

Gila Monster Bite: A Case Report

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INTRODUCTION

Two species of poisonous lizards exist today—the Gila monster (Heloderma suspectum) and the Mexican beaded lizard (Heloderma horridum). The slow-moving, unaggressive Gila monster inhabits the arid southwest United States and west Mexico, where it feeds on small mammals and eggs. It has colorful markings and is kept as a pet quite commonly, perhaps due to its romantic combination of beauty and danger. Victims of Gila bites have been handlers of captive animals in nearly all reported cases. Illness resulting from Gila monster envenomation is generally mild and short-lived although cases of death have been reported in debilitated individuals [1]. In this case, we discovered temporary electrocardiogram changes in a healthy young man who was bitten by a Gila monster.

CASE REPORT

G. G., a 20-year-old pre-veterinary student, was bitten on the left hand by one of his five pet Gila monsters. The animal released its jaws after the patient set the reptile on a table 15 sec later. The patient washed the painful and profusely bleeding wound in tap water

and attempted to squeeze out venom from the bite. He then came to the UMMC emergency room experiencing nausea and chills.

He had never been bitten by a poisonous animal before although he kept several venomous creatures for study and as pets. He had been in good health except for slight nasal congestion the week preceding the bite.

Physical examination upon admission one hour after the bite revealed a blood pressure of 135/70, pulse 70 and regular, respirations 20/min unlabored, and temperature 98.6°F. There were ten 1-mm puncta in a 1 × 2 cm arc on the hypothenar eminence of the left hand. Edema of the left hand extended to the wrist, accompanied by erythema of the hand and blanching of the digits. The lungs were clear to percussion and auscultation. Cardiovascular examination revealed the point of maximum impulse to be 1 cm to the right of the mid-clavicular line in the fourth intercostal space. The S₂ was physiologically split, and there were no gallops or murmurs. Motor and sensory examinations of the left hand were normal.

Pertinent laboratory data were hemoglobin 16.4, hematocrit 47%, white blood cell count 14,000, with 14 bands, 74 neutrophils, eight lymphocytes, three monocytes, and one eosinophil. Platelets were 238,000/mm³. Urinalysis, electrolytes, SGOT, LDH, CPK, PT, PTT, and fibrinogen level were normal. The chest film was normal. Admission electrocardiogram revealed an interventricular conduction defect and nonspecific T-wave changes. Further T-wave inversion in the anterior and inferior leads occurred 6 hr later (See Fig. 1.) Left arm edema extended rapidly to the left elbow, and a radial pulse was not palpable. Doppler examination, however, revealed good arterial flow and venous return. The patient was monitored in the intensive care unit where his pain subsided spontaneously soon after admission. He was given Ampicillin 500 mg IV every 6 hr and 0.5 cc tetanus toxoid. His vital signs remained stable, and the left arm edema gradually subsided over the next 24 hr, at which time he was discharged with only slight tenderness at the wound. Repeat electrocardiogram 11 days later was entirely normal, showing reversion of the T-wave changes and conduction defect. (See Fig. 2.)

DISCUSSION

Tachycardia, hypotension, rapid, shallow respiration, and chest pain are among symptoms occurring in humans after Gila monster envenomation, but no electrocardiogram abnormalities have been reported previously. Electrocardiogram changes have occurred after envenomation by jellyfish (*Phironex*), stingrays, spiders (*Latrodectus*), scorpions (*Leiurus* and *Tityus*), and snakes (*Elapids*) [2]. Cardiovascular manifestations of scorpion (*Buthus*) stings are believed to be

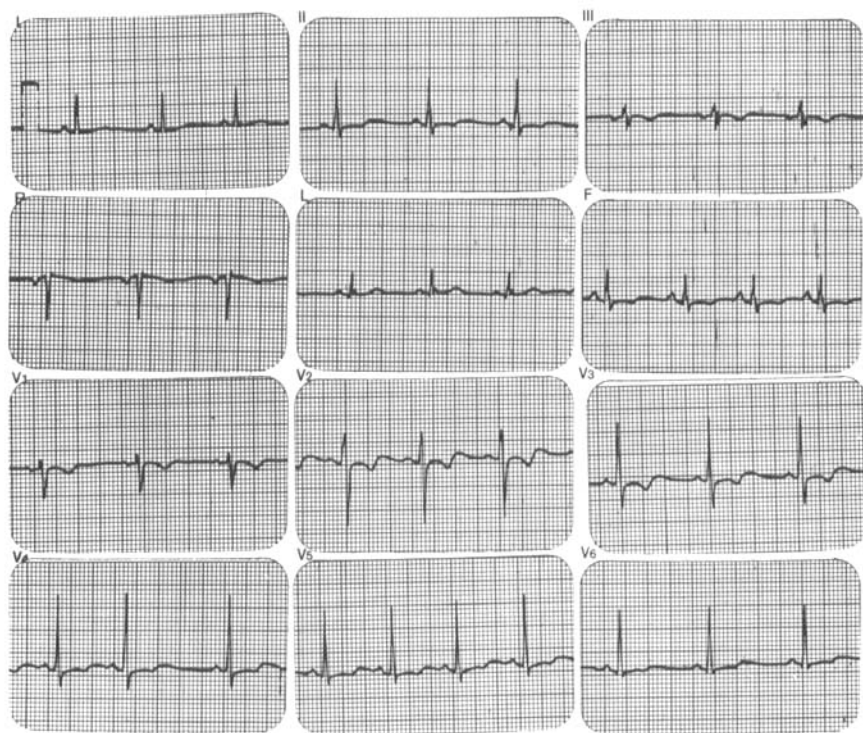


FIG. 1. Abnormal electrocardiogram 9 hr after Gila monster bite.

due to excess circulating catecholamines elicited by stimulation of the sympathetic system [3]. Reid stated the electrocardiogram abnormalities in cobra envenomation may be secondary to respiratory failure although a cardiotoxin has been described in cobra venom [4].

Early investigators believed Gila venom to be cardiotoxic. They found cardiac arrest in diastole after injecting frogs, pigeons, and rabbits subcutaneously with Gila venom [5]. Patterson et al. found that rats and dogs developed ventilatory difficulties after intravenous injection of *Heloderma suspectum* venom, and elevated T-waves, as well as occasional premature ventricular contractions were noted on electrocardiogram [6]. They attributed their findings to hypoxia but suggested that the venom may have a direct effect on heart contractility.

Gila venom contains hyaluronidase, serotonin, phospholipase fibrinolysin, L-amino acid oxidase, protease, and two arginine esterases—one with kinin-releasing activity—as well as a nonenzymatic, low molecular

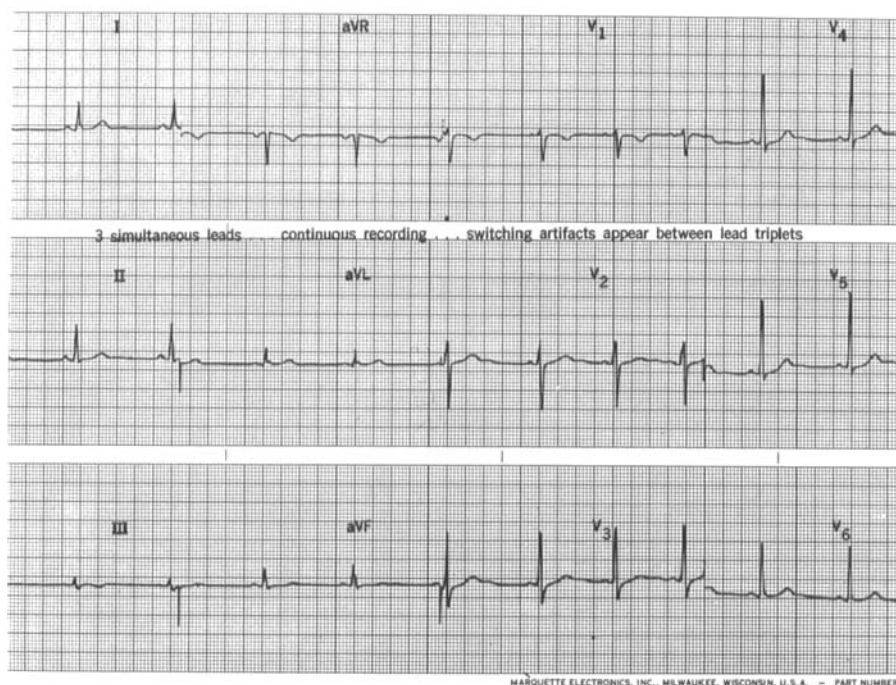


FIG. 2. Normal electrocardiogram 11 days after Gila monster bite.

weight toxin [7]. No direct cardiotoxin has been identified, but much is still unknown about Gila venom. Our patient had no respiratory distress and had normal serial cardiac enzymes, yet had a markedly abnormal electrocardiogram. It is our belief that our patient's electrocardiogram changes were most probably caused by a cardiotoxic constituent of *Heloderma* venom.

A further comment concerns arteriospasm, which has been reported by Stahnke et al. as a major cause of morbidity in a Gila monster bite [8]. However, the patient had undergone cryotherapy, which also can cause arteriospasm [9]. They [8] reported that meperidine, codeine phosphate, and morphine sulfate decrease the rat subcutaneous LD₅₀ of *Heloderma* venom and used IV regional perfusion and regional nerve block with lidocaine to relieve pain and arteriospasm. Our patient's pain subsided spontaneously, and we were able to avoid the use of narcotics. We feel, as do other authors, that prolonged immersion of an envenomed extremity in ice water is not advisable [10, 11]. Doppler examination provided an excellent means of monitoring the vascular status of our patient's extremity.

SUMMARY

Transient electrocardiogram abnormalities are described in a young man who was bitten by a Gila monster (*Heloderma suspectum*). The patient's pain subsided spontaneously without narcotics and the vascular status of his bitten extremity was monitored by Doppler examination. The patient was discharged in 24 hr after conservative management.

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