Pregnancy with Multidrug-Resistant Pulmonary Tuberculosis and Autoimmune Hemolytic Anemia Complicated by Intrauterine Growth Restriction: A Case Report

Putri Indah Permata,[1] Renny Aditya,[1] Ruth Widhiati Raharjo Putri,[1] Mohamad Isa,[2] Sigit Prasetia Kurniawan,[3] Ira Nurrasyidah[2]

[1]Department of Obstetrics and Gynecology, Ulin Regional General Hospital, Faculty of Medicine, Lambung Mangkurat University

[2]Department of Pulmonology, Ulin Regional General Hospital, Faculty of Medicine, Lambung Mangkurat University

[3]Department of Internal Medicine, Ulin Regional General Hospital, Faculty of Medicine, Lambung Mangkurat University

Correspondence: Putri Indah Permata, Email: putrindahp@gmail.com

Abstract

Introduction

Intrauterine growth restriction (IUGR) is a major obstetric complication often caused by maternal infections and anemia. We present a case of IUGR in a pregnant woman caused by multidrug-resistant tuberculosis (MDR-TB) and autoimmune hemolytic anemia (AIHA).

Case presentation

A 37-year-old G5P2A2 woman with confirmed MDR-TB and AIHA was treated with levofloxacin, clofazimine, cycloserine, ethambutol, bedaquiline, and methylprednisolone. Fetal biometry showed estimated fetal weight below the 10th percentile, with a significantly declining growth curve thereafter. After administration of fetal lung maturation at 33 – 34 weeks, she underwent an elective cesarean section at 35 – 36 weeks. A female infant weighing 1,840g was delivered. The treatment for MDR-TB and AIHA in the mother was continued afterward.

Conclusion

Pregnancies complicated by MDR-TB and AIHA require strict monitoring and individualized multidisciplinary treatment. Further research is needed to establish treatment strategies that improve maternal and fetal outcomes in similar cases.

Keywords: Autoimmune hemolytic anemia, intrauterine growth restriction, multidrug resistance, pregnancy, tuberculosis.

Kehamilan dengan Tuberkulosis Paru Resisten Obat Ganda dan Anemia Hemolitik Autoimun yang Diperberat oleh Pertumbuhan Janin Terhambat: Laporan Kasus

Abstrak

Pendahuluan:IUGR adalah komplikasi obstetrik yang dapat disebabkan infeksi dan anemia pada maternal. Pada kasus ini dipresentasikan kasus wanita hamil dengan IUGR yang disebabkan *multidrug resistant* TB (MDR-TB) dan *autoimmune hemolytic anemia* (AIHA).

Ilustrasi kasus: Ibu hamil 37 tahun G5P2A2 datang dengan TB-MDR dan AIHA. Pasien menjalani terapi TB-MDR dengan levofloksasin, klofazimin, sikloserin, etambutol, dan bedaquiline, serta metilprednisolon untuk AIHA. Pada fetal biometri ditemukan *estimated fetal weight* (EFW) di bawah 10 persentil dengan kurva pertumbuhan janin menurun signifikan setelahnya. Setelah dilakukan induksi pematangan paru janin pada usia kehamilan 33 - 34 minggu, operasi sesar elektif dilakukan pada usia kehamilan 35 – 36 minggu melahirkan bayi perempuan dengan berat janin 1840gram. Pengobatan TB-MDR dan AIHA pada ibu dilanjutkan setelahnya.

Kesimpulan: Kehamilan dengan TB dan AIHA memerlukan pemantauan ketat dan terapi multidisiplin yang terindividualisasi. Penelitian lebih lanjut diperlukan.

Kata kunci: Hemolitik anemia autoimun; kehamilan; pertumbuhan janin terhambat; resisten obat; tuberkulosis.

Indonesian Journal of Obstetrics & Gynecology Science is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (https://creativecommons.org/licenses/by-sa/4.0/)

Introduction

Intrauterine growth restriction (IUGR) is defined as the failure of a fetus to achieve its full genetically determined growth potential due to pathologic etiologies.[1] IUGR affects approximately 10–15% of pregnancies worldwide, and the etiology of IUGR is multifactorial, involving maternal, fetal, and placental factors.[2] Infections and anemia are among the maternal factors contributing to IUGR pathogenesis.

Tuberculosis (TB) is a serious concern in maternal health. TB infection in pregnancy is associated with adverse fetal outcomes, including IUGR.[3] A systematic review and meta-analysis of 10 studies found that the overall treatment success rate of MDR-TB was 72.5%, while the proportion of favorable pregnancy outcomes was 73.2%.[4] Multidrug-resistant TB (MDR-TB) treatment during pregnancy also requires special attention due to the lack of recommendations and guidelines.[5]

Autoimmune hemolytic anemia (AIHA) is a rare disorder in pregnancy, with a prevalence of 0.14%.[6] AIHA increases the risk of severe anemia, leading to higher maternal and fetal morbidity, including preterm birth and IUGR.[7,8] A study found that 38% of pregnancies complicated by AIHA resulting in IUGR are associated with high rates of maternal and neonatal complications, highlighting the importance of early diagnosis, multidisciplinary management, and delivery at a tertiary care center for optimal outcomes.[6]

The coexistence of MDR-TB and AIHA further complicates pregnancy, but standardized management guidelines are lacking. This case report explores their combined impact on fetal growth and highlights key management considerations.

Case presentation

A 37-year-old woman, G5P2A2, at 8–9 weeks of gestation, was referred from a primary healthcare center to the obstetrics clinic at Ulin Regional Hospital. She was diagnosed with MDR-TB via GeneXpert and started on all-oral regimen consisting of levofloxacin 750 mg, clofazimine 100 mg, cycloserine 500 mg, ethambutol 800 mg, bedaquiline 200 mg, and vitamin B6 50 mg. Laboratory tests revealed hemoglobin (Hb) of 7.0 g/dL and platelet count of 85,000/uL, with a positive direct Coombs test (4+), confirming AIHA. She was prescribed methylprednisolone 4 mg daily and continued regular follow-up at obstetrics, internal medicine, and pulmonology clinics. The

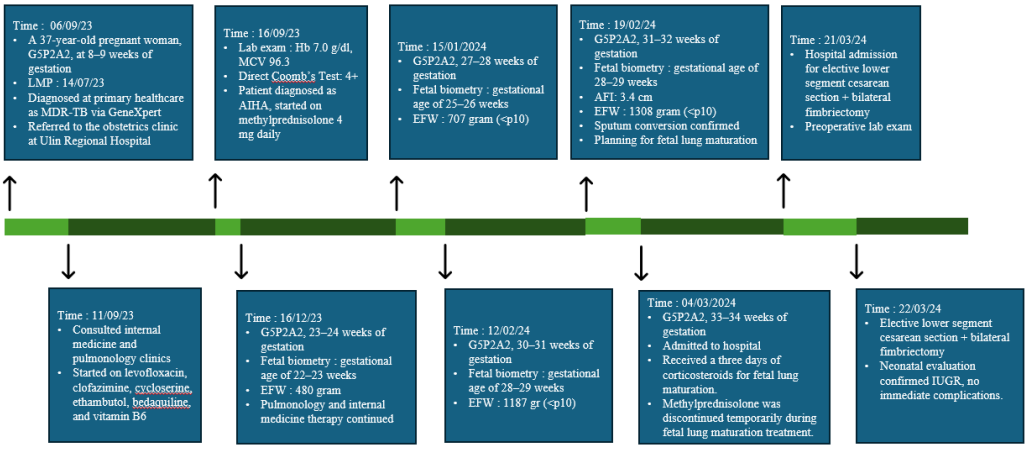


Figure 1 Patient's examination and chronology

patient's examination results and chronology are shown in Figure 1.

At 27–28 weeks, fetal biometry revealed an estimated fetal weight (EFW) below the 10th percentile. Serial ultrasounds showed a decline in fetal growth velocity (Figure 2). By 31–32 weeks, oligohydramnios was also noted. Following a multidisciplinary review, fetal lung maturation was induced with corticosteroids at 33–34 weeks.

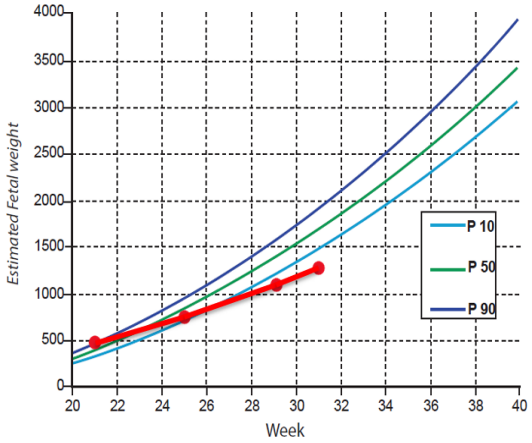


Figure 2 Fetal Growth Velocity

The patient was then hospitalized for three days at 33 – 34 weeks of gestation, receiving corticosteroids for fetal lung maturation. Methylprednisolone was temporarily discontinued. At 35–36 weeks of gestation, the patient, who presented with severe malnutrition (BMI 16.0) was admitted for elective lower segment cesarean section (LSCS) with bilateral fimbriectomy. Pulsatility index (PI) of the middle cerebral artery was 0.76, suggesting possible fetal hypoxia.

A female infant weighing 1840 grams was delivered, with an APGAR score of 8-9-10. The placenta was intact, and no intraoperative complications were noted. Postoperatively, the mother remained stable with Hb levels above 10 g/dL. Neonatal evaluation confirmed IUGR but showed no immediate complications. The baby was closely monitored for weight gain and adequate nutrition. The patient resumed MDR-TB treatment with nutritional support and was discharged in stable condition with scheduled follow-ups in obstetrics, pulmonology, and hematology clinics.



Figure 3 Newborn at Birth

Discussion

This case highlights the impact of MDR-TB and AIHA on fetal growth. To our knowledge, this is the first reported case of a pregnant patient with both MDR-TB and AIHA. A similar case has been reported involving a patient with genital and renal TB, AIHA, and abdominal pregnancy.[9] However, in our situation, this case is further complicated by MDR-TB and viable pregnancy.

Both MDR-TB and AIHA are known to contribute to the development of IUGR. Strict monitoring is necessary for patients with these comorbidities. In this case, IUGR was diagnosed through multiple ultrasounds to assess fetal growth velocity.[10] Unfortunately, no effective intervention is currently available to prevent IUGR in patients with such risk factors. The latest ACOG guidelines do not offer specific recommendations for IUGR prevention.[11] Two meta-analyses suggest that low-dose aspirin may prevent IUGR,[12,13,] but this finding is contradicted by the ASPRE Trial.[14]

Patients with IUGR require strict

monitoring. ACOG recommends the use of umbilical artery Doppler and cardiotocography (CTG) in such cases.[15] These modalities help determine the optimal timing for delivery. In this patient, suboptimal fetal growth accompanied by oligohydramnios supported the decision to terminate the pregnancy between 34–37 weeks, consistent with current guidelines.[15] Fetal lung maturation therapy was also administered at 33–34 weeks following FIGO recommendations,[16] balancing the risks of prematurity against stillbirth, which is known to be associated with IUGR.[17]

Despite the presence of MDR-TB and AIHA, the management of IUGR in this patient was not significantly different from other IUGR cases.[15,16]

However, treating MDR-TB during pregnancy remains highly challenging due to the limited available data and lack of clear recommendations, despite extensive research on drug-resistant TB treatment.[5] In contrast, the standard first-line treatment for AIHA involves corticosteroids to suppress autoantibody activity and prevent significant flare-ups and hemoglobin decline, as was done in this case.[18] Careful monitoring ensured that the patients' hemoglobin levels never fell below 7 g/dL, and blood transfusions were not required.

A limitation of this case report is the lack of nutritional intervention for the patient. Additionally, the etiology of AIHA in this case remains unclear.

Conclusion

This case has presented a IUGR in a 37-year-old woman with MDR-TB, AIHA, and severe malnutrition. In this instance, pregnancy complicated by MDR-TB and AIHA contributed to fetal growth restriction and requires strict monitoring and individualized multidisciplinary treatment. This case report highlights the need for individualized treatment strategies and further research to improve maternal and fetal outcomes in similar cases.

References

1. Chew LC, Osuchukwu OO, Reed DJ, Verma RP. Fetal Growth Restriction. Treasure Island (FL); 2025.
2. Fleiss B, Wong F, Brownfoot F, Shearer IK, Baud O, Walker DW, et al. Knowledge Gaps and Emerging Research Areas in Intrauterine Growth Restriction-Associated Brain Injury. Front Endocrinol (Lausanne). Switzerland; 2019 Mar 29;10:188.
3. Garay-Aguilar N V, Reynoso-Rosales LR, Llamo-Vilcherrez AP, Toro-Huamanchumo CJ. Tuberculosis in pregnancy and adverse neonatal outcomes in two peruvian hospitals. Eur J Obstet Gynecol Reprod Biol X. Netherlands; 2024 Jun;22:100304.
4. Alene KA, Murray MB, van de Water BJ, Becerra MC, Atalell KA, Nicol MP, et al. Treatment Outcomes Among Pregnant Patients With Multidrug-Resistant Tuberculosis: A Systematic Review and Meta-analysis. JAMA Netw open. United States; 2022 Jun;5(6):e2216527.
5. WHO consolidated guidelines on tuberculosis: Module 4: treatment - drug-resistant tuberculosis treatment, 2022 update. Geneva; 2022.
6. Venkatachala RP, Sheela CN, Anandram S, Ross CR. Autoimmune Hemolytic Anaemias in Pregnancy: Experience in a Tertiary Care Hospital in South India. J Obstet Gynaecol India. 2021/03/04. India; 2021 Aug;71(4):379–85.
7. Cunningham F. Fetal growth disorders. Williams Obstetrics. McGraw-Hill Education; 2018.
8. Shrivastava D, Master A. Fetal Growth Restriction. J Obstet Gynaecol India. 2019/09/27. India; 2020 Apr;70(2):103–

10.
9. Semchyshyn S, Cecutti A. Abdominal pregnancy complicated by genital and renal tuberculosis and hemolytic anemia. Fertil Steril. Elsevier; 1975;26(11):1142–5.
10. Deter RL, Lee W, Yeo L, Erez O, Ramamurthy U, Naik M, et al. Individualized growth assessment: conceptual framework and practical implementation for the evaluation of fetal growth and neonatal growth outcome. Am J Obstet Gynecol. United States; 2018 Feb;218(2S):S656–78.
11. Martins JG, Biggio JR, Abuhamad A. Society for Maternal-Fetal Medicine Consult Series #52: Diagnosis and management of fetal growth restriction: (Replaces Clinical Guideline Number 3, April 2012). Am J Obstet Gynecol. Elsevier; 2020 Oct 1;223(4):B2–17.
12. Roberge S, Nicolaides K, Demers S, Hyett J, Chaillet N, Bujold E. The role of aspirin dose on the prevention of preeclampsia and fetal growth restriction: systematic review and meta-analysis. Am J Obstet Gynecol. United States; 2017 Feb;216(2):110-120.e6.
13. Meher S, Duley L, Hunter K, Askie L. Antiplatelet therapy before or after 16 weeks' gestation for preventing preeclampsia: an individual participant data meta-analysis. Am J Obstet Gynecol. 2017;216(2):121-128.e2.
14. Rolnik DL, Wright D, Poon LC, O'Gorman N, Syngelaki A, de Paco Matallana C, et al. Aspirin versus Placebo in Pregnancies at High Risk for Preterm Preeclampsia. N Engl J Med. United States; 2017 Aug;377(7):613–22.
15. Fetal Growth Restriction: ACOG Practice Bulletin, Number 227. Obstet Gynecol. United States; 2021 Feb;137(2):e16–28.
16. Melamed N, Baschat A, Yinon Y, Athanasiadis A, Mecacci F, Figueras F, et al. FIGO (international Federation of Gynecology and obstetrics) initiative on fetal growth: best practice advice for screening, diagnosis, and management of fetal growth restriction. Int J Gynaecol Obstet Off organ Int Fed Gynaecol Obstet. United States; 2021 Mar;152 Suppl(Suppl 1):3–57.
17. Getahun D, Ananth C V, Kinzler WL. Risk factors for antepartum and intrapartum stillbirth: a population-based study. Am J Obstet Gynecol. United States; 2007 Jun;196(6):499–507.
18. Fattizzo B, Bortolotti M, Fantini NN, Glenthøj A, Michel M, Napolitano M, et al. Autoimmune hemolytic anemia during pregnancy and puerperium: an international multicenter experience. Blood. United States; 2023 Apr;141(16):2016–21.