

**Timely use of anti-snake venom improves maternal and fetal outcome:
a case report****Sonal M. Parekar*, Jugalkishore B. Jaju, Shrikant C. Dharmadhikari, Ganesh R. Pawar,
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commercial use, distribution,
and reproduction in any
medium, provided the original
work is properly cited.**ABSTRACT**

Snake bite is a common medical emergency and an occupational hazard in a rural population of India. Though it is uncommon in pregnancy, it is associated with poor maternal and fetal outcome. Early gestational age and delay in the treatment are the factors responsible for unfavorable prognosis. Here, we report a case of primigravida, aged 22 years, with 22 weeks of gestation presenting with a history of snake bite on the left frontal region of the face. While on anti-snake venom treatment, patient developed anaphylactic reaction. In spite of this, the maternal and the fetal outcome were good in this case.

Keywords: Snakebite, Pregnancy, Anaphylactic reaction**INTRODUCTION**

Snakebite is a common medical emergency and an occupational hazard in a rural population of India. In India, an estimated 35000-50000 lives are lost per year due to snake bite.¹ Snake bite is uncommon during pregnancy because outdoor activity is limited. Literature on snakebite envenomation in pregnant females is also limited. Early gestational age and delay in the treatment suggests an unfavorable prognosis. Venomous snakebite in the pregnant female may lead to a poor outcome in both the mother and the fetus. Previous literature reviews found overall fetal deaths ranging from 38% to 43% with maternal deaths of approximately 10% after a venomous snakebite.^{2,3}

Antivenoms used for the treatment of snakebite to the mother can cause anaphylactic reactions that may have an adverse effect on the mother as well as fetus. The fetal death rate has been reported to be high up to 55-58% in mothers injected with antivenom.^{2,3}

To get some insight into this problem, we present a case of snake bite during the second trimester of pregnancy presented to the casualty of Government Medical College, Latur.

CASE REPORT

A primigravida aged 22 years, with 22 weeks of gestation came to the casualty of Government Medical College, Latur with a history of snake bite on the left frontal region of face 1½ hrs before. Patient reported with symptoms of 3-4 episodes of vomiting, periorbital edema and facial edema. Relatives brought the snake which was identified by a forensic expert as Russell's viper. Patient was admitted to ICU for further management.

On general examination, patient was conscious but restless. All the reflexes were intact. Sensorium was not altered. Pulse rate was 80/mins, blood pressure was 100/70 mmHg and respiratory rate was 16/mins. She was stable hemodynamically.

There was no bleeding from orifices. Local examination revealed swelling and cellulites of size 4 cm × 5 cm on left periorbital region of the face (Figure 1). Bite mark was not seen. Per abdomen examination revealed uterine size of 20-22 weeks of gestation. Fetal heart sounds were not audible.

On ultrasonography, there was 22 weeks pregnancy with single live intrauterine fetus. Upon investigating, clotting time was 15 mins, bleeding time was 5 mins, prothrombin time was 20 sec and international normalized ratio was 1.51. The complete hemogram revealed low hemoglobin (8 g/dl). The kidney function test and the chest X-ray were normal.

Based on snake identification and deranged blood parameters, anti-snake venom (ASV) was started after giving a test dose. A 100 cc dose of was given i.v. Stat followed by a 100 cc dose every 8 hourly till normalization of blood parameters. Patient received total 35 vials (350 cc) of ASV over the entire duration of management. Four units of fresh frozen plasma were also given.

The patient developed hypersensitivity reactions to ASV in the form of cough, tachypnea, chest tightness. This was treated with Inj. hydrocortisone and Inj. chlorpheniramine maleate. After treatment, symptoms of anaphylaxis disappeared.

The patient was managed in ICU for a total of 6 days. Repeat ultrasound examination showed normal fetal parameters. After complete recovery, she was discharged (Figure 2).

She had follow-up visits till term. During visits, her pregnancy showed normal progress. She had a full term normal delivery with normal fetal parameters.

DISCUSSION

Snakes are broadly categorized into four different families namely Colubridae, Elapidae, Viperidae, and Hydrophidae. Snake venoms are primarily composed of mixtures of proteins and polypeptides. The composition of venom varies

with the species of snake, age of the snake, geographic locality. Some of the major factors influencing the effect of the venom on humans include the amount of venom injected, the age, and health of the victim.

In studies from South Africa, India, and Sri Lanka, pregnant women have accounted for 0.4-1.8% of hospitalized snakebite victims.⁴ There are various problems related to snakebite during pregnancy like limited data on snakebite, toxic effects on the mother as well as fetus and risk of anaphylactic reaction to the mother with the use of ASV.

Previous studies indicate that early gestational age and delay in the treatment denotes an unfavorable obstetrical consequence due to a thrombopenic state in the first trimester and the gradual increase in the platelet count in the third trimester.⁵ The most common adverse obstetrical events occurring due to snake bite are vaginal bleeding, intrauterine death, premature labor, and threatened abortion.

Fetal loss is mainly because of delayed treatment with ASV and several possible mechanisms like-fetal anoxia associated with maternal shock after envenomation, direct effect of the venom on the fetus, hemorrhages into the placenta and uterine wall causing abruption placenta, premature uterine contractions initiated by the venom, pyrexia and cytokines release after tissue damage, maternal hemorrhage with acute fetal anemia causing in utero fetal death, and potential maternal anaphylaxis to antivenom.

Zugaib et al. reported snake venom contains coagulative active agent. This toxin reaches placental circulation, causes placental dissociation and fetal loss.⁶ Snake venom may induce uterine contractions, but their exact role in premature labor and maternal mortality is not known.⁷

In our case, the patient had vasculotoxic snake bite as snake was identified as Russell's viper. She had very uncommon site of bite i.e. left frontal region of the face. Though physical examination was within normal limits, deranged blood



Figure 1: Snakebite patient before the anti-snake venom administration.



Figure 2: Snakebite patient after the anti-snake venom administration.

parameters like bleeding time, clotting time, prothrombin time, INR indicated severe envenomation. She was managed optimally in ICU with ASV with bite to needle time of 1½ hrs. She also received other medications like antibiotics, analgesics, etc., in ICU.

In addition to snake venom, hypersensitivity reaction with ASV use in a pregnant patient also increases the risk to the fetus. This patient also experienced allergic reaction following administration of ASV; it was treated with steroid and antihistaminic drugs, which resulted into subsidence of symptoms of anaphylaxis.

Thus, considering the nature of complications and loss that occurs in pregnant patients after snake bite, early, and optimal treatment improves the overall outcome of mother and fetus, as she had normal course of pregnancy without any adverse events and full term normal delivery with normal fetal parameters.

CONCLUSION

This is a very rare case of snakebite during early pregnancy with uncommon site of bite and severity of envenomation. Patient also suffered from a hypersensitivity reaction to ASV, which further increased risk of maternal and fetal complications. In spite of the high-risk bite early initiation of treatment with ASV and optimal management improved maternal and fetal outcome.

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