

Delayed Systemic Toxicity And Fatal Multi-Organ Failure Following Multiple Bee Sting: A Case Report

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INTRODUCTION

Hymenoptera venom contains biologically active compounds and enzymes, causing localized reactions, anaphylaxis, or, in multiple stings, toxic shock syndrome with systemic complications, occasionally leading to fatal outcomes¹. Understanding its pathophysiology is essential for clinical management.

CASE DESCRIPTION

A 65-year-old male with a history of hypertension, diabetes, and chronic kidney disease presented to the emergency department after sustaining over 50 bee stings on his bilateral hands, back, and scalp. Initially hemodynamically stable, he developed acute respiratory distress and hemodynamic instability nine hours post-venomation, accompanied by desaturation on room air. Bilateral lung crepitations were noted, and point-of-care ultrasound revealed a generalized B-profile without pleural effusion. Laboratory findings indicated acute kidney injury, acute liver failure with transaminitis, rhabdomyolysis, and severe lactic acidosis. He was subsequently intubated for airway protection and initiated on N-acetylcysteine therapy for non-paracetamol acute liver failure, triple inotropic support, and continuous renal replacement therapy (CRRT). At 26 hours post-venomation, laboratory results demonstrated worsening multi-organ failure, coagulopathy, and hemolysis. Despite 12 hours of CRRT and maximum inotropic support, his condition deteriorated, and he succumbed 33 hours post-venomation. This case underscores the rapid progression and high mortality risk of severe massive bee envenomation-induced multi-organ dysfunction syndrome (MODS).

Fatal bee sting cases are rare but can result from anaphylaxis or delayed systemic toxicity. While anaphylaxis leads to sudden fatality, delayed inflammation (24–48 hours post-venomation) due to melittin, phospholipase A2, hyaluronidase, histamine, and apamin may cause multi-organ failure, rhabdomyolysis, and coagulopathy. Aggressive hydration is essential to prevent acute kidney injury (AKI). Severe acute respiratory distress syndrome (ARDS) may necessitate advanced airway management or extracorporeal membrane oxygenation (ECMO). Early recognition and timely organ support are critical in managing severe envenomation-induced complications, as demonstrated in this case.

DISCUSSION

CONCLUSION

Bee venom can cause anaphylaxis, multi-organ failure, and life-threatening complications. While fatalities are rare, they may be underreported². Urgent referral to a tertiary center is essential, as delayed diagnosis and treatment increase morbidity and mortality. Early recognition and intervention are crucial in managing severe envenomation cases.

Keywords: Fatal bee sting, ARDS, MODS

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REFERENCES

1. Kaisbain N, Rajappan M, Lim WJ, Chang CY. Acute Liver Injury, Rhabdomyolysis, and Acute Kidney Injury Following Mass Envenomation by Wasps in Malaysia. *Cureus*. 2022 Apr 22;14(4):e24369. doi: 10.7759/cureus.24369. PMID: 35611044; PMCID: PMC9124431.
2. Fakhar M, Zakariaei Z, Sharifpour A, Soleymani M, Zakariaei A. Fatal outcome following multiple bee stings: A rare case. *Clin Case Rep*. 2022; 10:e05303. doi:10.1002/ccr3.5303

