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Address for Correspondence:Editorial Room Andalas Obstetrics and Gynecology Journal, 3rd floor of KSM of Obstetrics and Gynecology, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127**Website:**<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>**CASE REPORT****Pulmonary TB in Pregnancy**Efriza Naldi¹, Nurmala Sari Dewi²

Affiliation author : 1. KH. Daud Arif District Hospital, West Tanjung Jabung, Jambi, Indonesia; 2. Obstetrics and Gynecology Department, Dr Adnaan WD District Hospital, Payakumbuh, West Sumatera, Indonesia

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Abstract

Objective : To report a case of pulmonary TB in pregnancy

Method : A case report

Case : Presented a case of cpulmonar TB in pregnancy on 33-year-old patient. This is fifth pregnancy with twice history of abortion, malnutrition and pulmonary TB (in treatment). The result of chest x-rays was pulmonary TB. The patient was on treatment for anti-tuberculosis drugs for second month. Patient had BMI was 16,88 kg/m² which is underweight category. There were bronchovesicular and ronchi from both side of lung from auscultation examination. From laboratory findings there was decrease of albumin serum levels to 2,1 gr%. From ultrasound got impression 16-17 weeks of pregnancy. Patient got anti tuberculosis drugs treatment category I incentive phase (2HRZE). During hospitalization treatment, patient was given some nutrition consultation and high calories and high protein diet and also extra 3 egg whites per day. Total calories are 2250 kcal. Patient also got 1 infuse bottle of albumin and albumin supplementation.

Discussion : . The incidence of TB in pregnancy was 1/10,000 pregnancies. .. Provision of an appropriate and adequate chemotherapy regimen will improve the quality of life of the mother, reduce the side effects of anti-tuberculosis drugs (OAT) on the fetus and prevent infection in newborns. Patient got anti tuberculosis drugs treatment category I incentive phase (2HRZE) which is no difference therapy with no-pregnant patient. Patient was not given pyridoxine as adjuvant drugs along with the anti- tuberculosis drugs. Pyridoxine supplementation must be given with the dose of 50 mg/day and is suggested for every pregnant woman who consumes isoniazid because the deficiency often happens in pregnancy than general population.

Conclusion The diagnosis of this patient was correct based on anamnesis, physical examination, and supporting test . Active TB treatment in pregnancy doesn't have any difference with non-pregnant. The management of this patient is not correct because the patient didn't get pyridoxine supplementation, didn't undergo sputum test in second month, and wasn't done culture M. Tuberculosis as a gold standard.

Keywords: tuberculosis, pulmonary TB, pregnancy, anti tuberculosis drugs, pyridoxine

INTRODUCTION

Tuberculosis is an infectious disease caused by the bacillus of *Microbacterium tuberculosis* which is one of the lower respiratory tract diseases, which most of the tuberculosis bacilli enter



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the lung tissue through airborne infection.¹ Tuberculosis (TB) is an infectious disease that remains a health problem in the world today. In the worsening situation of TB in the world with the increasing number of TB cases and TB patients who have not been successfully cured, especially in the 22 countries with the highest burden of TB, the World Health Organization (WHO) reported in the 2011 Global Tuberculosis Report about the declining case finding rates and mortality from TB in the last two decades. The global incidence of TB is reported to decline at rate of 2.2% in 2010 - 2011. Despite this significant progress, the global burden of TB is still large. It is estimated that in 2011 the incidence of TB cases reached 8.7 million (including 1.1 million with HIV coinfection) and 990 thousand people died from TB. Globally it is estimated that the incidence of drug-resistant TB is 3.7% of new cases and 20% of cases with a history of treatment. About 95% of TB cases and 98% of deaths from TB in the world occur in developing countries.² According to the WHO Global Tuberculosis Report 2016, Indonesia ranks second with the highest TB burden in the world. The trend of TB case incidents in Indonesia has never declined, there are still many cases not yet reached and detected. West Sumatra also has high TB cases and deaths. In 2014, West Sumatra was ranked ninth of 34 provinces in Indonesia in finding the highest number of TB cases. The number of case discoveries in West Sumatra in 2014 was 132 per 100,000 population or around 6,843 cases and 69% of these were positive smear pulmonary tuberculosis. While the number of deaths from tuberculosis in West Sumatra in 2014 was 3.56 per 100,000 population or around 0.5 people per day. In Payakumbuh itself, there was 205 people who have found with positive pulmonary TB in 2015, while the rate of discovery and treatment of positive smear was 100 people (48.8%).^{3,4,5}

Tuberculosis still becomes health problem throughout the world, as does tuberculosis in pregnancy. The incidence of TB in pregnancy was 1/10,000 pregnancies. The study from 1985 to 1990 in New York showed that the incidence of TB in pregnancy was 12 cases per 100,000 births and in 1991-1992 the incidence increased to 95 cases per 100,000 births. Research in London in 1997-2001, showed 32 pregnant women suffer from TB, with an incidence of 252/100,000 births. Fifty-three percent were diagnosed as extrapulmonary TB, 38% pulmonary TB and 9% extra and intrapulmonary TB.⁶

TB in pregnancy has clinical symptoms similar to non-pregnant female TB. The diagnosis may be made late because the initial symptoms are not typical. Complaints often found are cough, fever, malaise, weight loss and hemoptysis. Investigation in this case is the tuberculin test followed by chest radiograph which is the recommended examination in the high-risk TB group. Another contributing factor is the provision of appropriate therapeutic regimens. The risks faced by mothers and fetuses are greater if they do not get TB treatment compared to the risk of the treatment itself. Provision of an appropriate and adequate chemotherapy regimen



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will improve the quality of life of the mother, reduce the side effects of anti-tuberculosis drugs (OAT) on the fetus and prevent infection in newborns.⁶

CASE REPORT

A 33-year-old woman was consulted to the Department of Obstetrics and Gynecology from the Lung Treatment Room at Adnaan WD Payakumbuh Hospital on February 16, 2019 at 10:00 am with diagnosis of pulmonary TB (in treatment) + G5P2A2L2 16-17 weeks of pregnancy + malnutrition. Shortness of breath since 2 weeks ago, getting worse since 1 day before entering the hospital, until the patient can not do activity and sleep with 2 pieces of pillows, not shrinking. Shortness of breath for the first time, no same previous history. Coughing since 3 months ago, sometimes phlegm, greenish white phlegm and felt every day, there is no history of bleeding cough. The patient is on treatment for Anti-Tuberculosis Medication for the second month. 4 months ago the patient complained of fever for 2 weeks, not too high, especially at night, the fever dropped if taking antipyretic medication but then the temperature increased again, already treated but no improvement. Initially patients were treated at a hospital in Bukittinggi and planned to be examined for phlegm, but because phlegm cannot come out it cannot be examined. Then the patient moved to a private hospital, consulted the Pulmonologist and performed X-rays, obtained the results of pulmonary TB, then the patient was given treatment for Anti-Tuberculosis medication which was taken 2 tablets every day, and now has entered the second month. Obstetric History; (1) 2009 / Girl / 3000 gram/ Doctor / Normal, (2) 2011/ Miscarriage / Curettage / State Hospital, (3) 2012/ Girl / 3000 gram/ Doctor / Normal, (4) 2015/ Miscarriage and (5) Current pregnancy

Physical Examination was found respiratory rate 30x/m, and other vital sign was normal. Biometri status height : 150 cm, weight : 38 kg, Upper arm circumference : 19 cm, BMI : 16,88 kg/m² (underweight). Chest examination found auscultation : Bronchovesicular (+/+), Rhonchi (+/+). Obstetric Record abdomen looks slightly bulge according to 4 months gestation Striae gravidarum (+), cicatrix (-). Palpation: fundal uterine is palpable between the umbilical and the pubic symphysis, Ballotement (+). Genitalia were normal.

Laboratorium Examination found albumin decrease to 2,1 gr%. Other laboratory result was normal. On Ultrasound impression: 16-17 weeks of pregnancy. MTB-Rif Assay Result: MTB detected medium, Rif Resistance not detected. So, the patient was assessed: Dyspneu et causa Lung TB in the intensive phase treatment of Anti- Tuberculosis on G5P2A2L2 16-17 weeks of pregnancy + Anemia + Underweight + Hypoalbuminemia.

This case plan for general condition improvement. The patient was referred to the Pulmonologist with therapy: IVFD RL 26 drops / minute, O₂ 4 liters / minute, Cetirizine 1x1, Zinnat 2x500 mg, Azithromicin 1x500 mg, Folic Acid 2x1, Sulfate Ferosus 2x1, Anti-



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tuberculosis drugs are continued and Orbumin 2x1. The patient repeat for chest x-ray, impressed: Lung TB duplex. Patient care in for 10 days with shortness of breath relieved, so the patient plan: Patients may go home, control back to the Pulmonology Clinic on February 26th, 2019.

DISCUSSION

This case report discussed about a 33-year-old woman who was referred to obstetric and gynecology department from Lung Care Chamber Adnaan WD Payakumbuh Public Hospital on 16 February 2019 at 10.00 o'clock WIB assessed with pulmonary TB (under treatment) + G5P2A2H2 16-17 weeks of gestation + malnutrition.

According to the anamnesis, patient is a multiparous woman and 4 months pregnant while examined. She had chief complaint with short of breath, which is more severe from time to time. She also had cough since 3 months ago, sometimes with sputum, greenish white sputum, but history of blood sputum was declined. Patient had up and down fever for about 2 weeks, decrease in weight from 45 kg to 36 kg in 2 months, and decreased appetite.

Physical examination showed underweight BMI 16,88 kg/m², respiratory rate 30x/minute and thorax examination found broncho-vesicular sound (+/+), rough wet rales (+/+), wheezing (-/-). Abdominal examination found the fundus of uterine with the height of half between umbilicus and symphysis pubis, ballottement (+) and fetal heart rate 125-135 times/minute. Sputum test can't be done because the sputum was hard to spit out. Chest x-ray showed an active duplex tuberculosis.

Patient was diagnosed with pulmonary tuberculosis using chest x-ray which is unsafe for pregnant woman. Pregnancy woman with signs and symptoms of suggestive pulmonary TB, tuberculin skin test must be done. Because it is safe for pregnancy. But, the controversy among them is about the sensitivity of tuberculin in pregnancy, whereas some new studies showed that they didn't find any differences between pregnant and non-pregnant population.

Patient was done a TCM TB examination which confirms the diagnosis and wasn't found any resistance with Rifampicin. According to the anamnesis, physical examination, and supporting examination, the diagnosis of the patient is true.

Patient got anti tuberculosis drugs treatment category I incentive phase (2HRZE). Active TB treatment in pregnancy doesn't have any difference with non-pregnant. Isoniazid, rifampicin, pyrazinamide, and ethambutol are the drugs we used. As showed in antituberculosis drugs algorithm, in pulmonary tuberculosis new case is given the antituberculosis drugs category I. in this patient, Pyridoxin was not given.



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Isoniazid is recommended to be given to pregnant woman (pregnancy category A). Isoniazid can be associated with higher risk of hepatotoxicity in pregnant woman. Therefore, the clinician must assess the symptoms, and should test the liver function every two weeks for the first two months of treatment, and every month after it. In this patient, the liver function test wasn't done.

During hospitalization treatment, patient was given some nutrition consultation and high calories and high protein diet and also extra 3 egg whites per day. Total calories are 2250 kcal. They gave food 5 times per day, with 3 times of main menus and 2 times of snacks. Patient also got 1 infuse bottle of albumin and albumin supplementation.

The management for the patient during hospitalization was not correct because we did not give pyridoxine as adjuvant drugs along with the anti-tuberculosis drugs. Pyridoxine supplementation must be given with the dose of 50 mg/day and is suggested for every pregnant woman who consumes isoniazid because the deficiency often happens in pregnancy than general population.

Patient also underwent some supporting test such as TCM TB which confirm the diagnosis and was not resistant to Rifampicin. Xpert assay could identify M. Tuberculosis and detect rifampicin resistance from sputum specimen which is collected in few hours. But the confirmation of drug resistance TB must use conventional culture as a gold standard, and in this patient was not done. The use of Xpert MTB/RIF can not rule out the need of culture test and drug resistance test conventionally which is important to enforce the definitive diagnosis of tuberculosis that showed negative result in sputum test and the drug resistance test is required to test other drugs beside rifampicin.

Patient was also got counseling by VCT (Voluntary Counseling and Testing) team for HIV examination. HIV test and counseling are recommended to all suspects and tuberculosis patients. This examination is one of important thing in routine management to all patients with high prevalence of HIV infection and patient with high risk exposure of HIV. Remember that there is a close correlation between tuberculosis and HIV infection in high risk HIV prevalence places, therefore it is require a good approach and should be integrated to both infection prevention and management.

Patient finished the anti-tuberculosis drugs category I incentive phase in second month, then was undergone a chest x-ray once again. The result showed pulmonary tuberculosis duplex and tuberculosis treatment was continued to one month of insertion phase. All patients must be observed to assess patient's response to therapy. Regular observation will facilitate complete treatment, identification and treatment of unwanted treatment response. Patients, drugs monitor and other clinicians should report symptoms of persistent or recurrent TB, symptoms of anti-tuberculosis drugs side effects or cessation of treatment. Patient's weight should be monitored



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every month and anti-tuberculosis drugs doses are adjusted to weight changes. Pulmonary tuberculosis treatment response was monitored with sputum test. All test and treatments must be recorded including the drugs given, bacteriology response, drug resistance and unwanted reaction for every patient in tuberculosis card. WHO recommend a sputum test at the end of incentive phase of treatment to patient who was given first line anti-tuberculosis drugs, either new case or recurrent case. Sputum test was done at the end of second month (2RHZE/4RH) for new case and at the end of the third month (2RHZE/1RHZE/5RHE) for recurrent TB. This recommendation also happens to patient with negative result of sputum test. Chest x ray is not necessary for monitoring treatment response.

Adjuvant sputum test (at the end of third month of insertion phase) is needed to new case TB patient with positive result of sputum test at the end of intensive phase. Culture test and drug resistance test should be done to new case TB patient with positive result of sputum test at the end of the third month. The main purpose is to detect drug resistance bacteria without waiting the fifth month to get correct therapy.

CONCLUSION

The diagnosis of this patient was correct based on anamnesis, physical examination, and supporting test, which is dyspnea et causa pulmonary tuberculosis under treatment of anti-tuberculosis drugs intensive phase in 17- 18 weeks of gestational age of G5P2A2L2 + anemia + underweight.

The management of this patient is not correct because the patient didn't get pyridoxine supplementation, didn't undergo sputum test in second month, and wasn't done culture M. Tuberculosis as a gold standard.

Monitoring treatment success was inaccurate because they were using Chest X-Ray rather than sputum test. At the end of second month still found duplex TB as the Chest X-Ray result. It is recommended that an examination of M.Tuberculosis culture be tested for drug resistance other than Rifampicin.

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