Case Report

# Caesarean section in a case of systemic lupus erythematosus

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**Access this article online**

Website: www.ijaweb.org

DOI: 10.4103/0019-5049.130827

Quick response code

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## ABSTRACT

Systemic lupus erythematosus (SLE) is an autoimmune disease most frequently found in women of child bearing age and may co-exist with pregnancy. Disease exacerbation, increased foetal loss, neonatal lupus and an increased incidence of pre-eclampsia are the major challenges. Its multisystem involvement and therapeutic interventions like anticoagulants, steroids and immunosuppressive agents pose a high risk for both surgery and anaesthesia. We describe successful management of an antinuclear antibody (ANA) positive parturient with bad obstetric history who underwent elective caesarean section under spinal anaesthesia.

**Key words:** Autoimmune, LSCS, pregnancy, systemic lupus erythematosus

## INTRODUCTION

Systemic lupus erythematosus (SLE) is an autoantibody mediated multisystem autoimmune disease, with considerable female predominance. The usual disease onset is in the third to fourth decades of life, in the reproductive years.[1] Women with SLE are at higher risk for exacerbations of the disease during pregnancy, spontaneous abortions, intrauterine foetal death, pre-eclampsia and eclampsia, preterm delivery and intrauterine growth retardation.[2] However, over the past few decades, there has been a trend towards more favorable outcomes. This case report summarizes the perioperative course and anaesthetic management in a parturient with SLE with bad obstetric history who underwent elective caesarean section (LSCS).

## CASE REPORT

A 25-year-old woman (G3P0L0) with 39 weeks amenorrhea, diagnosed with SLE was scheduled for elective caesarean section in view of cephalopelvic disproportion. Her obstetric history revealed that she had two consecutive abortions and had no live issues. Because of secondary infertility and cervicitis, intrauterine insemination was done 9 months back. Patient had a history of easy fatiguability. On examination, she had mild pallor and pedal oedema.

During antenatal checkups, she was investigated in view of bad obstetric history and a diagnosis of SLE was made. She was found to be ANA (antinuclear antibody) positive but negative for antiphospholipid antibody, although there was no history suggestive of any systemic involvement. Her complete blood count (CBC), blood sugar, urine examination were normal. Liver and renal function tests (LFT, RFT), electrocardiograph (ECG) were further ordered to rule out any systemic involvement and were found to be normal.

To improve the foetal outcome, she was receiving low molecular weight heparin (LMWH) 2500 IU subcutaneously twice daily. She was being monitored by serial bleeding time (BT), clotting time (CT) and activated partial thromboplastin time (APTT) measurements. In view of bad obstetric history and precious pregnancy, an elective caesarean section was

**How to cite this article:** Vyas V, Shukla D, Patil S, Mohite S. Caesarean section in a case of systemic lupus erythematosus. Indian J Anaesth 2014;58:193-5.

planned at term. Injection LMWH was withheld 24 h prior to surgery. Preoperative investigations revealed a normal BT, CT, APTT and PT, INR.

Patient was shifted to the operation theatre. In view of normal coagulation profile, regional anaesthesia was planned. 18G iv line was secured and patient was preloaded with 500 ml of Ringer lactate. Vital monitoring was carried out through oxygen saturation ($SpO_2$), heart rate, non-invasive blood pressure and ECG and Foleys catheter was placed to measure hourly urine output. Subarachnoid neuraxial block was performed using 2 ml of 0.5% Bupivacaine (heavy) in lateral position with 25G Quincke needle under aseptic precautions. Blockade was achieved at T6 dermatome level. Baby cried immediately after birth with normal APGAR score and no signs of neonatal lupus. Inj. oxytocin 20IU in 500 ml DNS was started. The surgery was uneventful with minimal blood loss. After full recovery patient was shifted to the ward and LMWH injections were restarted after 24 h.

## DISCUSSION

The peak incidence of SLE occurs between the ages of 15 and 40 years, with an estimated female-to-male incidence of 9:1.[3] It is characterized by autoantibody production and a dysfunctional immune system resulting in organ inflammation and consequent damage. A positive antinuclear antibody test is the characteristic laboratory test used to help diagnose lupus.[4]

These antigens are essential to cell function with a role in transcription, translation, and cell cycle regulation.[5] Antinuclear antibodies in infertility may be associated with implantation failure secondary to an endometriosis induced autoimmune reaction.[6] Pregnancy outcome is influenced by placental dysfunction, the presence of antiphospholipid antibodies, preconceptional lupus activity, the severity of renal involvement, and the onset of SLE during pregnancy.[7]

SLE may be associated with secondary APS (antiphospholipid syndrome)[8] which is a multisystem disorder characterized by recurrent systemic arterial and venous thrombosis, recurrent abortion, thrombocytopenia and neurological disorders. Clotting factors are also affected but tests such as partial thromboplastin time can be falsely elevated because the lupus antibodies react with phospholipids used to determine PTT. A more serious and rarer complication is the reaction of antibodies with factors VIII, IX, XII which leads to bleeding. Complete coagulation profile (BT, CT, PT, APTT) and prophylactic precautions against DVT are indicated.

SLE in pregnancy, due to above factors, may present with neonatal losses, cervicitis and infertility as in our case. The risks for other serious complications, such as pre-eclampsia, hypertension, bleeding and serious infections, are also raised two-fold to eight-fold.[9] The foetal complications are higher rates of foetal loss, preterm birth, intra-uterine growth restriction (IUGR), and neonatal lupus syndromes (NLS). Maternal antibodies cross the placenta and lead to foetal manifestations.

Musculoskeletal manifestations and mucocutaneous symptoms occur frequently. Respiratory complications include restrictive lung disease, myopathy affecting diaphragm or chest wall muscles and interstitial infiltration secondary to treatment with cyclophosphamide and azathioprine which may potentiate need for post-operative mechanical ventilation. Thus, chest X-ray and pulmonary function test need to be obtained. Cardiac lesions include pericarditis, myocarditis which may lead to CHF and cardiac valvular lesions (Libman-Sachs endocarditis) that are usually asymptomatic. So, ECG and echocardiogram should be done. Prophylactic antibiotic is indicated for labour and delivery as they are prone for infections. Nephritis is a known complication of SLE and is a strong predictor of poor outcome.[10] Hypertension, proteinuria and nephrotic syndrome often accompany lupus nephritis. Urine analysis, BUN, serum creatinine, electrolytes and blood sugar should be performed. Neurologic complications like peripheral neuropathy, cranial nerve palsies, psychosis, intracranial bleeding may be due to vasculitis or due to steroid therapy.

Treatment of patients with antiphospholipid antibody-associated recurrent pregnancy loss with heparin and low-dose aspirin have been shown to improve live birth rates,[11] while patients with positive antinuclear antibodies failed to show any improvement in implantation and pregnancy rates[12] but not proven yet and further studies going on. So, in our case LMWH was started to improve foetal outcome and it proved to be effective. Heparin potentiates the antithrombotic effects of antithrombin III, increases levels of factor Xa inhibitor, inhibits platelet aggregation and binds to the antibodies rendering them inactive, thus improving the pregnancy outcome.[11,13] This therapy is withheld

at the time of delivery to reduce blood loss and restarted after delivery and should be continued for as long as 6 weeks postpartum.[14]

Anaesthetic management of pregnant patients with SLE depends on the multisystem nature of the disease, the severity of the organ involvement and adverse effects of drugs used in treatment. Preoperatively, two units of compatible blood need to be reserved because cross-matching problems can arise due to irregular antibodies in serum. Patients on long-term corticosteroid therapy require steroid coverage. In our case, LMWH was withheld 24 h prior to surgery. There were no signs of clinical bleeding, petechial haemorrhages and the coagulation profile was normal. The patient was in remission stage of the disease. Considering the above facts, we administered regional anaesthesia in this case.

Cases are reported where successful administration of neuraxial blockade in lupus patients had been carried out provided there are no bleeding manifestations and platelet count >50,000 for spinal and >1,00,000 for epidural anaesthesia (14) Postoperatively, optimal analgesia for early mobilization should be advocated. Close monitoring for both bleeding and thromboembolic complications is required. Adequate measures should be taken to keep the patient warm.

If general anaesthesia is indicated for maternal or foetal reasons, a rapid sequence induction with cricoid pressure should be done and intubation response should be attenuated in patients having PIH. Finally, the delivery should take place in a facility that is prepared to take care of the infant should it be affected with neonatal SLE.

## CONCLUSION

Advancing technology and better understanding of the maternal-foetal dyad in lupus have improved outcomes in lupus pregnancies over the last 40 years. Consequently, the obstetric anaesthetist is likely to encounter pregnant lupus patients with increasing frequency. Anaesthetic management of lupus patients can be of any type taking into account the multisystem nature of the disease, the severity of the organ involvement and the drugs used in treatment. SLE requires a multidisciplinary approach for its diagnosis and successful management.

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**Source of Support:** Nil. **Conflict of Interest:** None declared