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Acute Lupus Pneumotitis as a Complication of Pregnancy: A Case Report

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Abstract

Systemic lupus erythematosus (SLE) is an autoimmune disease that is chronic in nature and has considerable clinical heterogeneity. Acute Lupus Pneumonitis (ALP) is one of its many presentations. We report the case of a 29-year-old, primigravida patient at 30 weeks of gestation presenting with progressive dyspnoea, phlegmatic cough lasting three weeks and morning fever. On physical examination, there was a stabilized alert patient with normal vital signs. Examination by auscultation of thorax revealed slight subcostal retraction and other rhonchi and wheezing. Cephalic foetal presentation was present in the abdomen and abdominal ultrasound was reported normal. Investigations in the laboratory showed thrombocytopenia, over iron-deficiency anaemia, and systemic inflammatory factors. The presence of demonstrable anti-SSA and anti-SSB antibodies provided support to the diagnosis of pregnancy-related suspicious SLE bronchopneumonia. A restrictive diet was established, which included ceftriaxone once per day, Methylprednisolone between two times per day, Nebulised salbutamol between three times per day, N-Acetyl cysteine between three times per day, hydroquinone once per day, aspartilet once a day, and vitamin D once a day. The patient was discharged four days after therapy after clinical improvement was noted. After two months, she gave birth to clinically healthy infant via caesarean section, due to breech presentation and placenta previa as well as the persistence of SLE with the risk of lupus flare. ALP is a dangerous pulmonary SLE process. Here, the positive anti-SSA and anti-SSB were especially worrying considering that such antibodies are linked to very severe maternal and foetal complications.

Introduction

Systemic lupus (SLE) is a chronic and multi-organ autoimmune disease that is characterised by highly clinical heterogeneity. The main risk group is females, and its preponderance in relation to males is about six times higher. In this case, when the two-year anniversary comes around, the risk of unethical activity is high (Wijaya & Andrika, 2024). Cutaneous eruptions are typical signs and symptoms of skin involvement and in up to 70 percent of the cases, take the form of secondary cutaneous illness. Oral ulcers, alopecia and malar rash (19%, 24% and 40% respectively) have been reported along with other auscultatory anomalies. The other SLE-related manifestations are dysfunction of the lung parenchyma, pleura, and the vascular system.

There is wide variability in lung manifestations, which covers acute lupus pneumonitis, chronic interstitial pneumonitis, pulmonary haemorrhage, pulmonary hypertension, pulmonary wasting syndrome, pulmonary vasculitis, pulmonary embolism, bronchitis obliterans, pulmonary nodules, pleurisy and opportunistic pulmonary infections. This could also cause pulmonary

infections associated with treatment. Discordant estimates of pulmonary complications are reported in empirical studies and are typically due to immune-complex-mediated damage (Lazovic et al., 2018; Tusseau et al., 2024).

Pregnancy also deepens SLE-related morbidities with the most recorded being preterm birth and preeclampsia (Zhang et al., 2023). Diagnostic precision is hence critical to differentiate between pregnancy-related pathologies and SLE exacerbations including preeclampsia and lupus nephritis as treatment inclinations have diverged (Gholizadeh Ghozloujeh et al., 2024; El Miedany et al. 2022; Saleh, 2024). Summing up, SLE continues to be a multisystemic autoimmune disease that strongly discriminates against reproductively aged females, requiring highly stringent interdisciplinary cooperation to properly manage patients. Pregnancy predisposes one to lupus especially when the disease has been inadequately controlled at the onset of pregnancy (Baer et al., 2011; Jara et al., 2014). Recent recommendations state that adequate period of disease quiescence of at least 6 months (some experts recommend a year in women with lupus nephritis) should precede conception.

Systemic lupus erythematosus (SLE) is a sex-biased systemic autoimmune disease and usually occurs in reproductive ages (Nusbaum et al., 2020; Kim et al., 2025; Ortona et al., 2016). Although maternal outcomes have improved, both intrauterine growth restriction and loss, preterm delivery, active lupus exacerbations, and preeclampsia continue to be clinically significant complications of reproductive-age women with systemic lupus. We report an extremely rare instance of SLE during pregnancy that appeared in the form of acute lupus pneumonitis (ALP). One of the potentially fatal developments is ALP that needs prompt clinical identification and therapy.

Methods

This case is documented due to the rare pulmonary complication in a pregnant woman with systemic lupus erythematosus (SLE), specifically lupus pneumonitis which is difficult to diagnose and manage. This patient's presentation of a progressive cough with dyspnea suggested bronchopneumonia. However, imaging and laboratory results supported the diagnosis of lupus pneumonitis. Maternal disease alleviation was prioritized, but fetal safety required intensive vigilance and deliberate modification of the treatment plan. There is a notable scarcity in the literature reporting lupus pneumonitis in pregnancy; consequently, this case enhances the knowledge of pulmonary complications of SLE in pregnancy while offering clinical management strategies. The patient provided written consent and the report adheres to the appropriate ethical guidelines.

Result and Discussion

The patient is primigravida at 30 gestation weeks who presented to the emergency department with acute-onset dyspnea, which lasted over 20 minutes. The onset has been concomitant to clinician examination at an outpatient area. She reported dyspnea as making it difficult to speak but reported improvement in the symptoms when sitting compared to when walking. There was no history of dyspnea. Moreover, she reported a productive cough that occurred within 21 days of presentation and had not been treated by cough medicines. She reported worsening of cough in contact with the cold climate. There was a fever, which subsided in part during antipyretic treatment, in the morning.

This patient had a history of a systemic lupus erythematosus (SLE) diagnosed in 2019 and treated by taking medications routinely, Hiloquin 200 mg a day, Aspilet 1 tablet a day, L-Vitamin D 1 tablet a week. During pregnancy, she had no SLE related events. The recent relapse was about two years ago. In her obstetric history, she had her last menstrual period in June 24, 2024, an estimated due date of March 31, 2025, and she had three routine obstetric visits so far.

The history of menstruation was significant, with the menstrual period coming on at the age of 13 years, with regular periods every 28 days, 5 days in duration and flow of 50-100 ccs, and no symptomatic complaints. On marital history, there was one marriage that occurred in 2024 up to the present days and there is denial in the use of contraceptives. The surgical history was non-contributory. No genetic or inherited diseases were found in the history of the family. Social history showed that the Balinese woman had a bachelor degree taking position as an employee in the bank whereas the husband was also a Balinese and bachelor prepared and was a employee in the privacy sector.

As the patient was assessed initially, he was oriented to place, time, and person, i.e. he was alert. Her vital signs were as follows: BP 106/64 mmHg, pulse rate 80/minute, respiratory rate 26/minute and a body temperature of 36.5 C. She had a height of 150 cm, 45 kg as the pre-pregnancy weight and 54 kg as the post-pregnancy weight. Generally, the head was normocephalic; the eyes were not anemic, jaundiced or sunken. Thorax was symmetrical and the subcostal retraction was minimal. Single regular S1 S2 heart sound was present without murmur or gallop. On examination of the respiratory system, the vision of the vesicular breath was normal but Rhonchi + + / + + + and wheezing - + / - - + were observed. An abdominal examination that was performed based on obstetric status revealed gravid (+), striae gravidarum (+), and linea gravidarum (+). In Leopold 1, the height of uterine fundus was 24 cm and a large mass of fetus was felt through the skin soft and not bouncy. A big, thick fetal mass was felt on the right side and small fetal one on the left in Leopold 2. In Leopold 3, the hugely mass of the fetus was solid, defined, circular and moveable. The fetal mass was seen to be convergent in Leopold 4 and the head had not progressed into the pelvis. No uterine contractions were felt and the fetal heart rate evaluated by Doppler was 132 beats per minute. Extremity test showed that the extremities were warm, and the absence of edema of the legs, as well as CRT was less than 2 seconds.

A complete blood count (CBC) showed the following: hemoglobin (Hb) 10.3 g /dL, hematocrit (Hct) 33.4 %, leukocyte count 10,300/mm3, and platelet count 139,000/mm3. Serum ferritin levels were 18.4 ng/mL which showed iron-deficiency in females below the age of 30 years. The erythrocyte sedimentation rate was 65 mm/hour. The antigen test related to SLE demonstrated the following test results: RNPSm (Negative), SM (Negative), SSA (Positive), Ro-52 (Negative), SSB (Positive), SCI70 (Negative), PM100 (Negative), Jo-1 (Negative), Centromere B (negative), PCNA (Negative), dSDNA (Negative), Nucleosome (Negative), Hisiones (Negative), Rebosomal protein (Negative), AMA-M2 (Negative), DFS70 (Chest X-ray was not taken as regards the pregnancy. The patient was then referred to maternal-fetal unit. The maternal-fetal unit was only able to screen the fetal heart abnormalities because of the advanced advanced fetal size with a positive finding of fetal heart beat and fetal cardiac beat, and none showed appearance of fetal heart block.

The patient was G1P0000 UK at 30 weeks and presented with the suspicion of SLE bronchopneumonia. Pulmonary obstructive syndrome and upper respiratory tract infection were possible in a differential diagnosis. Nebulisation with Ventolin, conservative treatment was started, and the case was then referred to the internal medicine department to recheck. The internist established a diagnosis of acute SLE bronchopneumonia and prescribed oxygen therapy in the case of a decrease in the oxygen saturation level in the patient below 95%, or the development of dyspnoea. Ringer lactate infusion, ceftriaxone 1 x 2 g intravenously, methylprednisolone 2 x 62.5 mg intravenously, regular Ventolin nebulisation, N-acetyl cysteine 3 x 200 mg, Hiloquin 1 x 200 mg orally, Aspilet 1 x 1 tablet and L-vitamin D 1 x 1 tablet orally were recommended as admission. Following four days of care the patient was discharged with the improvement of clinical condition.

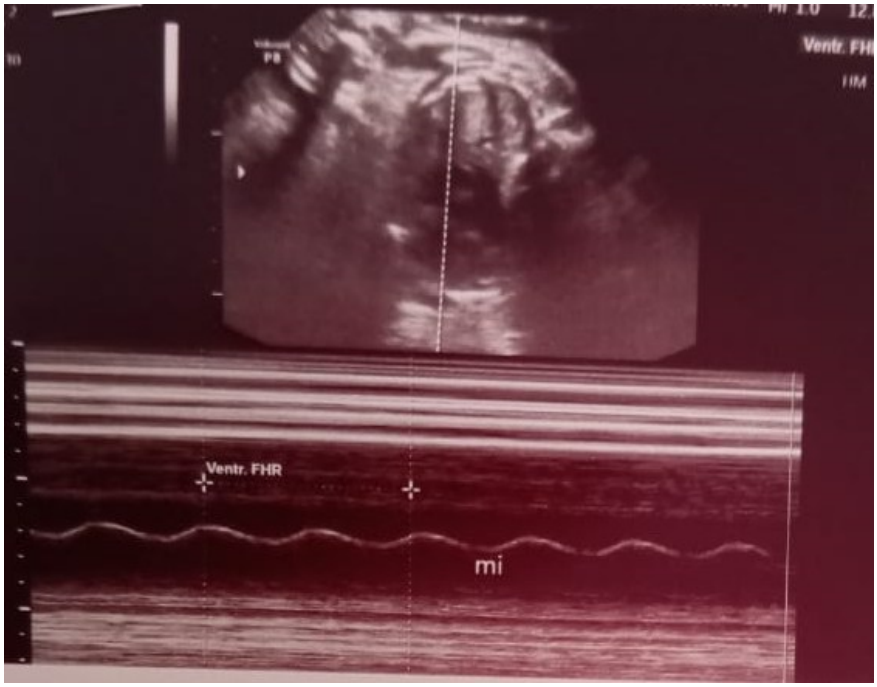

Figure 1. Fetal Ultrasonography (USG) Examination Results Show Fetal Heart Rate (FHR)

The patient presented again after about 2 months after discharge and the chief complaint was her persistent cough. They had had intermittent attacks since the last admission and they had worsened in the past three days. The patient had no complaints of dyspnea or fever. Oedema of the legs and generalised abdominal discomfort had increased two weeks previously. Long-term medications were all stopped, and the use of folic acid was started at 1 time per day. The sport was noted on physical examination to have a relaxed uterus at 37 38 weeks gestations, the fetus being in the cephalic presentation with a normal fetal heart rate. A vaginal speculation exhibited no cervical dilatation and effacement.

Complete blood chemistry analysis run on the patient indicated the following results: hemoglobin concentration of 10.7 g/dl, hematocrit of 32.1 %, leukocyte count of 11,490/mm3, and platelet count of 126,000/mm3. The coagulation factors were in line with extended-than-average abnormal bleeding time 1:00 minutes and clotting 11:00 minutes. Ultrasound scan revealed a live single fetus whose corpus callosum was intact, a positive fetal heart beat, positive fetal movements, and sufficient fluid in the amniotic fluid.

Based on these results, the patient was admitted to having G1P0000 at 38-39 weeks of gestation, with a breech living fetus in utero, placenta previa, and with systemic lupus erythematosus complicated by the risk of lupus flare. Analgesia was given as well as an injection of cefotaxime 1 x 2 g IV. Thereafter, the patient was subjected to a cesarean section. It was a 3,070-gram birth weight Baby boy who had an Apgar score of 7-9 and was found healthy.

Discussion

Systemic lupus erythematosus (SLE) is a rare, chronic, and multisystematic autoimmune disease, which can have chronic mild Clinical-manifestations to life-threatening sequelae. Cutteraneous involvement in the form of rash, musculoskeletal disease characterised by arthritis, and haematological abnormalities including anaemia and thrombocytopenia, serositis, nephritis, neuropsychiatric sequelae including epilepsy and psychosis, and other visceral manifestations are representative. In spite of the inherent variability of clinical trajectory in SLE, the disease activity remains present in a portion of patients (Knight, et al., 2017).

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The reported prevalence of systemic lupus erythematosus (SLE) is around 20–150 cases for every 100,000 individuals, and this number is known to differ across ethnic groups and regions. In Indonesia, however, there seems to be an increasing incidence of SLE, which highlights the need for greater clinical vigilance regarding rare complications. Lupus pneumonitis, however, occurs in only around 1–2% of individuals with SLE, which makes the presence of pulmonary involvement in this pregnant patient quite striking. Thus, in this case, epidemiological data serve not only as contextual information, but as justification for documenting the case—to highlight the need for timely diagnosis of rare but grave complications in the backdrop of increasing SLE cases in the region.

The possible fatality of SLE in both mother and foetus causes high-risk categorisation to become necessary in pregnancy cases in women with SLE. Even though pregnancy complications due to SLE are likely to endure 75 % of the period, 25 % of them end in premature birth, and other 25 % miscarriage (Oktavia et al., 2022). It can be seen that pregnant women who confirmed SLE can have clinical manifestations that appear similar to the physiological changes that come with being pregnant. It is therefore important to distinguish between flares of disease and those associated with pregnancy (Khairani et al., 2018).

The current case development of thrombocytopenia and acute lupus pneumonia (ALP), or the occurrence of SLE in extremely rare cases, such as only approximately 2 % of sufferers. Clinical presentation of ALP can resemble acute interstitial pneumonia: fever, productive cough, dyspnea and hypoxemia are the main findings of the disease with lupus-like phenomena described, arthralgia, fatigue, and malar rash. The therapy of the disease is performed with the use of systemic corticosteroids, and, traditionally, the prognosis is poor as a range of published reports indicates a mortality rate of up to 50 % (Marte Furment et al., 2020). High titres of serum anti-SSA antibodies have been implicated in ALP, but the cause and effect relationship is not clear; other investigations have reached differing conclusions. In addition, the use of steroids is the main treatment protocol, although it has been shown that they can heighten the possibilities of preterm rupture of membranes, diabetes, and preeclampsia in the course of pregnancy (Marte Furment et al., 2020; Xu et atl., 2024; Garg & Jaiswal, 2023; Lin et al., 2024; Ahmed et al., 2024).

For this patient, intravenous methylprednisolone was administered at a moderate dose. The first line treatment of corticosteroids was used due to their effectiveness in managing lupus pneumonitis, especially considering pregnancy, as well as their safety profile during pregnancy. Some alternatives, like cyclophosphamide and rituximab, were deemed too risky due to their teratogenic effects and limited safety records in pregnancy (Koutras et al., 2022; Taulaigo et al., 2021; Uthurriage et al., 2025; Kim & Suh, 2021). After starting corticosteroid therapy, the patient's respiratory symptoms resolved over time and oxygen saturation levels increased. This illustrates the need for personalized treatment plans that achieve effective control of the condition while providing the best possible safety for the fetus.

This patient's therapy plan aligns with EULAR (*European League Against Rheumatism)* and ACR (*American College of Rheumatology)* guidelines that recommend corticosteroids as the primary treatment during significant organ involvement of SLE and during pregnancy (Sammaritano et al., 2020; Saulescu et al., 2022; Baltaci & Pamukcu, 2024; Al-Jedai et al., 2025). However, the use of corticosteroids during pregnancy requires careful obstetric surveillance due to the risk of preeclampsia as well as corticostord led stimulus of preterm rupture of membranes. Other immunosuppressive medications such as azathioprine are safe to use during pregnancy and can be prescribed if need be, but in this case we felt no need to give these medications as the patient's responses to corticosteroids was satisfactory. Therefore, this therapeutic decision illustrates the use of evidence-based medicine while also taking into consideration the clinical realities and the need to optimize the care of a patient with SLE and pulmonary complications in pregnancy (Teng et al., 2018; El Miedany et al., 2022).

The risk that has been synonymous with SLE is the high obstetric risk with the notable risk being associated with complications in the placenta due to insufficient placenta (Gutierrez et al., 2023). Placentas in SLE smothers tend to be small and are characteristically observed to exhibit decidual vasculopathy, thrombosis and infarct. In this patient's case, serological testing showed positivity for anti-SSA and anti-SSB antibodies. The clinical significance of anti-SSA/SSB lies in the potential risk for neonatal lupus and congenital heart block. This prompted the clinical team to provide close fetal surveillance with echocardiographic assessments to monitor for early conduction abnormalities. While this patient's primary presentation was with lupus pneumonitis, the broadening of the serological profile shifted the focus of care to not just controlling the maternal disease, but also to optimizing fetal protection. Therefore, serology in this instance was not only a diagnostic marker but pivotal to the case requiring multidisciplinary intervention.

Table 1. ANA Immunofluorescence Patterns in SLE and Other Connective Tissue Diseases (Pandhi et al., 2017)

Pattern	Antibody	Clinical association
Homogenous	• Anti-DNA • Antihistone	• Common in SLE
Peripheral/rim	• Anti-DNA • Anti-laminin	• Common in SLE. Shrunken peripheral pattern associated with poor prognosis and a high incidence of LN
Fine-speckled/particulate	• Anti-Sm • Anti-Ro, Anti-La • Anti-U1RNP • Anti-SCL-70	• SLE, often with LN • SLE, SCLE, neonatal lupus, Sjögren's syndrome • SLE, MCTD • Systemic sclerosis (diffuse cutaneous)
Discrete speckled/centromeric	• Anticentromere	• Systemic sclerosis (limited cutaneous)
Nucleolar	• Anti-U3RNP • Anti-RNA polymerase 1 • Anti-Pm-SCl	• SLE (uncommon pattern), systemic sclerosis

LN, lupus nephritis; MCTD, mixed connective tissue disease; SCLE, subacute cutaneous LE

Table 2. Major Autoantibodies Associated with LE (Pandhi et al., 2017)

Autoantibody	Median prevalence	Antigen specificity	Clinical associations/others
ANA	99% (by IIF using Hep-2 cell substrate)		Most common immunofluorescence pattern homogenous, peripheral
Anti-ds-DNA	60%	Double-stranded (native) DNA	Highly specific for LE, monitoring of SLE disease activity, lupus nephritis
Anti-Sm	30%	Splicesome RNP	Highly specific for LE
Anti-rRNP	7%	Ribosomal P proteins	Neuropsychiatric LE
Anti-ss-DNA	70%	Denatured DNA	Risk of SLE in DLE patients, also seen in

			RA, DM/PM, MCTD, SSc, SjS
Anti-U1RNP	50%	Splicesome RNP	Overlapping features with other CTD and in MCTD
Anti-Ro	50%	Human cytoplasmic RNP (hYRNP)	Cutaneous manifestations of LE, photosensitivity, SCLE, neonatal LE/congenital heart block, SjS, Rowel's syndrome
Anti-La	20%	hYRNP	Occurs in association with anti-Ro
Anticardiolipin	50%	Cardiolipin	APLA
Antihistone	40%	Histones	Drug-induced SLE

APLA, antiphospholipid antibody syndrome; DM/PM, dermatomyositis/polymyositis; IIF, indirect immunofluorescence; MCTD, mixed connective tissue disease; RA, rheumatoid arthritis; SCLE, subacute cutaneous LE; SjS, Sjögren syndrome; SSc, systemic scleroderma.

Neonatal lupus erythematosus (NLE) is a potentially serious manifestation that may occur during pregnancy in patients with systemic lupus erythematosus (SLE) and has been thought to be estimated to occur in 1 in 20,000 live births among the patient population. Most of the cases relate to the children of women diagnosed with SLE although isolated cases outside this setting have been reported. NLE has clinical manifestations such as skin lesions, congenital heart block (CHB), anemia, hepatitis, and thrombocytopenia; skin rashes were reported in up to 50 percent of affected infants, but aplastic anemia and other complications occur at a lower frequency. The pathogenic process is autoreactivity against nuclear cytoplasmic ribonucleoproteins and the antibodies to Ro/SSA or Ro/SSB antigens are the key players. However, the presence of anti-SSA as well as anti-SSB antibodies is also commonly observed and anti-SSA/anti-SSB positive patients without any previous history of SLE have shown to develop NLE but only a percentage thereof subsequently develops SLE. The array of anti-SSA antibodies is between 30 % and 45 % in SLE patients, and the frequency of anti-SSB antibodies is between 15 and 20 % in cases. Indeed, in a prospective cohort study that included large numbers of fetuses and neonates whose mothers had anti-SSA or anti-SSB antibodies (with or without a concurrent diagnosis of SLE), Silver et al., 2023 reported that only 2 % of those exposure subgroups developed CHB, highlighting the incomplete penetrant nature of the outcome.

The prognosis for neonates with CHB varies and is related to the degree of fibroelastosis and the presence of fetal hydrops; 15% to 20% of children with NLE and CHB die within the first 3 years of life. Of those who survive, approximately 60% require a pacemaker within the first few years of life; most of the remainder will require a pacemaker before adulthood. (Silver et al., 2023).

In this case, we performed a fetomaternal screening of the fetus for CHB. Fortunately, the screening results no sign of CHB.

Conclusion

Systemic lupus erythematosus (SLE) is a rare, chronic, and multi-systemic auto-inflammatory disorder that can be characterized by mild or moderate symptoms or develop complications that become life-threatening; in pregnancy alone, the development of anemia, liver

dysfunction, and pneumonia (ALP) was registered. Due to the relative rarity of such cases, immediate diagnosis and treatment are needed. Clinicians should consider SLE when treating a variety of patients with manifestations of fever, cough, and dyspnea. In the given scenario, the existence of anti-SSA and anti-SSB antibodies was positive and related to ALP, which created the need to conduct additional examinations to diagnose the condition. No randomized controlled trials have been conducted to assess the effectiveness of the management of SLE during pregnancy; however, joint recommendations support the use of systemic corticosteroids with antimicrobials and immunomodulators in their combinations.

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