (C1-INH), affecting its secretion or function. HAE can also occur with normal C1-INH titer and function. AAE mechanisms can occur due to increased catabolism of C1-INH or autoantibodies that damage C1-INH.[4]

SLE can affect the pregnant mother as well as the fetus. Pregnant patients with SLE have a higher risk of preeclampsia, eclampsia, and HELLP syndrome. In the fetus, SLE risks miscarriage, stunted fetal growth, prematurity, low birth weight, fetal death, stillbirth, and neonatal lupus. Pregnancy is also a risk for complications of SLE such as relapse, SLE nephritis, and hypertension.[2]

The ratio of SLE flares during pregnancy was 40.1%, while during postpartum was 17.4%. Organ involvement during SLE flares with pregnancy was most common in hematological system (53.2%), kidney (53.2%), musculoskeletal (22.1%), and mucocutaneous (14.3%).[7] The occurrence of relapse of SLE during pregnancy was most common in the second trimester (46.2%), followed by the first trimester (30.8%) and third trimester (23.1%). Low complement C3/C4 levels, thrombocytopenia at conception, and low serum albumin in the first trimester were associated with flares during pregnancy.[8,9]

Treatment of SLE with steroids, cyclophosphamide, hydroxychloroquine, and others in AAE patients can provide symptomatic improvement. Angioedema patients with active SLE can be given high doses of steroids to reduce SLE reactivity and reduce angioedema. Ecallantide may be considered for SLE patients with refractory angioedema and normal C1-INH levels. Emergency management is indicated to protect the airway due to laryngeal edema, especially in cases of recurrent angioedema. IV corticosteroids can be given immediately to reduce the patient's symptoms (375 mg if clinically well and 1,000 mg if clinically poor). In emergencies, C1-INH in the form of fresh frozen plasma can be given.[4,5,6]

The condition of the pregnant mother and fetus should be closely monitored to assess for complications related to pregnancy and SLE activity. Pregnant patients with SLE should receive aspirin. Corticosteroids and immunosuppressants can be given according to the degree of disease activity. High-dose pulse corticosteroids can be given if there is severe and life-threatening relapse during pregnancy. The choice of delivery method for SLE patients is based on obstetric, clinical, and comorbid considerations. In post-delivery, patients need to be monitored for SLE activity and risk of thrombosis.[2]

Conclusions

SLE is a chronic inflammatory disease due to an autoimmune process that has broad clinical manifestations and a diverse prognosis. There are genetic, hormonal, immunologic, and environmental roles that support the pathophysiology of SLE. The incidence of angioedema in SLE patients is rare. Comprehensive diagnosis and management can prevent SLE angioedema patients from becoming a serious emergency. Pregnancy in SLE needs special and comprehensive attention. Management of SLE patients with pregnancy needs collaboration between specialist clinicians so as to prevent complications for the mother and fetus.

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