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Hepatitis B Revealed by Acute Obstetric Renal Failure in Bamako: A Case Report

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Abstract **Case Report**

Hepatitis B is a liver infection caused by the hepatitis B virus. The infection can be acute (severe and short-term) or chronic (long-term). Hepatitis B is a common infection, affecting more than 350 million people worldwide. Approximately 8% of the French population has been in contact with HBV, and 0.7% are HBsAg carriers. It can also cause chronic infections and carry a significant risk of death from cirrhosis or liver cancer. Acute hepatitis B can lead to a risk of early spontaneous abortion and be the cause of the increased rate of early pregnancy termination. It is estimated that in France, approximately 6,000 children are born each year to mothers who are HBsAg carriers. Chronic hepatitis B has little impact on pregnancy. Since acute hepatitis B is responsible for abortions in the first trimester of pregnancy, these abortions can also lead to acute renal failure. We report the case of a 28-year-old patient with hepatitis B, which was revealed by obstetric acute renal failure. The objective of this study was to provide a clinical observation of a rare case of viral hepatitis B discovered during acute renal failure caused by an abortion during a first-trimester pregnancy.

Keywords: Viral hepatitis B, acute renal failure, pregnancy.

INTRODUCTION

Hepatitis B is a liver infection caused by the hepatitis B virus (HBV). The infection can be acute (severe and short-term) or chronic (long-term). It can also cause chronic infections and lead to a significant risk of death from cirrhosis or liver cancer [1,2]. Acute hepatitis B can lead to a risk of early spontaneous abortion like any significant viral infection. Hepatitis B is a common infection since it affects more than 350 million people worldwide. About 8% of the French population has been in contact with HBV and 0.7% are carriers of HBsAg [1]. HBV infection can increase the rate of early abortion of pregnancy, and the reason may be related to HBV-infected embryos [3]. Chronic hepatitis B has little influence on pregnancy [2]. It is estimated that in France, each year, about 6000 children are born to mothers who are carriers of HBsAg [1]. Since hepatitis B is responsible for abortion in the first trimester of pregnancy, these abortions can also be responsible for acute renal failure [4]. The objective of this work was to make a clinical observation of a rare case of viral hepatitis B discovered during acute renal failure caused by an abortion during a first trimester pregnancy.

OBSERVATION

This was a 28-year-old patient, single and a ladies' hairdresser in a hair salon. She was transferred by a community referral health center for impaired renal function (serum creatinine at 697.1 umol/l). She had no known medical or surgical history. Obstetrically, she was single but parity zero, gestation one, abortion one, live child zero. The date of her last menstrual period was unknown but she was carrying an estimated pregnancy of two months. The history of her illness dated back 2 weeks with liquid vomiting unrelated to meals, abdominal pain and vaginal bleeding on presumed amenorrhea of 2 months for which she consulted a local referral health center which confirmed the pregnancy (by an immunological pregnancy test) and an ongoing abortion. The discovery of impaired renal function in this health facility led to a transfer to the nephrology

department for better management. Previous treatment consisted of : injectable diazepam, injectable oxytocin, injectable ceftriaxone, metronidazole infusion, paracetamol infusion, injectable acupan and 0.9% NaCl. On our physical examination, his general condition was passable, temperature (T° 36° C) ; respiratory rate (FR 20 cycles/min) ; heart rate (HR 78 BPM) and blood pressure (BP 100/70 mm Hg). Conjunctival pallor was observed and the mouth was clean. The tongue and mucous membranes were moist. Examination of the chest, lungs, heart and abdomen had no particularities. The external genitalia were clean, there was no vaginal bleeding at the time of our examination. In the upper and lower limbs: no OMI or dehydration folds. The creatinine level on arrival was high (Creat 697.1 umol/l) and the urea was 23.5 mmol/l. We had completed the assessment to search for the etiology of the abortion (Creat 700.2 umol/l : urea 24.7 mmol/l ; Ca 2.30 mmol/l ; Cl 92 mmol/l ; Mg 0.79 mmol/l ; K 3.9 mmol/l ; Na 133 mmol/l ; CRP 23.96 mg/l : HBsAg 1000 index (therefore positive) ; anti-HCV Ab negative; fibrinogen 2.17 g/l ; Hb 5.9 g/dl). The chest X-ray was normal (figure 1) ; the cardiac Doppler ultrasound and the electrocardiogram were also normal (figure 2). An abdominal ultrasound found an absence of the right kidney. And the left kidney was normal on ultrasound (Figure 3). Viral load was requested in view of the positive HBsAg result and found 786692 copies/ml. A transfusion with 2 secure bags of packed red blood cells was performed at the same time. The gastroenterologist had started tenofovir alafenamide 25 mg 1 tablet/day. The evolution was marked by the recovery of renal function (the control creat was 125 umol/l, urea at 6.2 mmol/l and a normal ionogram), and a good clinical evolution. A viral load check was planned 6 months after the start of antiviral treatment.

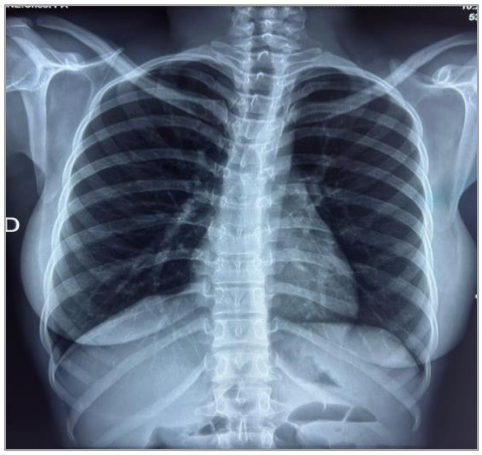

Figure 1 : Normal frontal chest x-ray

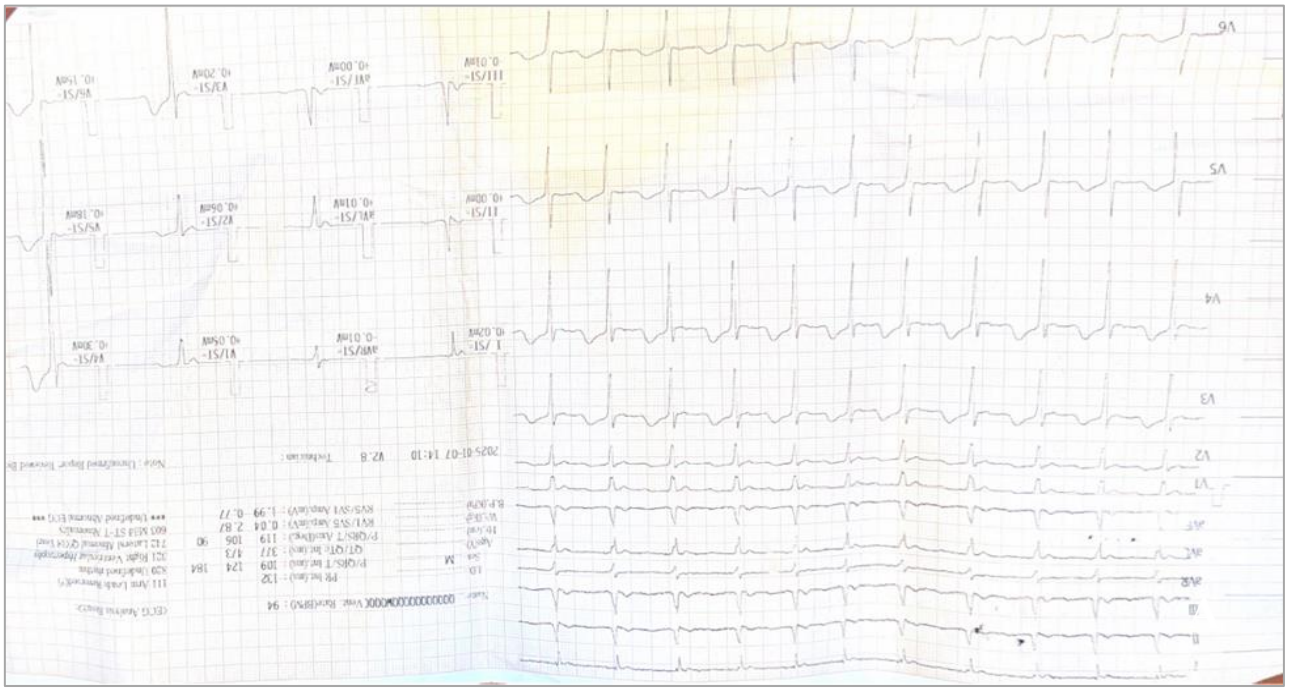

Figure 2 : Normal electrocardiogram

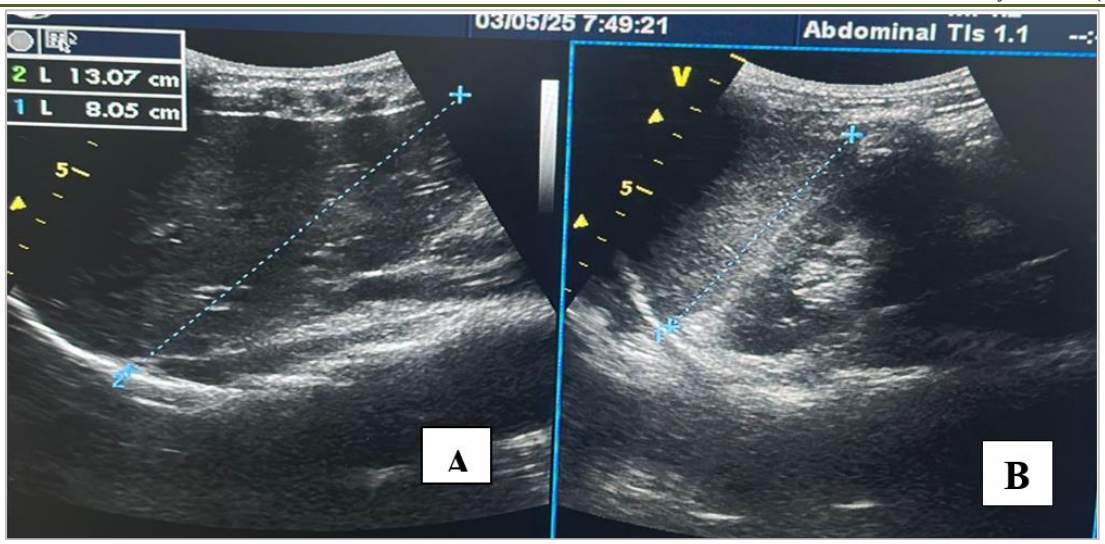

Figure 3 (A et B) : Abdominal ultrasound showing a normal left kidney and an absent right kidney

DISCUSSION

First trimester bleeding is present in 25% of pregnancies [3 and 5]. Up to 50% of this bleeding will end in spontaneous abortion, which corresponds to approximately one in six pregnancies [5 and 6]. Bleeding in the first trimester of pregnancy can be a manifestation of complications of varying severity requiring more advanced management and monitoring [7]. It can lead to hemodynamic disorders and cause obstetric functional acute renal failure [7]. Hepatitis B virus infection can lead to complications, including spontaneous abortions, particularly when it is acute or severe [1]. The mechanisms of abortion are complex and involve several factors: Excessive immune reaction: VBH causes excessive activation of the maternal immune system. This immune response can lead to systemic inflammation, including pro-inflammatory cytokines (such as IL-6 and TNF alpha), which can disrupt the uterine environment and compromise the viability of the embryo or fetus [8]. Maternal liver damage : HBV can cause liver failure, with consequences such as metabolic imbalances (disruption of albumin synthesis and coagulation factors), accumulation of toxins in the blood (hepatic encephalopathy) [8]. These liver imbalances can impair the normal development of pregnancy and lead to abortion [5 and 8]. Coagulation disorders: HBV can cause impaired coagulation due to a decrease in the synthesis of coagulation factors by the liver and this can cause placental hemorrhage or vascular complications that endanger the pregnancy [8]. Placental insufficiency: Viral infections, including HBV, can directly or indirectly affect the placenta, leading to placental insufficiency which, in turn, can reduce the supply of oxygen and nutrients to the fetus, resulting in intrauterine growth restriction (IUGR) or fetal death [7]. Vertical transmission and fetal stress : Maternal HBV infection can lead to vertical transmission (from mother to fetus) and this can have serious consequences on fetal development. Stress related to infection can also disrupt pregnancy and increase the risk of abortion [8]. Besides all that is described above, there are aggravating factors such as high viral load in the mother (as is the case for our patient), coinfection (hepatitis D, HIV, etc.), underlying or chronic liver diseases and poor monitoring or absence of antiviral treatment during pregnancy [7 and 8]. Acute renal failure caused by genital bleeding from abortion is mainly linked to renal hypoperfusion, which leads to a reduction in blood supply to the kidneys [8 and 9]. The mechanisms involved include: Hypovolemia and decreased renal perfusion : massive hemorrhage causes a significant loss of blood volume, leading to hypovolemia. The decrease in cardiac output reduces blood flow to the kidneys (renal hypoperfusion). Renal hypoperfusion will compromise glomerular filtration, leading to a rapid decline in glomerular filtration rate (GFR) [9]. Renin-angiotensin-aldosterone system (RAAS) activation : Hypovolemia activates the RAAS to maintain blood pressure. Vasoconstriction of the afferent and efferent arterioles further reduces renal perfusion. Increased sodium and water reabsorption in the renal tubules attempts to compensate for the fluid loss, but this worsens renal ischemia [8 and 9]. Renal ischemia and cellular damage : Prolonged hypoperfusion causes renal ischemia, particularly in sensitive areas such as the proximal convoluted tubule and the ascending loop of Henle. Damaged renal tubular cells may undergo acute tubular necrosis (characterized by impaired tubular reabsorption, obstruction of the tubules by cellular debris, and retrograde leakage of filtered urine into the interstitial tissue) [8 and 9]. Endothelial and inflammatory dysfunction: renal ischemia releases inflammatory mediators [9].

CONCLUSION

Obstetric acute renal failure always requires etiological investigation and viral hepatitis B infection is one of the causes, hence screening and close monitoring of pregnant women (CPN) with HBV are essential to minimize the risk of abortion and ensure good obstetric follow-up.

Conflict of interest: None

Ethical consideration: Informed consent was obtained and anonymity was maintained

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