A Brown Recluse Spider Bite to the Face with Excellent Aesthetic Result after Conservative Treatment

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Case Report
A 48 year old female was referred to the Otolaryngology clinic for a lesion on her upper lip consisting of a 4mm diameter eschar surrounded by 5mm of erythema (Figure 1). She presented 15 days after noticing a red lesion that developed into an ulcerative sore and progressed to central necrosis and eschar formation. She describes increasing pain and lesion enlargement. She had no systemic complaints. Her past medical history was non-significant. On examination, the necrosis was 4mm in diameter and extended almost through and through the upper lip, sparing only the oral mucosa. A brown recluse spider bite was suspected. As the patient had no systemic symptoms and no overlying infection, a conservative treatment plan was pursued. She was given antibiotic prophylaxis against superinfection and followed closely. The eschar was left as a biologic dressing without debridement or topical therapies. A week later, she developed two reactive facial lymph nodes, and was seen by an outside ER, where a toxicologist confirmed the lesion was a brown recluse spider bite. The eschar slowly detached from the underlying tissue (Figure2) and fell off on day 40. The immediate result was complete healing of the upper lip tissues with a 1mm scar with mild erythema, giving her an excellent aesthetic outcome (Figure 3).

Discussion
Brown Recluse Spiders
The brown recluse spider is tan to brown with a violin-shaped marking on the dorsum. Its native region is the south central United States.1 However, spiders can travel in human luggage,2 by wind currents, and with migration patterns to non-endemic areas.1 The severity of a brown recluse bite can range from mild itching and erythema, to dermonecrosis, to DIC, renal failure, and death. Within 6 hours of the bite, the area becomes erythematous, puritic, and painful. Within 24 hours, an irregular erythematous ring forms. In more severe cases, necrosis occurs within 48-72 hours, beginning with a change to reddish-blue color, significant pain, and evolution to an eschar. Signs of necrosis include bullae, cyanosis, and hypoproteinemia.3 Some patients develop systemic symptoms, including fevers, chills, and nausea. Rarely, systemic loxoscelism causes pyoderma gangrenosum, DIC, renal failure, and systemic toxicity. The venom of the brown recluse causes the most severe arthropod-induced tissue necrosis.2 Sphingomyelinase D activates neutrophils, platelets, and complement factors, and is responsible for calcium dependent hemolysis, as well as degradation of myelin nerve sheaths.1 The attracted neutrophils bind to endothelial cells and release factors, and is responsible for calcium dependent hemolysis, as well as degradation of myelin nerve sheaths. The attracted neutrophils bind to endothelial cells and release their granules, recruiting inflammatory factors and leading to thrombosis, ischemia, and necrosis.

Dermonecrotic Lesions
The differential diagnosis for dermonecrotic lesions is extensive, and no laboratory test exists to detect exposure to the venom. Potential causes of lesions similar to the brown recluse spider bite are listed in Table 1. Knowledge of the clinical presentation of these skin lesions and the specifics of the clinical course of the brown recluse spider bite can lead to the correct clinical diagnosis, and care should be taken to rule out other diseases, especially in non-endemic areas. Consultation with internal medicine, dermatology, or toxicology may be obtained if the diagnosis is in doubt.

Treatment
-Conservative management with rest, ice, and elevation.
-Topical application of hydrocortisone and antibiotics, as indicated.
-Antihistamines may be used for symptomatic treatment of pruritus.
-Corticosteroids are controversial, but in systemic loxoscelism it may help blunt the immune response and lessen the severity of renal failure and hemolysis.
-Antibiotics are used for appropriate topical application. Aseptic technique is necessary.
-Debridement is used for many necrotic wounds on the extremities. However, reported cases in which brown recluse spider bites on the face were surgically debridement and skin grafted had continued extension of the necrotic area and loss of the skin graft.3 Current literature suggests surgical debridement only after 6-8 weeks, once the extent of the wound has delineated itself.3-5

Differential Diagnosis for a Brown Recluse Spider Bite Lesion

<table>
<thead>
<tr>
<th>Lesion characteristics</th>
<th>Ave. healing time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Mild erythema, no necrosis</td>
</tr>
<tr>
<td>Moderate</td>
<td>Erythema, mild edema, &lt;1cm necrosis</td>
</tr>
<tr>
<td>Severe</td>
<td>Extensive edema, edema, possible bullae, &gt;1cm necrosis</td>
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Conclusion
This case presents a conservative treatment option for dermonecrotic brown recluse spider bites on the face. The authors propose that the excellent blood supply to the face may aid in healing and help prevent more extensive necrosis. This case also exemplifies the fact that these spiders can travel out of their native areas and cause wounds requiring medical attention in non-endemic areas. Due to the long differential diagnosis for dermonecrotic wounds, the help of a toxicologist is useful to confirm the diagnosis after other diseases have been ruled out.

Figure 1 – Day 15
Figure 2 – Day 30

Figure 3 – Day 40

References