

Acute renal insufficiency after scorpion sting

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Introduction

Scorpions are venomous arthropods found worldwide [1]. The sequelae of scorpion stings depend on the composition and amount of venom entering the body. The composition of venom depends on the scorpion species [1, 2]. Renal insufficiency following a scorpion sting is relatively rare with only 62 reported cases [1].

Case report

A 53-year old female from Wadduwa, on treatment for hypertension and diabetes for 6 years, sustained a scorpion sting. She developed features of envenomation (vomiting and abdominal pain) within four hours, and haemoglobinuria progressing to anuria suggestive of acute renal insufficiency (ARI) in the next 24 hours.

She was admitted to hospital on the second day with localized pain, oedema, abdominal pain and anuria. Chest pain and neurological symptoms were absent. She was febrile and blood pressure was 180/100mmHg. The total white cell count was $23 \times 10^3/\mu\text{l}$ with neutrophil leukocytosis, platelet count $88 \times 10^3/\mu\text{l}$, C reactive protein 232mg/dl (normal $<0.6\text{mg/dl}$) and serum creatinine 468 $\mu\text{mol/l}$, and blood picture showed microangiopathic haemolytic anemia. Ultrasound performed on second day of the illness showed that the right and left kidneys were 9.5 cm and 9.0 cm in length with preserved cortico-medullary demarcation. She was managed conservatively with regular haemodialysis.

Renal biopsy performed in the second week showed haemorrhagic glomerular infarction with acute tubular injury (ATI), and an oedematous interstitium with extravasated red cells and lymphocytes. Two viable glomeruli showed mild mesangial expansion. Capillary thrombosis and fibrinoid necrosis of blood vessels were absent (Figure 1).

She was dependent on dialysis due to persisting renal insufficiency. She defaulted treatment and died four months later.

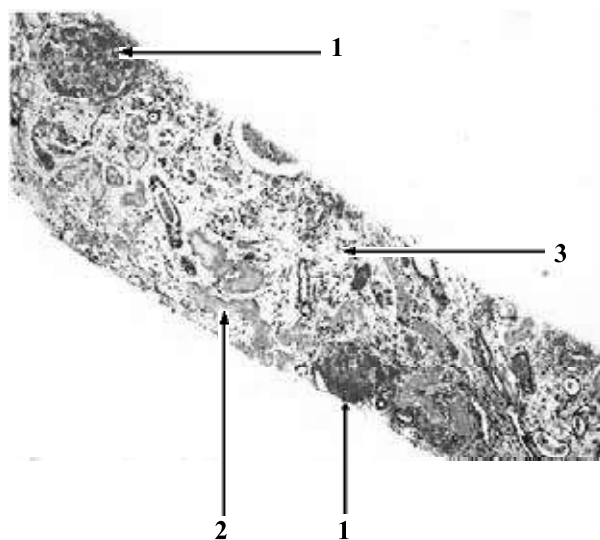


Figure 1. 1. Renal tissue with haemorrhagic infarctions of glomeruli 2.Acute tubular injury, 3. Interstitial oedema and inflammation. (Haematoxyline and Eosine stain x 10)

Discussion

Around 1500 scorpion species exist, of which only 30 are medically important [1,2]. Of the 16 scorpion species identified from Sri Lanka, family Buthidae is the only known species which causes life threatening systemic effects after envenomation [2,3].

Scorpion venom contains a cocktail of neurotoxins, cardiotoxins, nephrotoxins, hemolytic toxins, acetylcholine esterase, histamine, serotonin and 5-hydroxyptamine [2]. The clinical effects depend on the species and therefore nature of the venom, dose inoculated and other host factors [2]. Envenomation causes overstimulation of adrenergic and cholinergic receptors and an inflammatory response with rapid development of symptoms as witnessed in this patient [1,2]. Sixty two cases of scorpion sting nephropathy have been reported from Iran, Tunisia, Turkey, Pakistan and Israel. Implicated mechanisms include direct effect of venom on the kidney and renal damage resulting from intravascular haemolysis, disseminated intravascular

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