Cutaneous necrosis following brown recluse spider bite

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Dear Editor,

Arachnids are a large class of Arthropods that inhabit all around the planet Earth and consist of varied species [1]. One of the orders of this class is the Araneae. Spiders that belong to the Araneae order live free and are easily identified through having four pairs of legs, chelicerae, and fangs [2]. At the current time, more than 46000 species of spiders have been discovered all over the world [3]. The number of species discovered in Iran is nearly 600. Many species of spiders are harmless to humans and their habitation in proximity to humans does not pose any dangers. However, a number of species are venomous and their bite can cause various complications [4]. Of spiders that are vital from the viewpoint of medicine, *Loxosceles* (Sicariidae) and *Latrodectus* (Theridiidae) should be noted [5]. These spiders reside in some zones of the world including Iran [6]. Sicariidae consists of about 139 species classifies into *Loxosceles* and *Sicarius*. The species of the genus *Sicarius* are found in South America and Africa but *Loxosceles* spiders - also known as recluse spiders- have a global distribution [4].

In this paper, we reported a case of loxoscelism with cutaneous necrosis following a brown recluse spider bite. He was a 35-year-old male living in Qom city. In June 2018 and after about 48 hours of the bite, the patient requested medical aid. Upon examination of the site of injury on his right calf, two adjacent wounds were seen. The injury was 3 cm in diameter and a bruise was evident around it that was about 12 cm wide. Pain, inflammation, and severe sensitivity were noted in the area of the injury and the patient reported dizziness, fever, and general sensitivity. An ultrasound scan of the injured leg was requested showing reduced surface echogenicity. Blood screening showed an increase in the platelets and white cell count (leukocytosis) with a positive CRP.

At this time, the treatment protocol started with the prescription of intravenous antibiotics and subcutaneous pain killers. Treatment continued until day 17 (Figure 1). From this day on, the wound almost healed. The spider that bit the patient was found and identified as *Loxosceles sp.* using valid diagnostic keys in the laboratory of the Department of Medical Entomology affiliated with Tehran University of Medical Sciences (Figure 2).

Figure 1. Skin erythema, ulceration and necrosis following bites from *Loxosceles* sp.

Figure 2. Brown recluse spider (*Loxosceles* sp.).

This is the first case report of loxoscelism due to recluse spider biting in Qom Province. The patient, who was a construction worker, sought medical assistance two days after the bite with an intense pain along with other symptoms. These spiders are found in urban regions, deserts, caves, and mountainous as well as residential areas. The characteristics of this spider include a violin shaped mark on the cephalothorax which can be seen with the unarmed eye [4]. Brown recluse spiders (*Loxosceles* spp.) are often found in temperate and tropical areas of the United States, Europe, and Africa, and in some limited areas of Asia. *Loxosceles rufescens* are reported from Europe, some parts of Australia and in the western Mediterranean region of Palestine [7]. In recent years, loxoscelism has been reported in some regions of Iran such as Bandar Abbas, Kashan, Khorasan Province, northeast of Iran, and Charkhab Cave, southern Iran [8]. Moreover, *Loxosceles rufescens* was also reported in many regions of Iran, including Alborz, Tehran, Razavi Khorasan, Fars, Mazandaran, and Hormozgan [4]. In this study, the patient was referred to the emergency department 48 hours after the bite with intense pain as well as other symptoms such as a wound, inflammation, severe sensitivity, dizziness, fever, elevated platelets and white cell count (leukocytosis), hypertension, nausea, and irritation. Based on previous studies, the brown recluse spider venom contains sphingomyelinase D, and sometimes hyaluronidase, alkaline-phosphatase, phosphohydrolase, protease, and some other enzymes [7,9]. Spider bite symptoms are very different based on the site of bite, spider species, and symptoms such as erythema, pain, and macula at the site of bite. Inflammation and skin necrosis are also observed in some cases, and in cases of fewer complications, such as coagulopathy and disseminated intravascular coagulation (DIC), vascular bleeding and renal failure are observed, which can sometimes lead to death [7,10]. According to this case, Qom is one of the risk areas for spider bites. In these cases, symptoms such as erythema, pain, fever, and macula are very common in the bite site. Also, inflammation and skin necrosis are observed in some cases, which may be similar to symptoms of many other diseases. For timely diagnosis and treatment of injuries caused by spider bites, adequate training should be given to general physicians and hospital staff.

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