Brown Spider Bites

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In North America the brown spider (*Loxosceles reclusa*) and in South America the house spider (*Loxosceles laeta*) are known to cause loxoscelism, or necrotic arachnidism, which is a syndrome of ranging severity.[1] The spider can be found in closets and packing boxes, under socks, around outdoor plumbing, and indoors and in other quiet places. It is able to live in areas of low humidity and to survive for a long time without water and food. It is not an aggressive creature; it will attack or bite only if it believes that it is threatened.

The brown spider bite causes a wide spectrum of reactions, from a very mild, hardly noticeable irritation[2] to a systemic condition that can occasionally cause death. Hemolytic anemia and fulminant, sometimes fatal, intravascular coagulation have been described.[3]

The symptoms and signs following brown spider bites are pain, pruritus, malaise, chills, sweats, gastrointestinal upset, myalgias, dizziness, dyspnea and headache, erythema, cellulitis, rash, blister, angioedema, urticaria, lymphangitis, and skin necrosis.[4]

The present report describes 12 patients bitten by the brown spider, according to their description, who were treated in the Golda Medical Center emergency department.

CASE REPORT

In a period of 2 years (1987 to 1989), 12 patients were treated who were bitten by brown spiders. There were 3 men and 9 women, and their ages ranged from 21 to 63 years, with mean age of 42 years.

The location of the bites were thigh (3 cases), neck with lymphangitis (2 cases), arm (1 case), hand (1 case), forearm with lymphangitis (1 case), buttock (3 cases), and axillary (1 case).

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Case 1

A 48-year-old woman was bitten by a spider on her right hand. Initially she felt a slight itching. After a few hours she developed severe pain in her hand, chills, fever, and vomiting. On arrival at the hospital, she was in a good condition, with a temperature of 38.8°C. The physical examination was normal except for her right hand, which was swollen, painful, and erythematous. On the third finger there were two blisters with lymphangitis toward the right axilla, and swollen and painful lymph nodes on the same side.

She was admitted to the hospital. After a few days of treatment with antibiotics, her conditions improved and she was discharged.

Case 2

A 63-year-old woman was bitten by a spider on her left buttock 3 weeks before presentation at the hospital. During this time she suffered from intense pain, pruritus, and a sensation of burning. She could not sleep at night. On examination, an area of erythema was seen on the left buttock and thigh with a central area of necrosis (Figure 1).

Case 3

A 28-year-old woman was bitten by a spider on the left side of her neck 24 hours before coming to the hospital. She had a sensation of burning and pruritus. Findings on examination were an area of erythema on the left side of her neck and upper left thorax, a central area of necrosis and lymphangitis toward the left axilla, and a swollen and painful lymph node on the same side.

Case 4

A 30-year-old man was bitten by a spider on his left forearm. He complained of pruritus. He was found on examination to have a central area of necrosis surrounded by a large area of erythema. There was also lymphangitis toward the left axilla (Figure 2).

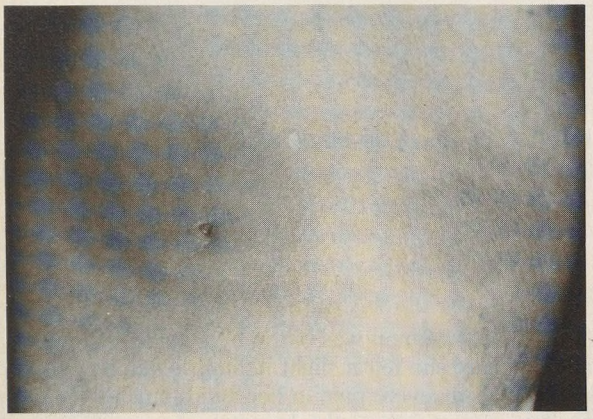

Figure 1. Case 2: A vast area of erythema with a central area of necrosis on the left buttock.

COMMENT

The spider's venom contains approximately eight separate proteins, mainly enzymes, from which levarterenol bitartrate, hemolysins, and hyaluronidase have been separated.[1] Other enzymes such as protease, esterase, and hyaluronidase, identified in the spider's venom, have also been found in snake venom.

The effects of a spider bite have been observed by electron microscopic studies in rabbits.[1] After 3 hours endothelial damage occurs followed by thrombocytopenia, decreased fibrinogen levels, and an increased partial thromboplastin time. Thrombi composed of leukocytes and platelets were found to occlude small blood vessels, arterioles, and venules.

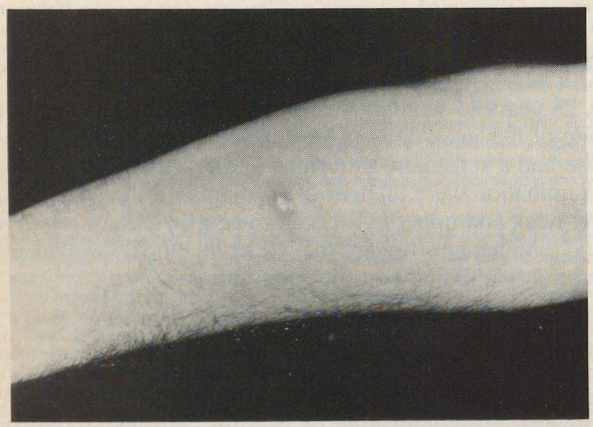

Figure 2. Case 4: Central area of necrosis and area of erythema on the left forearm.

Atkins et al[5] have injected the spider venom into the skin of rabbits and guinea pigs and observed hemorrhage in the dermis, capillary stasis, and thrombosis. After 24 hours, necrosis was observed in all layers of the skin, and there was a spreading region of hemorrhage and thrombi. After several days, a black eschar was present, with deeper necrosis into the fat, forming focal abscesses.

There are many recommendations for the early treatment of spider bites, including corticosteroids, antihistamines, phentolamine hydrochloride, and antibiotics.

Corticosteroids should not be given in all cases, but only in patients with systemic signs, fever, malaise, etc. Antibiotics are of value both prophylactically and therapeutically. Broad-spectrum antibiotics are recommended because they help to localize the inflammation and prevent infection secondary to the bite and the enlargement of the necrotic area.

In an article by Rees et al,[4] the authors report on patients bitten by spiders who were treated with dapsone, brown recluse spider antivenom, or combination therapy. All patients also received erythromycin.

King and Rees[6] treated a patient who was bitten by a spider by oral administration of dapsone 100 mg twice daily. After 2 days the patient was pain free, and there was reduction of the erythema and induration.

Another possible treatment of spider bites is surgery. When the bites are more severe, a mature, stable black eschar will develop within 5 to 7 days. Its healing may take several weeks. If there is a thick subcutaneous area under the involved skin, the eschar may never heal. The area of necrosis and the underlying tissue should be excised early and the area saucerized. The large erythema beyond the necrotic area should be left intact, since it disappears rapidly. A secondary closure must be performed 3 to 5 days later, using a split-thickness graft.[1,7]

Hollabaugh and Fernandes[8] suggested that a curettage of the brown recluse spider bite lesion must be performed in the early stages of development. This procedure prevents the continuing action of the toxin and allows healing.

Of the 12 patients, only one developed systemic signs (case 1); 9 patients were treated with erythromycin; and 2 patients underwent surgical treatment—wide excision of the necrotic area—with healing after 3 to 5 days.

References

1. Auer AI, Hershey FB: Surgery for necrotic bites of the brown spider. Arch Surg 1974; 108:612–618
2. Berger RS: The unremarkable brown recluse spider bite. JAMA 1973; 225:1109–1111

continued on page 420

continued from page 418

3. Eichner ER: Spider bite hemolytic anemia: Positive Coombs' test, erythro-phagocytosis, and leukoerythroblastic smear. Am J Clin Pathol 1984; 81:683–687
4. Rees R, Campbell D, Rieger E, King LE: The diagnosis and treatment of brown recluse spider bites. Ann Emerg Med 1987; 16:945–949
5. Atkins JS, Wingo CW, Sodeman WA, Flynn JE: Necrotic arachnidism. Am J Trop Med Hyg 1958; 7:165–184
6. King LE Jr, Rees RS: Dapsone treatment of a brown recluse bite. JAMA 1983; 250:648
7. Hershey FB, Aulenbacher CE: Surgical treatment of brown spider bites. Ann Surg 1969; 170:300–308
8. Hollabaugh RS, Fernandes T: Management of the brown recluse spider bite. J Pediatr Surg 1989; 24:126–127