



## Spider bite presenting with acute renal failure from western part of West Bengal

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### ABSTRACT

Most of the cases of spider bite are harmless and non-toxic. It mainly causes local reactions and only rarely, systemic effects are reported. We here report a case of a spider bite from Eastern India presenting with hemolysis and acute renal failure. The patient needed urgent hemodialysis, blood transfusion and finally fasciotomy for local edema. Fortunately she fully recovered with no sequelae. As far as we could search, this is probably the first report of this complication from India. This case report highlights the potentially dangerous effects of insect bite and the need for follow up.

### INTRODUCTION

Systemic toxicity following Spider bite is almost non-existent in India[1]. Most of the reports of spider bite and the subsequent effects from India are anecdotal and scientific evidence is very rare [1,2]. Reports of spider bite from India in medical literature have documented only local reactions like erythema or eschar[1]. Reports from other countries have rarely reported renal failure after spider bite [3]. Most of the cases of acute renal failure have been documented after brown recluse spider bite. We here report a case of acute renal failure following spider bite from Eastern India. As far as we could search, this is probably the first report of this complication of spider bite from India.

### CASE REPORT

A forty two year old female house wife from midnapore town, West Bengal presented to the emergency following spider bite in her left hand at home. She was doing household work in the kitchen in her house (pucca, ground floor) when she suddenly felt a sharp sting in her left ring finger and saw a small blackish grey spider on her hand. Her house was in a proper locality and there were no shrubbery or lakes nearby. The spider scurried off and could not be caught. She says it was the size of a 50 paisa coin and she had not seen any spider like it before. When she presented to us, she had swelling of the left hand with local erythema. She was

given pain killers, tetanus toxoid injection, and local lignocaine injection and sent back. However she came back after one day with increasing swelling of the left forearm (Figure 1) and blackening of left ring finger (Figure 2). The pain had also not subsided. She was advised pethidine injection and local ice application which relieved the pain momentarily. There were no reports of similar spider bite at her home. She was not having any disease like diabetes or chronic renal failure. She was not on any potentially nephrotoxic drug.

The next day i.e. the 2<sup>nd</sup> day of bite, the patient came back with blackish urine, nausea and facial puffiness. She was admitted and found to have decreased urine output. The local site had remained the same. Laboratory tests revealed blood urea 160 mg% with creatinine 8.8 mg%. Urine (figure 3) showed protein 3+, haemoglobin+, but no RBCs. Blood LDH was 760 IU/L (N<300) and total leukocyte count was 20000/cmm. Within 6 hours of admission, the patient was becoming drowsy. Her urine output was only 75 ml over 6 hours. So urgent haemodialysis (HD) was started. The blood haemoglobin later came as 5.5 gm%. So, in the second session of HD, packed red blood cells were transfused. Even after three dialysis sessions over 3 days, her blood urea was 95 mg% and creatinine 2.6 mg%. In the meantime, the pain in her left forearm was increasing. The area had become rigid and blanched. Surgical consultation was taken and thinking of compartmental syndrome, fasciotomy was done. After that, the



**Figure 1:** Showing the swollen hand after spider bite (at 6 hours)



**Figure 2:** Showing the blackening of finger (24 hours)



**Figure 3:** Showing the frank hematuria (at 48 hours)

patient started to recover. She needed three more dialysis sessions before her blood urea and creatinine returned to normal. She needed altogether 4 units of blood transfusion.

The case was thus finally diagnosed as spider bite giving rise to acute hemolysis and renal failure. In follow up (1 month) she has had no more complications. The wounds have almost healed.

## DISCUSSION

Spiders are one of the most feared insects in human society. However, most of them are harmless. Even if they bite, the bites are superficial and unable to inject toxin under the skin. There are only a few really toxic species and then also, most of them live far away from normal human habitats.

Spiders inject a cytotoxic, haemolytic venom in human body[4]. The venom is usually a mixture of many toxins like sphingomyelinase D which causes local injury. The necrotic cascade thus set up also leads to vascular injury and systemic effects<sup>4</sup>. The main species of spiders to bite humans are the brown recluse spiders and black widow spiders [4, 5]. Black widow spider toxin is mainly a neurotoxin which affects the calcium channels in nerve terminals[5]. However, contrary to popular belief, spider bite is extremely rare. There are 1686 reported species of spiders in India till now; but poisonous species are only a few[6].

Most of the effects of spider bite are local, like necrosis or edema[1]. Systemic effects like hemolysis or renal failure are rarely reported [7]. Of course there are rare very toxic species of spiders like Australian funnel web spider or the Brazilian armed spider[7]. But these species rarely come in human contact. Brown recluse spider bite is the most likely to cause renal failure. But the very presence of this species only rarely reported in India [1,2]. Our patient could not give an accurate description of the spider that bit her. She only described it as dark grey. However, the brown recluse spider can range from light tan to dark brown with velvety appearance<sup>8</sup>. Thus probably this was the species that caused her symptoms.

Another mechanism of toxicity following spider bite is allergic response[9]. This entity is also rarely reported and that too from American continent[9]. Usually these cases respond to supportive care. Although anaphylaxis is reported more often for bee/wasp stings, spider contact can also be a potential cause for insect related allergy.

The treatment of spider bite is mainly supportive and that suffices in most cases as majority of the bites are non-serious. However, anti-venom has been developed for some deadly species like Australian red back spider[10]. This anti venom is mainly against the latrotoxins. However this is not available in India.

In many cases, insect bites remain unidentified. In our case, the patient had fortunately seen the spider. But In many cases, we get patients with unknown bites. Renal failure has been documented following a variety of insect bites, including ants[11]. It may also occur as a result of anaphylaxis to the bite. Thus, any unknown bite incident needs a period of observation.

This unusual case highlights the rare complication of insect bite in our community. It should however be remembered that most of the insect bites we get are harmless. Thus we should not be unduly alarmed. But in potentially toxic cases like ours, there is need of follow up for avoiding serious complications. Insect bite in India must be managed on a case to case basis. Given the

multitude of insect species in this tropical country, a fixed protocol is not possible. Most cases will recover just on outdoor treatment. But some, like ours, will need urgent life saving measures.

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