

## The outcome of leprosy associated asthma in pregnancy: a case report



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### ABSTRACT

**Introduction:** Asthma bronchial is a disease characterized by increased sensitivity of the tracheobronchial tree to various stimuli. During an asthma attack, there will be bronchospasm, mucosal swelling, and increased secretions in the airway. The incidence of asthma in pregnancy in Indonesia is around 3.7- 4%, most commonly occurring at 24 to 36 weeks of gestation. The effect of asthma on the mother and fetus depends on the frequency and severity of asthma attacks because it can cause effects in the form of hypoxia. The state of hypoxia affects the fetus in the form of abortion, premature delivery, and fetal weight that is not in accordance with gestational age. Symptoms that can be felt are shortness of breath, cough, wheezing and can be accompanied by chest pain.

**Case description:** A 35-year-old woman came with complaints of heartburn for 2 hours before admission to the hospital, the patient denied amniotic fluid flow, blood was found to come out. Fetal movements felt active. The patient claimed to be 9 months pregnant with LMP on 27 December 2021, and EDD on 27 September 2022, with a gestational age of 39-40 weeks. ANC to the obstetrician was 3 times and the midwife was 5 times. No complaints of vaginal discharge, bowel and bladder within normal limits. The patient also had a history of asthma when she was 8 months pregnant, with complaints of shortness of breath, easily fatigued and coughing, the patient denied chest pain. Wheezing was also claimed sometimes. The patient had been treated by a pulmonologist, given 3 drugs to take if shortness of breath occurred. The patient complained of painless lesions on the hands, trunk and feet. This complaint has been felt since 3 months ago. There is no thickening of the nerves or numbness in the joints. The patient was diagnosed at the regional hospital with Morbus Hansen and is currently on treatment.

**Conclusion:** Asthma in pregnancy will cause hypoxia to the fetus which affects the development of the fetus, therefore prompt and appropriate management will reduce the risk to the mother and fetus. Outcome infants showed no sign of Morbus Hansen infection.

**Keywords:** Pregnancy, asthma, asthma management, leprosy.

**Cite This Article:** Roziana., Nora, H., Indirayani, I., Maharani, C.R., Sujudi, A. 2023. The outcome of leprosy associated asthma in pregnancy: a case report. *Bali Medical Journal* 12(2): 1387-1389. DOI: 10.15562/bmj.v12i2.4081

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Received: 2023-01-04

Accepted: 2023-03-15

Published: 2023-04-29

### INTRODUCTION

Asthma is a chronic airways inflammation associated with hyper-responsiveness involving many cells and cellular elements, causing episodic symptoms such as shortness of breath, coughing and wheezing.<sup>1,2</sup> Uncontrolled asthma in pregnant women can increase the risk of premature birth or babies born with low birth weight. Therefore, pregnant women are advised to keep their asthma under control, by avoiding asthma triggers.<sup>1,3</sup>

Morbus Hansen is an infectious disease that manifests in the skin, nerves and mucous membranes. This disease is caused by the bacterium *Mycobacterium leprae* (*M. leprae*) which is transmitted by droplets. Pregnant women with leprosy cannot transmit it to the fetus inside their womb and are also not transmitted through sexual intercourse.<sup>4</sup>

### CASE DESCRIPTION

A 35-year-old woman, from Aceh, came to the emergency room (ER) of the Zainal Abidin Regional General Hospital, with complaints of contraction since 2 hours before she was admitted to the hospital, denied amniotic fluid, blood mucus was found. Fetal movements are felt active. The patient claimed to be 9 months pregnant with the last menstrual period (LMP) on 27th December 2021, and estimated delivery date (EDD) on 27<sup>th</sup> September 2022, with a gestational age of 39-40 weeks. History check with the Obygn Specialist 3 times and to the midwife 5 times. No complaints of vaginal discharge, bowel and bladder within normal limits. The patient also had a history of asthma when she was 8 months pregnant, with complaints of shortness of breath at night,

easy fatigue and coughing. She denied complaints of chest pain, sometimes wheezing is felt over sleep. The patient has been treated to a Pulmonologist and was given a salbutamol inhaler which is used when shortness of breath occurs. The patient also complained of a painless skin disease in the area of the hands and feet, as shown in [Figure 1](#). This complaint has been felt since 3 months ago. There is no thickening of the nerves or numbness in the joints. The patient was diagnosed at the Regional Hospital with Morbus Hansen and was on treatment with multi-drug therapy (MDT) for 3 months.

In this case, the baby girl was born as shown in [Figure 2](#), with a birth weight of 3250 grams, body length 49 cm, APGAR score 8/9. No sign of any congenital abnormalities.



**Figure 1.** Skin lesion of Morbus Hansen.



**Figure 2.** Baby outcome.

## DISCUSSION

The patient was diagnosed with asthma from the Regional Hospital which had been present since 32 weeks of gestation. This can be exacerbated physiologically and anatomically in the form of an enlarged uterus. With increasing uterine and abdominal pressure, the diaphragm may rise by 4-5 cm, the subcostal angle increases by 50% from beginning to end of pregnancy, and the transverse and anteroposterior diameters of the thorax are increased. During pregnancy, to meet the metabolic demands of the mother and fetus, a series of important changes occur in hormone levels, including marked increases in progesterone, estrogen, cortisol, and prostaglandins, all of which have different effects on the course of asthma. Progesterone is a respiratory dynamics stimulant, which can increase the sensitivity of the respiratory center to carbon dioxide, while estrogen can increase the sensitivity of progesterone receptors in the respiratory center and together participate in changes in respiratory function.<sup>5</sup>

Previously, the patient had used corticosteroids in the management of their asthma. According to research, inhaled corticosteroid therapy in pregnant women with asthma did not have a negative impact on the outcome of fetal birth weight and changes in placental function. However, improvement and controlled asthma in the mother during pregnancy can contribute to a healthy fetus.<sup>6</sup>

This mother also suffers from Morbus Hansen disease with symptoms of painless lesions on the arms and legs, but no motor deficits or thickening of the nerves. The highest prevalence of leprosy is in low socioeconomic groups and dense populations. Patients with low economics are potentially affected by leprosy. Throughout her pregnancy, she received medication and serial ultrasounds which showed consistent fetal growth with no complications to the fetus. In this case, no side effects of the disease or its treatment were found on the mother or fetus.<sup>4,7</sup>

Based on reports, very few fetal complications from pregnant women who suffer from leprosy. Treatment of leprosy should be avoided during pregnancy,

but the benefits of treating leprosy during pregnancy have an effect that outweighs the risks posed by the drug. The recommended drug is standard MDT, which can be given in the form of dapson, rifampin, clofazimine, corticosteroids, and non-steroid anti-inflammatory drugs (NSAIDs) for Morbus Hansen reaction. While drugs that should be avoided are quinolones, minocycline, and thalidomide.<sup>8,9</sup>

Leprosy can be severe during pregnancy; without treatment, it can permanently damage the skin, nerves, eyes and limbs. The drug used is rifampin, which can cross the placenta, but based on 300 case reports, the use of rifampin during pregnancy does not increase the risk of congenital disabilities. Dapsone has been used to treat leprosy during pregnancy, although WHO considers dapsone during breastfeeding because it can pass into breast milk, therefore, it should be decided on an individual basis to limit breastfeeding the baby.<sup>4</sup> Clofazimine can cross the placenta and cause changes in the skin color of the fetus. However, in the 20 cases studied, no congenital malformations resulted, and all infants were normal except for three unexplained neonatal deaths for unknown reasons.<sup>7</sup>

## CONCLUSION

The effect of asthma on the mother and fetus is highly dependent on the frequency and severity of asthma attacks. The more severe the asthma attack experienced by pregnant women, the greater the risk of hypoxia to the mother and fetus. Morbus Hansen suffered by pregnant women, does not transmit the disease to the fetus and multi drugs taken by the mother to cure Morbus Hansen are considered safe, both for mother and child.

## FUNDING

No external funding sources.

## CONFLICT OF INTEREST

None.

## AUTHOR CONTRIBUTION

All authors had contributed in manuscript writing and agreed for the final version of the manuscript for publication.

## ETHICAL CONSIDERATION

Patients had received signed written informed consent regarding publication of their medical data in medical journal with confidentiality to personal information.

## REFERENCES

1. Fitriana A E, Fajar Apsari RK, Uyun Y. Anesthetic Management of Pregnant Women with Eclampsia and Severe Acute Asthma Undergoing Cesarean Section. *J Anestesi Obstet Indones.* 2020;2(2):86–92.
2. Damayanti T, Pudyastuti S. Asthma in Pregnancy: Mechanism and Clinical Implication. *J Respirologi Indones.* 2020;40(4):251–61.
3. Suprptomoto RTH. Anesthesia Management in Cesarean Section with Asthma Attacks. *J Anestesi Obstet Indones.* 2022;5(1):1-8.
4. Bhatia R. Leprosy in Pregnancy: Obstetric Diligence is the Key. *J Clin Diagnostic Res.* 2017;4(4):1-8.
5. Wang H, Li N, Huang H. Asthma in Pregnancy: Pathophysiology, Diagnosis, Whole-Course Management, and Medication Safety. *Can Respir J.* 2020;2020:9046842.
6. Grosso A, Locatelli F, Gini E, Albicini F, Tirelli C, Cerveri I, et al. The course of asthma during pregnancy in a recent, multicase-control study on respiratory health. *Allergy Asthma Clin Immunol.* 2018;14:16-21.
7. Ozturk Z, Tatliparmak A. Leprosy treatment during pregnancy and breastfeeding: A case report and brief review of literature. *Dermatol Ther.* 2016;30(1):e12414.
8. Widasmara D, Basuki S, Florensia D, Setyagraha A, Prasetyorini N. Effectiveness of multi drug therapy on transplacental Hansen morbus transmission. *Intisari Sains Medis.* 2020;11(2):425–8.
9. Darus NIM, Lubis RD, Jusuf NK. Analysis of Serum Vitamin D Level in Leprosy Patients. *Bali Medical Journal.* 2019;8(3):795-799.



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