Research Article

Hepatitis B in Pregnant Woman Detected by Triple Elimination Screening in Public Health Centre: A Case Report

Hepatitis B pada Ibu Hamil yang Terdeteksi Melalui Skrining Eliminasi Rangkap Tiga di Puskesmas: Laporan Kasus

Gottfrieda P. Taeng-ob Adang[1], Christina Olly Lada[2*], Maria Kurniawati Mari[3], Yuli Clementina Gomangani[4], Ryan Arnold Ethelbert[5]

[1] *Department of Obstetrics and Gynecology, Faculty of Medicine and Veterinary Medicine,* Universitas Nusa Cendana

[2] *Department of Community Medicine and Dryland Archipelago, Faculty of Medicine and Veterinary Medicine,* Universitas Nusa Cendana

[3] *Chief of Oebobo Public Health Centre*

[4] *Faculty of Medicine and Veterinary Medicine,* Universitas Nusa Cendana

[5] *Faculty of Medicine and Veterinary Medicine,* Universitas Nusa Cendana

**Christina Olly Lada*
Christina_o_l@yahoo.com

Abstract

Introduction: *Hepatitis is an inflammation of the liver that can develop into fibrosis (scarring), cirrhosis or liver cancer. As a primary health service facility, the public health centre has an important role in handling Hepatitis B in pregnant women through the Maternal and Child Health program, including triple elimination screening and case management.*

Case Presentation: *A 23-year-old female patient came to the public health centre for routine antenatal care examination (G1P0A0) with a gestational age of 30 weeks and 4 days. The patient had no complaints (asymptomatic), had a normoweight (20,46) body mass index, and had stable vital signs, normal systemic findings on physical examination and obstetric examination. But when a triple elimination examination was carried out by rapid diagnostic test, the result shown a reactive HBsAg. Then the patient was sent to another public health centre for further advance blood test, and the result shown that the woman was positive for hepatitis B with 2.16E08 IU/mL(log 8.33) viral load. The patient are given 1x300 mg Tenofovir disoproxil fumarate (TDF) treatment along with education by the doctor in charge for Hepatitis division to consume the drug until at least during childbirth, continued until 3 (three) month after delivery.*

Conclusion: *Identification of pregnant women with Hepatitis B can be early detected by using the triple elimination rapid test (Hepatitis B, Syphilis, HIV) as a mandatory examination for pregnant women. Clinical symptoms for hepatitis B are vary, ranging from asymptomatic to symptomatic such as nausea, vomiting, headache, and malaise, loss of appetite, darker colour of urine, followed by jaundice that appears after 1–2 weeks. However, Hepatitis B in pregnancy is mostly asymptomatic.*

Keywords**:** *Pregnant woman*, *Hepatitis B*, *triple elimination*

How to Cite:
Adang GP, Lada CO, Mari MK, Gomangani C, Ethelbert RA. Hepatitis B in Pregnant Woman Detected by Triple Elimination Screening in Public Health Centre: A Case Report**.** Journal of Medicine and Health. 2025; 13(1): 54-60. DOI: https://doi.org/10.35508/cmj.v%vi%i.23861

Research Article

Abstrak

Pendahuluan: Hepatitis adalah peradangan hati yang dapat berkembang menjadi fibrosis (jaringan parut), sirosis, atau kanker hati. Sebagai fasilitas pelayanan kesehatan primer, puskesmas memiliki peran penting dalam penanganan Hepatitis B pada ibu hamil melalui program Kesehatan Ibu dan Anak, termasuk skrining eliminasi rangkap tiga dan penatalaksanaan kasus.

Deskripsi Kasus: Seorang pasien perempuan berusia 23 tahun datang ke puskesmas untuk pemeriksaan antenatal rutin (G1P0A0) dengan usia kehamilan 30 minggu 4 hari. Pasien tidak mengeluhkan gejala apa pun (asimtomatik), memiliki indeks massa tubuh normoweight (20,46), tanda vital stabil, serta hasil pemeriksaan fisik dan obstetri dalam batas normal. Namun, saat dilakukan pemeriksaan skrining eliminasi rangkap tiga menggunakan rapid diagnostic test, hasil menunjukkan HBsAg reaktif. Pasien kemudian dirujuk ke puskesmas lain untuk pemeriksaan darah lanjutan, dan hasilnya menunjukkan bahwa pasien positif Hepatitis B dengan viral load sebesar 2,16E08 IU/mL (log 8,33). Pasien diberikan pengobatan Tenofovir disoproxil fumarate (TDF) dosis 1x300 mg per hari disertai edukasi oleh dokter penanggung jawab di bagian Hepatitis, untuk mengonsumsi obat setidaknya hingga persalinan, dan dilanjutkan hingga 3 (tiga) bulan pasca persalinan.

Kesimpulan: Identifikasi ibu hamil dengan Hepatitis B dapat dilakukan secara dini melalui skrining cepat eliminasi rangkap tiga (Hepatitis B, Sifilis, HIV) sebagai pemeriksaan wajib pada ibu hamil. Gejala klinis Hepatitis B sangat bervariasi, mulai dari tanpa gejala (asimtomatik) hingga gejala seperti mual, muntah, sakit kepala, lemas, penurunan nafsu makan, warna urin yang lebih gelap, dan diikuti dengan munculnya ikterus setelah 1–2 minggu. Namun, sebagian besar kasus Hepatitis B pada kehamilan bersifat asimtomatik.

Kata kunci: Ibu hamil, Hepatitis B, eliminasi rangkap tiga

INTRODUCTION

Hepatitis is an inflammation of the liver that can develop into fibrosis (scarring), cirrhosis or liver cancer. Hepatitis is caused by a variety of factors such as viral infections, toxic substances (e.g. alcohol, certain medications) and autoimmune diseases. According to WHO, Hepatitis B is one of the leading causes of death in the world, with mortality rates continuing to rise, especially in the Southeast Asian region. [1]

The prevalence of hepatitis B in pregnant women worldwide is 1.5 to 2.5% while in India it is 2 to 7.7%. In Southeast Asia (2022) around 10.5% of the population is living with hepatitis B, 4.5 billion (16.7%) patients are seeking treatment, 240 million of whom become chronic hepatitis B, as many as 1.5 million Asians die every year from hepatitis B. Indonesia is the country with the second highest hepatitis B endemicity among South East Asian Region countries.[2,3]

In Indonesia, the prevalence of hepatitis is 1.2% of the population of which 1-5% are pregnant women with hepatitis B virus. Based on data from the Indonesian Ministry of Health, in 2021 as many as 2,946,013 pregnant women have been detected early and it is known that 1.61% (47,550) of pregnant women were detected positive for hepatitis B virus infection.[4]

Transmission of Hepatitis B from mother to child is one of the main factors in the high prevalence of this disease. Therefore, it is important to identify pregnant women infected with Hepatitis B as well as the clinical symptoms experienced. The American Congress of Obstetrics and Gynecology (ACOG) recommends HBV screening in pregnant women to be able to detect Hepatitis

B early because Hepatitis B in pregnancy is mostly asymptomatic.[1]

As a primary health service facility, the public health centre (Puskesmas) has an important role for early detection (primary prevention) by implementing triple elimination screening in pregnant women. Although the Hepatitis B immunization program has been implemented, the incidence rate is still high, indicating the need for additional efforts in prevention.[5]

In pregnant women who are already infected with Hepatitis B, antiviral prophylactic drugs, such as Tenofovir, Lamivudine, or Telbivudine, can be given. These three drugs are included in the safe category for pregnant women and fetuses. Tenofovir can be administered by a doctor at a public health center after meeting the criteria. If they do not meet the criteria, the patient can be referred to an advanced health facility.[6.]

CASE DESCRIPTION

A 23-year-old female patient came to the public health centre (Puskesmas) for a routine antenatal care examination with a gestational age of 30 weeks and 4 days. The patient had no complaints, abdominal pain, nausea and vomiting was denied; patient's appetite was good. Patient's fesses have a non-pale colour. Colour of the patient urine is clear yellow. Other complaints such as yellow eyes and nails and fever are denied.

The patient's spouse and other family members have not been screened for hepatitis B. It is known that the patient's spouse has been working as an inter-city driver (Atambua-Kupang) since 2 years ago.

Before becoming pregnant, the patient worked as a food store keeper at Oebobo Market. History of smoking and alcohol is denied. Regarding sexual history, the patient admitted that she only had sexual intercourse with 1 partner.

She had stable vital signs and essentially normal systemic findings on physical examination. On obstetric examination, the patient have normal findings with estimated weight of the foetus is 1,705 grams.

The first examination on Oktober 2024 at the public health centre, it was stated that the patient was positive for pregnancy. Then a triple elimination screening was carried out and a non reactive result for HIV and syphilis was found, with reactive HBsAg result was obtained. The patient was sent to another public health centre for further advance blood test for viral load and the results were 2.16E08 IU/mL(log 8.33).

Patients are given Tenofovir disoproxil fumarate *(TDF)* treatment along with education by the doctor in charge for Hepatitis division regarding the rules for drug consumption, how long the drug consumption, as well as the impact and risks on both mother and baby if the drug is not taken regularly. Patients are also advised to continue to routinely perform antenatal care, get enough rest, eat nutritious food, reduce the burden of the mind, participate in activities such as pregnant women classes so as to improve

knowledge, attitudes, and skills in maintaining pregnancy as well as preparing for childbirth and postpartum periods, as well as clean and healthy living behaviours. In addition to Tenofovir disoproxil fumarate (TDF), patients were also given Iron suplement, vitamins, Calcium tablets.

DISCUSSION

Hepatitis B in pregnant women is a condition in which a pregnant woman has a liver infection caused by the hepatitis B virus. Hepatitis B Virus (HBV) which infected pregnant women is a problem because it has a fairly high risk of mother-to-child transmission (MTCT). This infection can also increase the risk of complications of premature birth, organ failure, abortion, and increased maternal and newborn mortality.[7-12]

A 23-year-old female patient came to the public health center for routine antenatal care examination in the first pregnancy with a gestational age of 30 weeks and 4 days. The patient had no complaints, had stable vital signs, normal systemic findings on physical examination and obstetric examination. When a triple elimination examination was carried out, reactive HBsAg was found.

In this case, it is not known for sure about the origin of hepatitis transmission in the patient, but based on the anamnesis, one of the risk factors is the unknown hepatitis status of the patient's partner/husband, where this is related to the patient's husband's work as a cross-city driver (Atambua - Kupang) for the last 2 years, where the patient's husband himself has not been examined or screened for hepatitis. Another risk factor is based on the level of education of the mother which shows a lack of understanding in information and education related to hepatitis plus the patient has not been vaccinated against hepatitis at all.

The case of pregnant women with HBsAg positive as in this patient reflects that during pregnancy, pregnant women can be infected by infectious diseases, one of which is hepatitis B.This infectious disease can be transmitted to babies during pregnancy, childbirth, and breastfeeding. The consequences of being infected with hepatitis B in babies can result in pain, disability and death, thus having a negative impact on the survival and quality of life of children. This virus can infect the baby's liver and cause serious complications, such as premature birth, low birth weight, and liver damage.[4,7]

The transmission of infectious diseases in pregnant women can be prevented by conducting examinations as early as possible (early detection) during antenatal services, early handling, and immunization according to government recommendations. Early detection through triple elimination is carried out on patients at the public health centre as one of the steps for early detection so it can break the chain of transmission of HIV, syphilis, and hepatitis B from mother to child.[4,7]

From the results of the laboratory examination, because the patient's viral load value is high, which is 2.16E08 IU/mL(log 8.33), it is related to the management based on the Decree of the Minister of Health of the

Republic of Indonesia No. HK.01.07/MENKES/15/2023 it is said that pregnant women with a viral load value of >200.000 IU/mL without cirrhosis, then pregnant women need to be given Tenofovir with a dose of 1x300 mg from 28 weeks of gestation to at least during childbirth and continued for up to 3 month. However, in this case, the patient came back to the public health centre after 30 weeks of gestation, so by public health centre physician as the person in charge of the hepatitis prevention program at the Oebobo Public Health Centre, the patient is still given tenofovir along with education related to the rules of drug consumption, how long to take the drug, as well as the impact and risk on both mother and baby if the drug is not taken regularly even though the treatment is 2 weeks late based on the patient's gestational age. Based on the anamnesis, the patient said that in the period of October 2024 (triple elimination) - January 2025 (viral load examination) the patient returned to her village in a rural area. Then the patient gets Tenofovir on February 26, 2025, this is what makes the treatment late for the patient. In addition, patient are also given supplements such as calcium, iron, and prenatal vitamins to support pregnancy as well as promotion and education.[7,10]

In addition to the clinical approach, public health aspects also play a role in the spread of Hepatitis B in pregnant women. In cases, patients have risky behaviours including not having been vaccinated against Hepatitis B before. From the mental health status, the patient admitted that she was not officially married to her partner but in the planning stage, this disturbs her mental health, because for some countries the marital status is a matter. Then for the health status of the patient's partner, her partner has a job that is classified as high risk of Hepatitis B transmission. Furthermore, the patient's partner has not done any Hepatitis examination. In terms of environmental sanitation, the patient and his partner live together in a boarding house behind Oebobo Market, with fairly good sanitation. For access to health services, patients did not experience any difficulties in this regard. In terms of knowledge and education, the patient admitted that she never knew or participated in socialization about Hepatitis B in the residential environment.

CONCLUSION

1. Triple elimination programs at public health centres for early detection in pregnancy can prevent the transmission of hepatitis B, syphilis and HIV from mother to baby. The triple elimination examination is carried out at the antenatal care examination in the 1st trimester or as soon as possible.
2. Public health aspects that affect a pregnant woman infected by hepatitis B virus include risky behaviour, mental health, the status of hepatitis B of the partner, the high prevalence of hepatitis B in the region, poor sanitation, lack of education and understanding about the

risks of HBV and how it is transmitted, and lack of access to services.

3. Hepatitis B in pregnancy is mostly asymptomatic so it requires an early detection.
4. If a pregnant woman is infected with hepatitis B virus, the impact on the foetus can cause premature birth, miscarriage, organ failure, and increased maternal and newborn mortality. The transmission of infection in the foetus reaches 95% during delivery. Without any intervention in pregnancy, the transmission rate of HBV from pregnant women to their children is 70-90% if the mother is HBsAg reactive and HBeAg-positive, and 10-30% if the mother is only HBsAg reactive. So early management is needed.

RECOMMENDATIONS

1. For Patient

   Continue to routinely perform antenatal care at the Public Health Centre, remain obedient to take the medications that have been given, consume balanced nutritious food, avoid alcohol and drugs that can burden the liver, get enough rest and avoid stress, practice a clean and healthy lifestyle, discuss the safest method of delivery with the doctor, avoid injuries or bleeding that can increase the risk of transmission and infection.

2. For Patient's Family

   Husband/partner and family members who live in the same house need to be checked for Hepatitis B virus to find out their infection status, avoid sharing personal belongings with infected mothers, immediately vaccination of hepatitis B if they have not been vaccinated to prevent transmission.

3. For Medical Staff
   - Educate pregnant women and families in each village about hepatitis B starting from what hepatitis B is, to how to prevent it, provide educational materials that are easy to understand and the importance of taking triple elimination test during antenatal care at public health centre.
   - Coordinate with the hospital or public health centre where the mother gave birth to ensure the availability of hepatitis vaccines (HB0 and HBIG) as soon as the baby is born.
   - In the case of pregnant women who have been diagnosed with hepatitis B, provide counselling to mothers and families so that they understand this condition and do not feel excessively anxious.
   - Make sure health workers to use proper PPE (Personal Protective Equipment) when handling pregnant women with hepatitis B, implement infection prevention

procedures such as safely injecting syringes and disinfecting medical equipment used, and ensure all health workers have received the hepatitis B vaccine.

REFERENCES

1. Umaina U, Dewi O. Deteksi Dini Kejadian Hepatitis B Pada Ibu Hamil Di Provinsi Riau Tahun 2019-2022. Ensiklopedia Journal. 2024 Jan;6(6):76–77.
2. WHO. (2021). Global Health Sector Strategy On Viral Hepatitis 2016-2021.
3. Bhakti C, Riewpassa C. Hepatitis B Dalam Kehamilan : Laporan Kasus Hepatitis B In Pregnancy: Case Report. Jurnal Medica Profession. 2024 Feb;6(1):18-21.
4. Kementerian Kesehatan RI. Profil Kesehatan Indonesia 2023. Jakarta: Kemenkes RI; 2023.
5. Saba C. 2.890 Ibu Hamil di NTT Positif Hepatitis B [Internet]. [cited 2024 Dec 18]. Available from: https://www.rri.co.id/ntt/daerah/300220/2-890-ibu-hamil- di-ntt-positif-hepatitis-b
6. Ayunda N, Arso S. Pelaksanaan Program Triple Elimination pada Ibu Hamil di Puskesmas Karanganyar Kota Semarang Menggunakan Model CIPP. Media Kesehatan Masyarakat Indonesia. Feb 2023;22(3):210-213.
7. Kementerian Kesehatan RI. Percontohan Pemberian Antivirus Pada Ibu Hamil Untuk Pencegahan Transmisi Virus Hepatitis B Dari Ibu Ke Anak. Jakarta: Kemenkes RI;2023.
8. Gozali A. Diagnosis, Tatalaksana, dan Pencegahan Hepatitis B dalam Kehamilan. CKD. 2020;47(5):354-358.
9. Kementerian Kesehatan RI. Profil Kesehatan Indonesia 2022. Jakarta: Kemenkes RI; 2022.
10. Denando R, Cahyati W. Faktor Risiko Hepatitis B Pada Ibu Hamil Di Kota Semarang Tahun 2020-2021 (Studi Kasus Di Puskesmas Genuk & Puskesmas Bangetayu). Jurnal Kesehatan Masyarakat. 2022 Nov;10(6):656-659.
11. Yulia D. Virus Hepatitis B Ditinjau dari Aspek Laboratorium. Jurnal Kesehatan Andalas. 2019;8(4):247-250.
12. Asafo-Agyei KO, Samant H. Pregnancy and Viral Hepatitis. In: StatPearls[Internet].Treasure Island (FL): StatPearls Publishing; 2025 [cited 2025 Jan19]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK556026/