

# Clinical and Ancillary Data in Children with Brown Recluse Spider Envenomation

## BACKGROUND

Loxosceles spider envenomations can result in both local and systemic findings with significant morbidity and occasionally mortality. Previous data regarding envenomations is largely based on case reports. Our research was designed to present the largest case series to date of brown recluse spider (BRS) envenomation in children.

## METHODS

A retrospective chart review of patients hospitalized at Children's Mercy Hospital for brown recluse spider envenomation between 2003 and 2007.

Only cases confirmed by a medical toxicologist were included.

Each patient was assessed for site of bite, day of presentation, day of hemolysis, and physical signs and symptoms of a systemic response (e.g. rash, fever, necrosis).

Demographic data, clinical/laboratory findings, and treatments administered were recorded.

Results were processed using chi square analysis for categorical variables, T-test for continuous variables, and multiple logistic regression analysis to identify demographic/clinical predictors of hemolysis.

## RESULTS

64 children with brown recluse envenomations were identified

32 males, mean age 9.1 yrs (7mo- 18yrs), 31 Caucasian, 27 AA

Bite location was most commonly on the leg (24) and arm (15)

Patients presented 1-10 days (mean 3.3, median 2.5) after the bite

The majority of patients (84%) did not see the spider



Swanson, David; et al. Suspected Necrotic Arachnidism. N Engl J Med. 2005;352:700-7



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## RESULTS (CONT'D)

### Clinical/Treatment Findings in those with Brown Recluse Envenomation

	Rash	Fever	Blister	Bruising	Steroids	Antibiotics	Transfusion
Present	62	52	37	48	43	53	18
Not present	2	12	27	16	21	11	46
Percent present	97%	81%	58%	75%	67%	83%	28%

### Multiple Logistic Regression Analysis of Clinical Predictors of Hemolysis

	P value	OR (95% CI)
Age	0.286	0.92 (0.79-1.07)
Sex	0.283	0.48 (0.12-1.85)
Race		
AA vs Caucasian	0.314	0.45 (0.1-2.12)
AA vs Hispanic	0.557	0.52 (0.06-4.57)
Day of presentation	0.317	1.18 (0.85-1.64)
Fever	0.025	6.2 (1.26-30.6) †
Blister	0.891	1.1 (0.3-4.03)
Necrosis	0.629	1.51 (0.28-8.04)

† Indicates statistically significant result with  $p < 0.05$

Hemolysis (39 patients) occurred from 1-12 days post-bite (mean 4.6 days)

- Hemoglobin nadir in those with hemolysis ranged from 4.6-12.9 grams (mean 9.1 grams)
- Hemoglobin nadir occurred on day 2-12 (mean 6.6 days)

Sodium was lower in patients who hemolyzed ( $p=0.044$ ) but did not correlate with the day of hemolysis

Four patients developed acute renal failure (creatinine range 1.1-4.5 mg/dL)

No deaths occurred

## DISCUSSION

Loxoscelism is a form of necrotic arachnidism found throughout the world with a predilection for North and South America. [1]

*L. reclusa* can usually be found in South-Central U.S. particularly in Missouri, Kansas, Oklahoma, Arkansas, Tennessee and Kentucky. [2]

According to prior case studies, the majority of victims do not see the spider at the time of bite and are unaware of the envenomation until a wound develops. [3] This characteristic was supported by our research as well.

Previous studies have suggested that hemolysis will occur within 4 days of a BRS bite. [4] However, our study shows that late hemolysis does occur as late as 12 days post-bite.

## CONCLUSIONS

The majority of patients with BRS envenomation develop rash, fever, blister, and bruising at the site of bite.

Most receive steroids and antibiotics. However, there is limited data regarding the efficacy of these interventions.

Hyponatremia is associated with hemolysis, but is not an indicator that hemolysis will occur.

Brown recluse envenomations continue to result in significant morbidity in children.

Health care providers should be aware that BRS bites can result in severe hemolytic anemia in children, which can be delayed up to 12 days.

## REFERENCES

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4. Wright, SW; et al. Clinical presentation and outcome of Brown Recluse spider bite. Ann Emerg Med. 1997; 28: 28-32