Acute Kidney Injury in Hornet Sting: Two Cases from East India

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Insect sting is a very common occurrence in tropical countries like India. These can occur as an accident or may be an occupational hazard (e.g. for those working in forests). In most cases, insect sting causes local...
The 2nd case was a 54 year old male, who was stung by multiple hornets when he was cutting bamboo shoots in a grove. There were multiple stings all over his body and he also had anasarca at the time of presentation to our hospital (3rd day after the incident). There was no body ache. His urine output was 100 ml in 24 hours at the time of admission. Urine was normal in colour. His Urea/Creatinine at presentation (3rd day) was 76/10.35 mg/dl respectively. Serum CPK was 1682 IU/L. Urine RE/ME revealed protein 1+, RBC 10-12/Hpf and WBC 4-8/Hpf. The patient was immediately started on supportive treatment including hemodialysis. His urine output started improving after 7th day. Urea/creatinine on 7th day was still 58/5.78 mg/dl. Ultrasonography of abdomen revealed normal sized kidneys with normal echotexture. Serum CPK normalized by 10th day. This patient also needed multiple hemodialysis sessions over 15 days.

Both of these patients had no prior history of diabetes, hypertension or any kidney disease. They were not known to be allergic to any insects. For both of them, blood hemoglobin levels remained normal throughout.

Common stinging insects of the tropical countries include bees, wasps and rarely, hornets. These stings cause significant local inflammatory reaction and occasionally, IgE mediated allergic reactions. Rarely, significant systemic involvement has also been reported. In contrast to animal or snake bite, in case of insect stings, the envenomation and extent of systemic involvement is often determined by the number of stings. In both of our patients, multiple hornet stings were followed by acute kidney injury (AKI).

The pathophysiology of renal injury after insect stings is complex and multi-factorial. Direct toxic effect of the injected venom on renal tubules may be responsible. But other factors like insect venom induced intravascular hemolysis, rhabdomyolysis, arterial hypotension and venom induced catecholamine release are also responsible to an equal extent. In the two cases presented here, the 2nd one had evidence of rhabdomyolysis. But hemolysis was not documented in either case.

The medical consequences of hymenoptera sting has not been studied adequately in India. In a recent study from Himachal Pradesh, it was seen that out of 32 cases of Hymenoptera sting victim, more than 90% needed hemodialysis and mortality was 31%. Since, unlike snake bite, no specific anti-venom is available, treatment is mainly supportive and early aggressive therapy can reduce morbidity to a large extent.

Cases similar to ours has been reported from Nepal. Dongol et al reported three cases of AKI following hornet sting in the Kathmandu valley. Two of these three cases also had evidence of Disseminated Intravascular Coagulation in the form of raised PT and aPTT. One patient needed multiple hemodialysis sessions over 38 days for recovery. Thus, the course of AKI after insect sting can be as prolonged as snake bite, or even more.

Our main idea behind presenting these two cases is to sensitize clinicians to the potential serious consequences of insect exposure. Especially, stings by hymenoptera species should always be managed aggressively and regular clinical and biochemical monitoring is needed in the early stages to detect any complication like AKI.

**References**