

Japanese Pit Viper Bite during Pregnancy

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ABSTRACT

A 28-year-old pregnant woman presented with swelling of the left foot after she was bitten by a Japanese pit viper. At first the swelling was mild to moderate but then spread up to the left knee the following day. The patient's condition improved with antivenom treatment. No complication occurred in either the mother or the fetus. Although adverse reaction is a concern, antivenom should be considered as an option even in pregnant women if the benefits outweigh the risks.

LEARNING POINTS

- The use of antivenom for snakebites can sometimes be problematic in pregnant patients due to the adverse effects of antivenom.
- Clinicians should decide whether or not to use antivenom based on the specific venom type.

KEYWORDS

Japanese pit viper, pregnancy

CASE DESCRIPTION

A 28-year-old woman at 20 weeks of gestation presented to the emergency department 30 minutes after being bitten by a Japanese pit viper. She had no significant past medical history or allergies. On examination, she was fully conscious, blood pressure was 141/86 mmHg, pulse rate was 97 bpm, respiratory rate was 14 bpm, body temperature was 36.7°, and oxygen saturation was 97% on ambient air. Viper bites were observed on the first and second toes of the left foot (Fig. 1A). There was also swelling below the knee of the left leg. The fetal heartbeat was within normal limits. Laboratory data showed an increased white blood cell count (12,800/ μ l) but were otherwise normal, including renal and hepatic function results. There was no coagulation abnormality. The patient was diagnosed with a grade 2 Japanese pit viper bite. She was admitted and treated with intravenous cefepime, toxoid for tetanus, and antibiotics.

On day 2, the swelling of the left leg extended to the knee, and the patient developed pain in the left inguinal lymph nodes, indicating bite severity had increased to severe grade 3 or 4 (Fig. 1B). The patient's vital signs remained stable, and the fetal heartbeat was within normal limits. Repeated blood tests only showed mild anaemia.

Since bite severity was increasing, methylprednisolone 125 mg and freeze-dried mamushi equine-antivenom 6000 units were administered intravenously. The antivenom had no adverse effects and there was no anaphylaxis. The fetal heartbeat remained within normal limits. Left leg swelling improved on day 4, and the patient was discharged home on day 6.

In the 39th week of pregnancy, the patient gave birth with a normal vaginal delivery, and both mother and baby were in good health.



Figure 1 (A) Viper bites observed on the first and second toes of the left foot of the patient on admission. (B) Redness and swelling extending to the knee on day 2

DISCUSSION

Antivenom is a key therapeutic option for the management of severe snakebite but its use in pregnant patients is controversial. A review of the literature suggests that antivenom can save the mother's life but may cause fetal mortality^[1]. However, outcomes varied with the species of snake^[1]. Hence, the use of antivenom should be based on the type of venom and the patient's condition. Scarce data on pregnant patients bitten by the Japanese pit viper show that all three mothers described survived without the use of antivenom, although the fetus was harmed in two of the three cases^[2-4]. In addition, although antivenom can cause anaphylaxis and serum sicknesses, the reported rate of anaphylaxis was low in patients who received antivenom to the Japanese pit viper (0.9–1.8%)^[5]; moreover, anaphylaxis can be treated. The *Vipera* genus of snakes is responsible for many venomous snakebites. The main components of the venom of European vipers are similar to those of the Japanese pit viper (e.g., phospholipase A2, metalloproteinases, haemorrhagic agents/factors)^[6,7]. Indeed, the main symptoms and signs (e.g., local swelling and pain, hypotension, rhabdomyolysis) and mortality rates (around 1.0%) are also similar in patients bitten by European vipers and by the Japanese pit viper. Anaphylaxis to antivenoms was also reported to be rare and manageable in patients bitten by European vipers^[6,8]. The risk of snake envenoming is low among pregnant women in Europe, but if it occurs, the consequences may be serious. Intra-uterine bleeding with or without abortion was reported to occur in 50% of cases^[9]. Therefore, European specialists recommend using antivenom in pregnant women^[9]. Given the similarities between European and Japanese viper bites, the finding in our case may support the use of antivenom for pregnant women with snakebites in Europe. In conclusion, we suggest that antivenom use in severe cases of viper bite may be a reasonable option even in pregnant patients.

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