

# Black widow spider bites experience from tertiary care center in Saudi Arabia

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## ABSTRACT

**Introduction:** Black widow spiders are one of the most poisonous species to humans; there are more than 30 species of widow spiders in the globe but good thing that not all of them are dangerous. Some of these spiders produce toxic venoms, which cause broad spectrum of clinical manifestations including skin lesions, neurotoxicity, cardiac toxicity and death in some occasions. In Saudi Arabia there were no much reports of black widow spider bites apart from the case series by BUCUR and his group in ALBAHA region. **Settings:** In 2 years period a total of 8 patients were presented to the emergency departments diagnosed to have black widow spider bites based on description by the patients. **Results:** 100 % of the cohort were males, aged between 25-58 years. The time between bite and presentation to emergency room was one hour in average (30 min to 4 hours). 75% occurred during summer season. All of them 100% had one bite only and reported the bite to be at nighttime in 75% of the times. The average pain score at presentation was 4 /10. 100% of the bites were in the lower extremities and almost all progressed to have lower back pain. Three patients had gastrointestinal tract manifestation in form of abdominal cramps and nausea. One had bilateral ptosis, none of them had cardiac or pulmonary complications. The outcome was excellent in all patients and the average of hospital stay was 2.5 days (1-5).

**Key words:** Arachnidism, Aseer, black widow spider bite

## INTRODUCTION

Black widow spiders are among the most poisonous species on earth for humans; >30 species of black widow spiders are found globally, but fortunately, not all of them are dangerous.<sup>[1]</sup>

These spiders do not often transmit any communicable disease.<sup>[2]</sup> Ulcerations at spider bite sites are due to the combination of cytotoxicity from the venom components and autoimmune responses from lymphocytes and cytokines.<sup>[3]</sup> These spiders can be dangerous to outdoor workers.<sup>[4]</sup> The symptoms of the spider bite include itching, pain, and blisters; these can be separate or associated with systemic manifestations, namely muscle pain or cramping, sweating, headache, fever, breathing difficulty, anxiety, and hypertension.<sup>[5-7]</sup>

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## METHODOLOGY

After obtaining approval from the Research Ethics Committee at King Khalid University College of Medicine, a retrospective observational study was performed at a tertiary hospital in the southern region of Saudi Arabia over 2 years, from January 2013 to January 2015. The inclusion criteria allowed the participation of all adult patients with a positive history of a black widow spider

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bite. We recorded the symptoms, physical signs, laboratory workup, management course, and disposition of patients who came with envenomation symptoms, and followed their case from admission until discharge.

## RESULTS

In 2-years period, a total of eight patients who presented to our emergency departments were diagnosed with black widow spider bites based on the description given by the patients. One hundred percent (8/8) of the cohorts were males, their median age was 47 and their ages ranged from 25 to 58 years. The time between the bite and the patient being presented in the emergency room was 1 h on average and ranged between 30 min and 4 h. In 75% (6/8) of the cases, the bites had occurred during the summer season.

All the patients (8/8) had a single bite and the bite was reported to have occurred at night-time in 75% of the cases (6/8). On 60% of the occasions, the spider escaped (5/8), and it was killed on the remaining 40% of the occasions. The average pain score of the patients at the time of presentation was 4/10 and ranged from 1 to 10; the majority of the patients had a pain score <5/10. 100% of the bites were in the lower extremities, and almost all the bites progressed to give lower back pain (7/8). Systemic manifestations were observed in three patients who had gastrointestinal tract manifestations in the form of abdominal cramps and nausea.

One of the patients had bilateral ptosis, and it was noticed that none of them had cardiac or pulmonary complications.

Local examination revealed redness and mild swelling in two patients only, who also had lower back and neck muscle spasms. One patient had facial as well as lip swelling suggestive of angioedema, which subsequently resolved.

Regarding pain management among the five patients with severe pain, the analgesia included variable doses of fentanyl, morphine, pethidine paracetamol, and diclofenac, which led to the successful control of pain. It was observed that calcium gluconate was given to all five patients initially, with no report of pain relief.

In terms of the outcomes, only one patient had rhabdomyolysis and acute kidney injury, which recovered by day 3 and discharged.

The outcome of the treatment was very good in all the patients, and their average hospital stay was 2.5 days (ranging between 1 and 5 days).

## DISCUSSION

The black widow spider's venom can cause variable clinical manifestations, ranging from local damage to very serious conditions [Figure 1],<sup>[8]</sup> including death. In Saudi Arabia, there are not many reports of black widow spider bites, apart from the case series by Bucer and his group in the Al Bahah region.<sup>[9]</sup>

In this study, victims of spider bites suffered from an increase in pain, which is in line with other studies; for instance, in a 10-year (1984–1994) latrodectism study in Spain, Diez Garcia and others reported 12 confirmed Mediterranean black widow (*Latrodectus tredecimguttatus*) bites, which were mostly characterized by generalized pain and abdominal rigidity.<sup>[10]</sup>

Clark and others reported, during their study of 163 black widow spider bites, that the most common initial manifestations included generalized abdominal, back, and leg pain.<sup>[6]</sup> Black widow spider bites usually cause burning pain at the bite site, although some victims are not aware of being bitten. The extremities were found to be the most common sites for the spider bites in most of the studies, and this was also noticed in this study. The bite site can usually be located, but the local inflammatory reaction is mild and often unimpressive. In our study, the bite marks were localized in all the cases, although the bite mark can be absent in as high as 30% of the cases even in the presence of severe systemic symptoms and signs of envenomation.

None of the patients had secondary bite site infections, as secondary wound infections are uncommon in most spider bites. Isbister and Gray, in their prospective analysis of 750



**Figure 1:** Black widow spiders are easily recognizable. They have plump, shiny black abdomens that bear an hourglass-shaped red, red-orange or yellow mark. Black widows weave erratic sticky webs that lack any shape or form

definite spider bites in Australia, reported a 0.9% incidence of secondary wound infections at the spider bite sites.<sup>[11]</sup>

There were not many systemic manifestations, and fortunately, there were no cardiac or pulmonary complications in this cohort of patients. One of the patients had a transient neurological manifestation in the form of bilateral ptosis, which completely recovered, making the diagnosis for the emergency and primary care physician more difficult in this case.

The outcome of these patients was excellent, especially when diagnosed early and managed properly. Moreover, the hospital stay is little bit longer than expected ranging between 1 and 5 days with an average of 2.5 days although the classical duration ranges between hours and 2 days which is shortened by using the antivenom in some case reports.<sup>[6,12]</sup>

Antivenom administration is one of the modalities of therapy for black widow spider bite which was produced since 1936 in the United States, especially in severe envenomation, which can decrease the duration and intensity of the pain.<sup>[6,12]</sup>

Richard and his group were not able to demonstrate that antivenom produced greater overall pain reduction compared with placebo at 150 min or fewer treatment failures than placebo in a double-blind study exploring the efficacy measures for a novel F(ab)2 antivenom in patients with moderate to severe pain caused by black widow spider envenomation.<sup>[12]</sup>

## CONCLUSION

Black widow spider bites can lead to a spectrum of clinical manifestations and result in various outcomes, which demands that physicians, especially in the primary care

and emergency departments, should be more vigilant and keep a high index of suspicion with regard to black widow spider bites.

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### Conflicts of interest

There are no conflicts of interest.

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