CASE REPORT

Navigating Hepatitis E in Pregnancy: A Case Study of Risk, Management and Recovery

Muhammad Mustafa[1], Haniah Mahboob[2*], Kanwal Memon[2] and Wajiha Asim[2]

[1]*Dow University of Health Sciences, Karachi, Pakistan*
[2]*Dow International Medical College, Karachi, Pakistan*

Abstract

Hepatitis E virus (HEV) infection during pregnancy can lead to severe complications, including maternal liver failure, preterm labour, vertical transmission, and increased maternal and neonatal mortality—primarily in endemic regions. This report describes a 26-year-old gravida 5, para 1+3 woman who presented at 36 weeks of gestation with jaundice, labour pains, and markedly elevated liver enzymes (ALT 950 IU/L; AST 870 IU/L). She tested positive for anti-HEV IgM. Multidisciplinary care included maternal stabilisation and continuous fetal monitoring. A successful vaginal delivery of a healthy neonate weighing 2.5 kg was achieved. Early diagnosis, conservative management, and vigilant monitoring were key to the favourable outcome. However, the case highlights the urgent need for public health measures to enhance sanitation, increase community awareness, and explore vaccination strategies in high-risk areas. Epidemiological data suggest that in HEV-endemic regions, maternal mortality from HEV infection during pregnancy can reach 15-25% (95% CI: 12-28%). Further research on the safety and efficacy of HEV vaccines in pregnancy is essential to reduce maternal and neonatal mortality.

Keywords: *Pregnancy, hepatitis E, maternal health, neonatal outcomes, management, hyperbilirubinemia.*

INTRODUCTION

Hepatitis E virus (HEV) infection during pregnancy is responsible for the increase of maternal liver failure, preterm labour, vertical transmission, and death in both mother and child [1-3]. HEV triggers typically cause a self-limiting disease in the community. Still, pregnant women, especially those late in pregnancy, are liable for life-threatening complications, such as fulminant hepatic failure and maternal and foetal death [4, 5]. HEV infection is even more damaging in the world's hotbed regions, for it has been linked to adverse pregnancy results such as low birth weight, intrauterine death, and neonatal jaundice [4, 5]. It has become a worldwide public health dilemma impacting women of childbearing age in different countries [6]. Although the exact mechanism causing the severity of HEV infection during pregnancy is not fully understood, impaired immune responses and changes in maternal immune function, specifically inadequate responses from innate immune cells like monocytes and macrophages, altered Toll-like receptor signalling, may lead to acute liver failure in HEV-infected pregnant women [2, 7]. Not a single drug has been proven to be a safe measure for pregnant women; therefore, the physicians handling the situation are going by the conservative approach of refraining from treating coexisting diseases and maintaining liver functioning, besides administering for foetal well-being [8]. A vaccine for HEV is currently in development, but further research is being conducted to ensure its safety and effectiveness for use in pregnant women [9].

**Corresponding author: Haniah Mahboob, Dow International Medical College, Karachi, Pakistan, Email: haniahmahboob2001@gmail.com*
Received: March 13, 2025; Revised: July 01, 2025; Accepted: July 04, 2025
DOI: https://doi.org/10.37184/jlnh.2959-1805.3.46

CASE REPORT

The 26-year-old married female patient from Karachi, Pakistan, was a known case of Hepatitis, which was diagnosed with anti-HEV IgM ELISA. She is G5P1+3 with all previous spontaneous vaginal deliveries. She presented at 36+2 weeks and was deeply jaundiced with per vaginal leaking for the past 4 hours and labour pains. On per abdomen examination, the fundal height was 36 weeks. The foetus was in a longitudinal lie with a cephalic presentation. The foetal head was 4/5 engaged in the pelvis. The Cardiotopography was reactive with foetal heart sounds at 138 beats per minute. The uterine contractions were 3/10 palpable. On per speculum examination, yellow-green-tinged fluid pooled in the posterior blade of Cusco's speculum. On per vaginal examination, the cervix was 2.5cm dilated with the foetal head in a cephalic presentation at -3 station. The cervix was mid-positioned and soft.

The membranes were absent. On 29th September 2024, an ultrasound of foetal well-being was performed, which showed an active and alive fetus with a breech presentation and longitudinal lie. The placenta was placed posteriorly with adequate liquor, a normal foetal body, and cardiac activity. The gestational age was 30 weeks ± 1 week, as determined by fetal length, and the estimated delivery date was 30th November 2024, based on the last menstrual period. The ultrasound of foetal well-being was repeated on 14th October 2024, in which an active and healthy foetus was observed in a longitudinal lie and cephalic presentation. The placenta was fundal and posteriorly in the upper segment. Adequate liquor, regular foetal movements, and cardiac activity were observed. The gestational age was 34

  ISSN: 2960-2963 (Online) *Journal of Liaquat National Hospital 2026; 4(1): 84-87*

weeks +/- 1 week. On 14th October 2024, an ultrasound of the abdomen was also done, which showed mild hepatomegaly along with a contracted gallbladder measuring 3.6 x 1.3cm with a thick, edematous wall measuring 0.5cm. A thick sludge was visible in the visualised lumen, and a streak of pericholecystic fluid was also observed. The pregnancy was complicated by an acute viral infection secondary to Hepatitis, with elevated liver enzymes as shown in Table **1**.

The patient delivered a boy weighing 2.5 kg vaginally with a 1-degree perineal tear. The boy was alive with immediate crying after birth. During the patient's hospital stay, they were managed with calcium, iron, and multivitamins. The liver function test was repeated after 48 hours, and it showed a declining pattern. Upon improvement, she was discharged, and after a few weeks, she gained complete recovery.

DISCUSSION

HEV infection in pregnancy is a well-documented cause of maternal and fetal morbidity and mortality, especially in developing regions where sanitation issues and limited healthcare access exacerbate its impact [7]. The patient, a 26-year-old gravida 5 para 1+3, presented at 36+2 weeks of gestation with a history of jaundice and per vaginal bleeding, indicative of labour onset. Her clinical picture included profound jaundice, labour pains, and a reactive cardiotocography with uterine contractions. These signs necessitated immediate obstetric care, culminating in a spontaneous vaginal delivery of a male neonate with a birth weight of 2.5 kg. While the baby was stable at birth, the maternal liver function tests revealed significant hepatic dysfunction, with significantly elevated liver enzymes (SGPT: 3516.75 U/L and SGOT: 3546 U/L) and hyperbilirubinemia (total bilirubin: 18.61 mg/dL). These findings underline the hepatic insult caused by HEV infection, compounded by pregnancy-induced physiological changes. Specifically, HEV genotype 1, which is more prevalent in our region of the world, is of grave importance as it is linked to poorer outcomes [10]. Serological testing may be necessary in understanding and developing specific management guidelines to improve patient prognosis.

The management of this patient underscores a multidisciplinary approach. During her hospital stay, intravenous fluids and medications, including antibiotics and hepatoprotective agents, were administered to support liver function and address potential infections. Daily maternal and fetal monitoring ensured the well-being of both. Obstetric ultrasound evaluations confirmed fetal growth and adequacy of amniotic fluid, while cardiotocography provided real-time updates on fetal status. The patient responded to conservative treatment with gradual improvement in liver function and coagulation parameters, as evidenced by declining SGPT/SGOT levels and improving INR values.

This case also underscores the neonatal implications of maternal HEV infection such as abortions and stillbirths [11]. Although the neonate was born with stable vital signs and appropriate measurements, the potential risk of vertical transmission and neonatal complications necessitates ongoing monitoring [6]. Neonatal care included administering vitamin K and assessing reflexes and neurological status, with follow-up planned for

Table 1: Liver Function Test.

Liver Function Test Parameters	Reference Range	05/11/24	03/11/24	21/10/24	19/10/24	18/10/24	17/10/24	16/10/24	14/10/24
S. Total Bilirubin mg/dl	0.2-1.2	25.01	31.12	27.09	26.23	28.39	23.42	20.78	18.61
S. Direct Bilirubin mg/dl	0-0.3	19.16	22.50	21.83	21.22	21.72	18.37	16.26	14.67
S. Indirect Bilirubin mg/dl	0.25-0.9	5.85	8.62	5.26	5.01	6.67	5.05	4.52	3.94
SGPT (ALT) U/L	<34	34	42	564	1324	1956	706	2627	3516.75
Alkaline Phosphatase U/I	<31	98	114	168	193	210	185	178	226
Gamma GT U/I	42-98	47	46	24	20	21	17	24	30
SGOT (AST) U/I	<38	63	88	138	561	1148	1611	2749	3546

comprehensive evaluation. Despite a high mortality of about 30% in similar cases across the region, the multidisciplinary approach in this patient resulted in an uneventful outcome.

CONCLUSION

This case report is written to highlight the successful management and recovery of a pregnant patient who was diagnosed with hepatitis E infection, demonstrating the importance of timely diagnosis, appropriate treatment strategies, and close monitoring during pregnancy for maternal and foetal well-being. Both the mother and the baby had a favourable outcome despite the complications associated with hepatitis E infection. During pregnancy, the hepatitis E infection can cause spontaneous abortions and stillbirths. This highlights the importance of a multidisciplinary approach in managing pregnancies that are at high risk, ensuring optimal care and recovery to minimise the risk of mortality. To improve the outcomes in similar cases, it is essential to raise awareness about the dangers of hepatitis E during pregnancy, especially in high-endemic areas.

Additionally, the Chinese vaccine, Hepatitis E 239, has been proven to be protective against HEV-1 and HEV-4. Still, the safety and efficacy of this vaccination on a large population are yet to be determined, as it is not yet WHO prequalified and is not widely available outside China, which limits its global utility at present. These vaccines can be administered prophylactically in women of childbearing age who live in endemic areas. The development of an HEV vaccine safe for pregnant women could significantly reduce the disease burden. However, until then, public health strategies targeting sanitation and early detection remain pivotal in addressing HEV-associated morbidity and mortality in pregnancy. It is also crucial that patients are counselled during antenatal visits with risk mitigation strategies for such infections, which the methods above can easily do. Moreover, healthcare professionals must be trained to manage these cases in a timely and effective manner. Further research is also essential for understanding the role of these risk factors in achieving the best mitigation strategies, which could be crucial in reducing the disease burden.

CONSENT FOR PUBLICATION

Written informed consent was taken from the patient.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

AUTHORS' CONTRIBUTION

The Author Contributions are given below as requested.

MM: Conceptualization of the case report, study design, and drafting of the initial manuscript. KJM: Data acquisition, result analysis, and interpretation of clinical findings. HM: Critical review and revision of the initial draft, oversight of the submission process, and finalization of the manuscript. WA: Literature review, result interpretation, and assistance in manuscript drafting and formatting. All authors have read and approved the final version of the manuscript.

GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors limitedly used ChatGPT (OpenAI) for language suggestions and minor proofreading in selected parts of the manuscript. After using this tool, the authors carefully reviewed and edited the content as needed and take full responsibility for the accuracy and integrity of the published article.

REFERENCES

1. Bergløv A, Hallager S, Weis N. Hepatitis E during pregnancy: Maternal and foetal case-fatality rates and adverse outcomes - A systematic review. J Viral Hepat 2019; 26(11): 1240–1248. DOI: https://doi.org/10.1111/jvh.13129 PMID: 31095813
2. Farshadpour F, Taherkhani S, Taherkhani R. Hepatitis E virus infection during pregnancy: the overlooked cause of maternal and fetal mortality. Infect Disord Drug Targets 2019; 19(3): 334-6. DOI: https://doi.org/10.2174/1871526518666180530075523 PMID: 29848282
3. Kaisar K, Nessa K. Hepatitis E virus-induced encephalopathy during pregnancy: a life-threatening condition. Int J Community Med Public Health 2022; 9(2): 674-8. DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20220225
4. Wu C, Wu X, Xia J. Hepatitis E virus infection during pregnancy. Virol J 2020, 17(1): 73. DOI: https://doi.org/10.1186/s12985-020-01343-9
5. Kumar N, Das V, Agarwal A, Pandey A, Agrawal S. Fetomaternal outcomes in pregnant women with hepatitis E infection; still an important fetomaternal killer with an unresolved mystery of increased virulence in pregnancy. Turk J Obstet Gynecol 2017; 14(2): 106-13. DOI: https://doi.org/10.4274/tjod.15045 PMID: 28913146
6. Kar P, Sengupta A. A guide to the management of hepatitis E infection during pregnancy. Expert Rev Gastroenterol Hepatol 2019; 13(3): 205-11. DOI: https://doi.org/10.1080/17474124.2019.1568869 PMID: 30791760
7. Jha K, Tandukar A, Aryal R, Shrestha P, Bajracharya S, Bista KD. Severe hepatitis E infection in pregnancy: a case report.

Ann Med Surg (Lond) 2023; 85(4): 1213-5.
DOI: https://doi.org/10.1097/ms9.0000000000000449 PMID: 37113858

8. Julin CH, Hjortaas K, Dembinski JL, Sandbu S, Øverbø J, Stene-Johansen K, *et al.* Hepatitis E in pregnant women and the potential use of HEV vaccine to prevent maternal infection and mortality. Curr Trop Med Rep 2019; 6(4): 197-204.
DOI: https://doi.org/10.1007/s40475-019-00193-y

9. Javed N, Ullah SH, Hussain N, Sheikh MA, Khan A, Ghafoor F, *et al.* Hepatitis E virus seroprevalence in pregnant women in Pakistan: maternal and fetal outcomes. East Mediterr Health J 2017; 23(8): 559-63.
DOI: https://doi.org/10.26719/2017.23.8.559 PMID: 29105047

10. Khuroo MS. Hepatitis E and Pregnancy: An Unholy Alliance Unmasked from Kashmir, India. Viruses 2021; 13(7): 1329.
DOI: https://doi.org/10.3390/v13071329 PMID: 34372535

11. Pérez-Gracia MT, Suay-García B, Mateos-Lindemann ML. Hepatitis E and pregnancy: current state. Rev Med Virol 2017; 27(3): e1929.
DOI: https://doi.org/10.1002/rmv.1929 PMID: 28318080