

# A rare cause of severe periorbital edema and dermonecrotic ulcer of the eyelid in a child: Brown recluse spider bite

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**SUMMARY:** Taşkesen M, Akdeniz S, Taş T, Keklikçi U, Taş MA. A rare cause of severe periorbital edema and dermonecrotic ulcer of the eyelid in a child: Brown recluse spider bite. Turk J Pediatr 2011; 53: 87-90.

Spider bites are a worldwide problem. Brown recluse spider bites can lead to severe local or systemic clinical effects, such as edema, necrotic ulcer, rashes, fever, chills, nausea, vomiting, malaise, arthralgia, myalgia, hemolysis, leukocytosis, disseminated intravascular coagulation, renal failure, and death. Eyelid bites from brown recluse spiders are rare. We report a child with severe facial edema and a dermonecrotic ulcer on the eyelid. Upon laboratory examination, leukocytosis with a significant left shift was detected. The patient was treated with antibiotics, systemic corticosteroid and conservative therapy that included saline compresses and ocular lubrication. No surgical excision was required. Vision was not impaired. A dermonecrotic ulcer is a severe complication of brown recluse spider bites. Since the diagnosis is difficult, clinical and epidemiological findings and a detailed history are important for an accurate diagnosis.

**Key words:** spider, periorbital edema, dermonecrotic ulcer, eyelid, childhood.

Bites from brown recluse spiders (*Loxosceles reclusa*) result in several clinical manifestations, particularly necrotic skin degeneration and gravitational spread, renal failure, and hematological disturbances<sup>1</sup>. Brown spiders and related arachnid species are indigenous to Europe as well as North America. They possess a venom capable of causing painful, disfiguring necrotic ulcers and, uncommonly, severe systemic effects<sup>2-4</sup>.

As patients are usually unable to bring the spider with them to treatment, the diagnosis of a spider bite is typically made on historical and epidemiological findings, clinical signs and symptoms, and the morphologic appearance of the cutaneous lesion. Thus, diagnosis is rarely based on the identification of the spider<sup>2,4-6</sup>. Dermonecrotic lesions, such as bacterial or fungal infections, Lyme disease (erythema migrans), cutaneous anthrax and leishmaniasis, and preseptal and orbital cellulitis may be considered in the differential diagnosis. The extremities were most often affected, but eyelid spider bites are uncommon.

We report a child from southeast Turkey who presented with a brown recluse spider bite on the eyelid.

## Case Report

A previously healthy seven-year-old boy from the rural area of Siirt, Turkey awoke with pain, pruritus and a sensation of mild swelling. He had suffered a spider bite around his left eyelid two days before. His parents reported that they had seen a small brown spider in their tent (Fig. 1). Within this period of two days, his parents noted an increase in the swelling on his eyelid and face. On the third day, the boy was referred to our hospital for periorbital cellulitis.

Upon admission, the boy was alert and oriented. He had severe swelling and pain leading to significant periorbital and facial edema around his left upper eyelid. Within 24 hours, massive facial edema developed, and periorbital edema resulted in the closure of his left eye (Fig. 2). His blood pressure was 114/68 mmHg, temperature 38.8°C, respiratory rate



Fig. 1. *Loxosceles reclusa*  
(www.ohmboy.com/.../loxosceles-735510.jpg).

28/min, pulse oximetry 96%, and pulse 124/min. The physical and neurological findings were normal. The ocular examination was unremarkable. An initial laboratory evaluation revealed: white blood cell count (WBC) 18,300 / $\mu$ L, with a significant left shift, hemoglobin (Hb) 13.6 g/dl and platelets 291,000 / $\mu$ L. The laboratory tests, including liver and renal function tests, urinalysis, serum electrolytes, and coagulation functions, were all within normal limits. Microscopic examination of the material scraped from beneath the edge of the eschar revealed no gram-positive rods, fungal infection or cutaneous leishmaniasis.



Fig. 2. Massive facial edema and periorbital edema resulted in closure of the left eye.

Blood culture was negative. Drug reaction and pyoderma gangrenosum were excluded as well.

The eyelid lesion was managed supportively with saline compresses and ocular lubricants. The patient received cefazolin (100 mg/kg/day), acetyl salicylic acid, and methylprednisolone (1 mg/kg/day) twice daily for five days. On the fourth day, the swelling began to decrease and a 3x3 cm hemorrhagic lesion with superficial necrosis was observed (Fig. 3). On the ninth day of hospitalization, the patient was discharged with no complications, and the lesion healed with minimal scarring after four weeks.

## Discussion

Spider bites are common in many parts of the world. However, most domestic spiders are not substantially venomous to humans<sup>7</sup>. Brown recluse venom is cytotoxic and hemolytic. It contains at least nine components, including enzymes such as hyaluronidase, alkaline phosphatase, esterase, lipase, and sphingomyelinase D2, which are responsible for both tissue destruction and hemolysis<sup>8</sup>.

Spider bites on the extremities are common and severe<sup>9</sup>, but eyelid bites are quite uncommon<sup>10,11</sup>. Severe edema is generally observed within 2–3 days immediately following a spider bite. Long-term complications include necrosis and scarring of the eyelid, which can lead to corneal irritation<sup>11</sup>. Spider bites may also lead to systemic effects, including rashes, fevers, chills, nausea, vomiting, malaise, arthralgia, and myalgia. Hemolysis, leukocytosis and more severe reactions (e.g., disseminated intravascular coagulation, renal failure and death) may occur<sup>7</sup>. McDade et al.<sup>12</sup> recently reported six adolescents with acute hemolytic anemia from presumed brown recluse spider bites. Our patient developed massive facial and eyelid edema and an early hemorrhagic lesion with superficial necrosis. Mild and self-limited findings, such as leukocytosis and fever, were detected.

The diagnosis of spider bite is very difficult, and obtaining a detailed history and observation of systemic and local findings are helpful in the diagnosis and treatment<sup>13</sup>.



Fig. 3. The 3x3 cm hemorrhagic lesion with superficial necrosis.

The diagnosis in previous reports was made clinically, based on a combination of history, signs and symptoms<sup>14,15</sup>. The venom provided supporting evidence for the diagnosis. *Loxosceles* venom may be detected by a sensitive and specific enzyme-linked immunosorbent assay (ELISA), using specimens obtained noninvasively by swabbing the lesions with cotton gauze for diagnostic confirmation<sup>14,16,17</sup>. Definitive diagnosis is usually not possible because laboratory venom analysis is not routinely used.

The diagnosis of our case was made according to the report of his parents and clinical and historical findings, signs, and symptoms. Keklikci et al.<sup>14</sup> and Akdeniz et al.<sup>17</sup> reported patients with the same clinical and historical findings, whose diagnoses were confirmed with venom analysis for *Loxoscelism*. Our patient was admitted from same region (Siirt/Turkey) and had similar clinical and historical findings.

A variety of treatments have been described for eyelid spider bites. The established therapy includes: dapsone, acetyl salicylic acid, antibiotics (erythromycin and cephalosporins), systemic corticosteroids, hyperbaric oxygen, avoidance of strenuous activity and heat and, when necessary, surgery. Early surgical excision has not proven to be effective, and in most cases, delays healing<sup>1,10,18,19</sup>. Supportive therapy can include topical and systemic antibiotics, ice and elevation, saline dressings, and ocular lubricants<sup>11</sup>. Our patient was treated with topical and systemic antibiotics, ice and elevation, saline dressings, acetyl salicylic acid, systemic corticosteroids, and ocular lubricants.

No surgical excision was required following treatment. At follow-up, the patient had no vision impairments; however, minimal scarring was observed during his ocular examination.

In conclusion, brown recluse spider bite is one of the main causes of skin edema and necrosis. Spider bite localization on the eyelid is rare and the diagnosis is difficult. Brown recluse spider bites have been misdiagnosed in the past. Therefore, clinical and epidemiological findings, as well as a detailed history, may establish the diagnosis.

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