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Case Report

Lepromatous leprosy in primigravida with early onset pre-eclampsia in third trimester: a rare case report

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ABSTRACT

Leprosy also called as Hansen's disease, one of the oldest infectious diseases in the world. It is a chronic condition that mostly affects the skin, mucous membranes, and peripheral nerves. Although leprosy is infrequently observed during pregnancy but when it occurs, can worsen and in the absence of treatment cause irreversible damage to the skin, limbs, nerves, and other organs. It is therefore necessary to have vigil eye for early diagnosis, management and treatment of leprosy during pregnancy for best maternal and fetal outcomes. We report a rarest in fact seen first time in 38 years of clinical practice, a primigravida 29-weeks pregnancy, early onset preeclampsia with lepromatous leprosy came to emergency with chief complaints of multiple erythematous papules arising all over the body mainly limbs and abdomen associated with intense pain. A diagnosis of lepromatous leprosy was made on the basis of biopsy report. Patient was treated with multidrug therapy (MDT) as per national leprosy elimination program (NLEP) successfully and delivered a healthy baby boy without any adverse maternal and perinatal outcomes. The infant growth following delivery was normal during follow up period till one year. Multidrug therapy consisting of dapsone, rifampicin and clofazimine is highly effective treatment for leprosy and considered safe for both mother and child hence treatment should be continued unchanged during pregnancy.

Keywords: Leprosy, Preeclampsia, MDT, Papule, NLEP

INTRODUCTION

Leprosy is a chronic disease caused by infection of bacteria named *Mycobacterium leprae*. If left untreated the condition affects the skin and nerves most commonly, can result in irreversible damage. With proper early diagnosis and care impairment can be prevented and it is treatable. The World Health Organization (WHO) recommends first line drugs using clofazimine, rifampicin, and dapsone as part of a multidrug treatment.[1] Because cellular immunity is lowered relative to other states in pregnancy, *Mycobacterium leprae* is able to multiply. Immediate nerve damage can be avoided with careful handling. Pregnant women with compromised immune systems are more susceptible to lepromatous leprosy and treatment-related relapses.[2] In general, infants are less affected than mothers. However, the mother's antimicrobial medication regimen must be chosen to guarantee sufficient bacterial control while preventing teratogenicity and unfavourable in-utero outcomes, including low birthweight, preterm birth and exfoliative dermatitis. If the mother has not undergone treatment, there is a significant chance that the infant will get leprosy from her through skin-to-skin contact or droplet transmission.[3] As to the WHO definition of elimination less than one case per thousand people at the national level, India succeeded in eliminating leprosy in 2005. In an effort to stop leprosy from spreading by 2027, the Indian government announced the leprosy roadmap (2023–2027) along with national strategic plan in January 2023. Following the attainment of national elimination status, the NLEP has implemented several measures to promote early detection of leprosy in order to prevent severe disabilities and to guarantee free treatment for leprosy patients. Leprosy instances have decreased in 2021–22 as compared to 2014–15, which accounts for 53.6% of all new leprosy cases worldwide, as a result of

different interventions implemented under the NLEP in the past few years.[4]

CASE REPORT

A 32-year-old unbooked primigravida with period of gestation 29 weeks, Hindu, homemaker, educated till 8th standard, came to the emergency department of tertiary care hospital with the chief complaint of multiple papules arising all over the body since 15 days which were primarily located on arms, forearms, legs, and abdomen. It was also associated with intense pain. There was history of taking medicine from some local hospital but the eruptions didn't subside. The patient was perceiving fetal movements well. She was married for 9 years, initiated treatment for infertility seven years back however no documentation available. Her last menstrual period was 27 April 2023 with the period of gestation 29 weeks 3 days making her estimated delivery date 04 February 2024. Patient had a history of folic acid intake in her first trimester. She started perceiving fetal movements in 5th month of pregnancy. Second trimester was uneventful with regular intake of iron and calcium. There was history of high blood pressure records on and off along with headache on and off in her early third trimester but no complaints of blurring of vision and epigastric pain. She was taking erratic medications for the same. Patient also complained of multiple-coloured elevated lesions in the abdomen, upper and lower limb for 15 days, which was associated with severe pain and intense itching. On examination, her pulse was 86 bpm and blood pressure (BP) of 150/100, pallor ++ and massive bilateral pedal edema. On local examination multiple erythematous lesion on whole abdomen, arms, forearms and legs were present some of which were necrosed. On per abdomen examination, the uterus corresponds to 28 to 30-weeks size, relaxed, FHS present regularly. On per speculum examination, Os was closed and no discharge was seen. Laboratory investigation revealed: blood group-A+, hemogram-Hb 9 gm%, platelet (plt)-110/cumm, renal function test (RFT) and liver function test (LFT) were within normal limits, lactate dehydrogenase (LDH) – 482 U/l (increased), 24 hour urinary proteins were 410 mg/dl, urine routine reveals proteins++, viral marker and VDRL were normal.

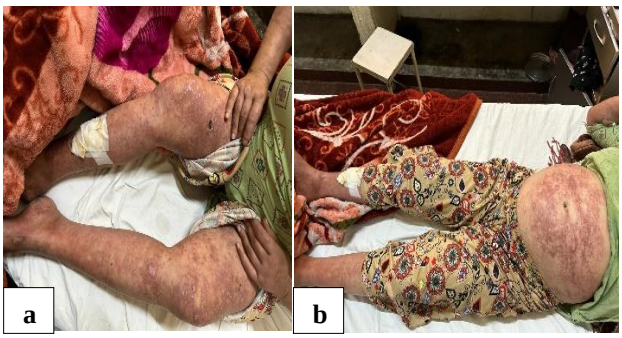

Figure 1 (a and b): Multiple erythematous papules on limbs and abdomen.

Ultrasound for fetal well-being findings showed single live intra-uterine pregnancy of gestational age 30 weeks 4 days, cephalic presentation with estimated fetal weight 1.5 kg with AFI 8 (borderline) with altered uterine artery doppler parameters. A provisional diagnosis of primigravida 29 weeks 3-day, early onset preeclampsia with severe features, borderline oligohydroamnios with anemia and pruritic urticarial papules and plaques of pregnancy was made. Patient was admitted, antihypertensive tablet labetalol 100 mg 8 hourly, tablet iron 100 mg twice daily and high dose calcium initiated. Intramuscular corticosteroids for fetal lung maturity was given. Dermatology opinion was taken and treatment started with injection prednisolone 20 mg once daily basis but her symptoms didn't subside. On revised dermatologist opinion, a punch biopsy from the forearm lesion consisting of 0.5×0.4×0.3 cm was taken, histopathological examination revealed positive ZN staining for *Lepra bacilli* favoring leprosy. MDT regimen consisting of rifampicin, clofazimine, and dapsone was initiated. Her fetal well being monitored with gravidogram and biophysical profile. She remarkably improved after treatment; lesions subsided. Patient was discharged after 7 days continuing MDT and followed up weekly. At 36-week period of gestation she was readmitted in labor. She delivered a healthy male baby weighing 2.67 kg with APGAR score of 7 and 9 at one and five minutes without any maternal and perinatal complications. She was discharged on postpartum day four with an advice to continue antileprosy treatment along with routine postnatal advice.

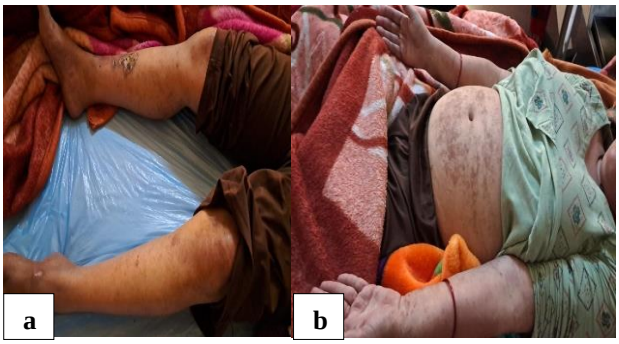

Figure 2 (a and b): Lesions resolved after multi drug therapy (MDT) leprosy treatment.

DISCUSSION

Type 1/reversal reactions occur particularly post-delivery period. Type 2 reactions/erythema nodosum leprosum can occur anytime during pregnancy or lactation usually recurrent and severe. No The complications of multidrug therapy treatment in pregnancy are not found in any controlled or prospective study. The theory behind effect of pregnancy on leprosy there is a relative suppression of T-cell activity during pregnancy, thus pregnant women are more susceptible to developing leprosy as in our case.[5] In a study showing new case detection of leprosy in pregnancy Duncan et al examined Ethiopian women living

in villages around the Addis Leprosy Hospital in Ethiopia who had attended the leprosy hospital's antenatal clinics.[5] Out of 33 healthy women one developed biopsy-indeterminate leprosy during pregnancy which was biopsy proven. Duncan et al compare this rate of 3% with the reported new case rate of 0.1% in the villages surrounding the leprosy hospital.[6] Increased disease activity during pregnancy can be due to either disease progression or immunological complications. Our study was the first case reported of leprosy in pregnancy in thirty-eight years of clinical practice. Both Tajiri and King and Marks reported so-called aggravation of leprosy during pregnancy. Tajiri noted 48 cases of aggravation in 100 pregnancies.[7] King and Marks in their study of lepromatous cases found that in 78% of pregnancies there was aggravation of disease when the patient was untreated, while it was aggravated in only 22% of pregnancies when the patient was on treatment with sulfones.[8] Early diagnosis and prompt treatment of leprosy during pregnancy can help in prevention of adverse maternal and fetal outcome as in our case and pave the journey to safe motherhood. We were also able to diagnose and initiate treatment well in time hence able to prevent adverse fetomaternal consequences.

CONCLUSION

Leprosy remains a rare disease in pregnancy can cause damage to the skin and nerves permanently if untreated. Hence all case with eruptions in pregnancy not responding to treatment, a dermatology opinion followed by biopsy is mandatory for routine management. The situation of leprosy has significantly changed globally over the last five decades after introducing MDT but further strategies should be adopted including acceleration of new case detection by targeted approach, stronger surveillance systems, the introduction of advanced tools and techniques for early diagnosis, digitalization and providing the most effective chemoprophylaxis to all contacts of cases.It is also necessary to introduce an effective and safe vaccine and monitor anti-microbial resistance cases and adverse drug reactions if any. There is also a need of keeping data recordings of treated cases and providing care after cure, improved treatment outcomes anticipated by introducing new treatment regimens and awareness among the masses about Leprosy and its curability with impactful communication methods.

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