

Urticarial exanthema due to hepatitis B in a pregnant woman, mimicking a polymorphic eruption of pregnancy

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Summary

Hepatitis B virus (HBV) infection in pregnant women is very rare in western countries, thus, cutaneous manifestation of HBV infection may be confused with a dermatosis specific of pregnancy. We report a 39-year-old woman who presented in her 20th week of pregnancy with a pruritic rash, which consisted of generalized erythematous plaques, some of them with a purple centre. Serology testing showed acute HBV infection, and a biopsy revealed a superficial and interstitial perivascular inflammatory infiltrate of lymphocytes and eosinophils. A diagnosis of exanthema due to acute hepatitis B infection was established. The patient delivered a clinically healthy boy, who was given the first dose of the HBV vaccine and intravenous specific immunoglobulin, followed by the second dose 2 months later, and did not get infected with HBV. To our knowledge, this is the first case describing HBV exanthema in a pregnant woman, which led to early action for the newborn, avoiding vertical transmission and its high prevalence of cirrhosis and hepatocellular carcinoma.

Hepatitis B virus (HBV) infection in pregnant women is very rare in western countries, including Spain (incidence 0.4–1.75%)¹. We report the case of a pregnant woman who presented with a pruritic rash and was found to be HBV-positive. This knowledge resulted in immediate treatment of the child when born, preventing infection.

Report

A 39-year-old woman reported with a 1-day history of a pruritic rash. The lesions had started on her abdomen and within 24 h had spread to the rest of her body. The patient was in the 20th week of her first pregnancy. She had nausea attributable to her pregnancy, but had no fever, fatigue, joint pain or malaise.

She had not taken any drugs, and had no medical history of relevance.

On physical examination, large erythematous plaques, some of them with a purple centre, were seen on the patient's face, upper chest, abdomen (including the periumbilical region), axillae, elbows, palms and thighs (Fig. 1a–c). The rest of the physical examination was normal.

Laboratory investigations, including complete blood count, liver function, viral serology (anti-HBc IgG + IgM, HBsAg, HBeAg, anti-HBc IgM, anti-HCV, HIV, Epstein–Barr virus IgM, cytomegalovirus IgM, parvovirus B19 IgM, *Mycoplasma* IgM) and a skin biopsy were ordered. Viral serology was ordered because some lesions with a purple centre (atypical target lesions) suggested to us that the clinical picture could be erythema multiforme. Laboratory tests showed: leucocytes $13.8 \times 10^9/L$ (normal range $4\text{--}11 \times 10^9/L$) with neutrophils $10.6 \times 10^9/L$ ($1.5\text{--}7 \times 10^9/L$), monocytes $1.3 \times 10^9/L$ ($0\text{--}0.8 \times 10^9/L$); other values were normal. Alanine aminotransferase (ALT) was 183 U/L ($5\text{--}35$ U/L) and aspartate aminotransferase (AST) was 120 U/L ($1\text{--}31$ U/L); other values were normal. Serology identified an acute HBV infection (positive for

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Figure 1 (a) Large erythematous plaques on the upper chest and abdomen; note the absence of abdominal striae. (b) Large erythematous plaques on the thighs. (c) Atypical target lesions (erythematous plaques with a purple centre).

anti-HBc IgG + IgM, HBsAg, HBeAg, anti-HBc IgM) with the other tests for viruses being negative.

Histology revealed a superficial and interstitial perivascular inflammatory infiltrate of lymphocytes and eosinophils. Direct immunofluorescence (IgG, IgM, IgA, C3 and fibrinogen) was negative.

A diagnosis of an exanthema due to acute hepatitis B infection was made. The skin lesions disappeared in a further 72 h without relapses.

The patient was referred to the Department of Gastroenterology for further studies. Abdominal ultrasonography scan was normal. A higher initial viral load of 170 mIU/mL was detected, and a peak of cytotoxicity, cholestasis and coagulopathy markers was observed 3 weeks after onset: ALT 3451 U/L, AST 3736 U/L, bilirubin 10.4 mg/dL (normal range 0.1–1.0 mg/dL), gamma glutamyl transpeptidase 144 U/L (4–35 U/L), alkaline phosphatase 162 U/L (45–105 U/L), international normalized ratio 1.24 (< 1.4), fibrinogen 661 g/L (1.8–9.4 g/L). This coincided with marked asthenia and diarrhoea. At week 30 of gestation, she had a low viral load (678 IU/mL), so a decision was made not to initiate antiviral therapy.

The patient delivered a clinically healthy boy, who received the first dose of the HBV vaccine and intravenous specific immunoglobulin followed by the second dose 2 months later, and did not get infected. The patient was asked about possible causes of transmission, but the route of infection was not determined. Unfortunately, we do not know if the child's father is infected to date.

The course of HBV infection in pregnant women is similar to that in the rest of the adult population, except for a lower frequency of fever and lower seroconversion, which can lead to greater chronicity.² The cutaneous manifestations of the acute infection in adults are diverse and widespread, and include urticaria,³ maculopapular eruptions,⁴ leucocytoclastic vasculitis,⁴ papular-purpuric gloves-and-socks syndrome,⁵ erythema multiforme⁶ and Gianotti-Crosti syndrome⁷. These lesions may be accompanied by fever, arthritis or arthralgia (serum-like sickness), and the presence of immune complexes containing HBsAg in the vascular walls has been reported³ although, as in our case, positive direct immunofluorescence findings are not consistent.^{3,4}

The HBV vaccine was only introduced into the Spanish vaccination schedule in 1992, so the patient had not received it. The vaccine contains HBsAg with no infectivity, obtained using recombinant DNA technology, and, with the data available today, it is recommended for use in pregnant women at high risk of infection.⁸ It is accepted that maternal treatment with

antivirals should take place if the viral load is $> 200 \times 10^6$ IU/L in the third trimester,⁹ because of the high chronicity rate (90%) leading to perinatal infection, of which 25% of cases will end in cirrhosis or hepatocellular carcinoma. Fortunately, the prophylactic administration of the vaccine prevents $> 90\%$ of vertical transmission.¹⁰

In conclusion, we report a case (the first such, to our knowledge) of HBV exanthema mimicking a polymorphic eruption of pregnancy, which led to early detection of the infection and early action in the newborn. HBV infection should be considered in the diagnosis of nonspecific dermatosis of pregnancy.

Learning points

- The course of HBV infection in pregnant women is similar to the rest of the adult population, except for a lower frequency of fever and lower seroconversion.
- Cutaneous manifestations of the acute infection include: urticaria, maculopapular eruptions, leucocytoclastic vasculitis, papular-purpuric gloves-and-socks syndrome, erythema multiforme and Gianotti-Crosti syndrome.
- Exanthema due to HBV should be considered in the diagnosis of nonspecific dermatosis of pregnancy.
- Maternal treatment with antivirals should take place if the viral load is $> 200 \times 10^6$ IU/L in the third trimester.
- Prophylactic administration of the vaccine prevents more than 90% of vertical transmission.

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