



A Fatal Case of Disseminated Intravascular Coagulation after Multiple Wasp Sting (Chilli red wasp/Kathandu) – Case Report

Authors

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Abstract

Toxic effects due to Hymenoptera venoms are not usually seen in man unless there have been many, usually hundreds of stings. Anaphylactic reactions are a commoner cause of death. Intravascular haemolysis, rhabdomyolysis, acute renal failure as toxic effects of hymenoptera bites are known. DIC in wasp sting is rare. A case of DIC following multiple wasp stings, is reported below

Keywords: Multiple wasp stings, Disseminated intravascular coagulation.

Introduction

The common and most severe *Hymenoptera* stings are caused by members of family Apidae (honey bee, bumble bee) and Vespidae (wasps, hornet). Chilli red wasp belongs to genus *vespula* in the wasp family. Among the various toxic and allergic reactions to *Hymenoptera* stings, DIC has not been a common presentation. Majority of deaths due to wasp stings are due to allergic manifestations, usually anaphylaxis^[1,2].

The common allergic symptoms and signs include flushing, dizziness, syncope, wheezing, abdominal colic, diarrhoea, tachycardia, visual disturbances, urticaria, angioneurotic oedema, oedema of glottis and hypotension. Serum sickness may develop in later days. Known toxic effects of bee stings include vasodilation, hypotension, vomiting, diarrhoea, headache, giddiness and coma. Other features include epidermal necrolysis, intravascular haemolysis, haemoglobinuria, thrombocytopenic purpura, glomerulo nephritis and renal failure^[3].

Case report

A 70 year old female was brought to casualty with alleged history of insect bite (Kathandu/Chilli red wasp) nearly 20-30 in number over head, face and hands. She developed giddiness and became irritable and on examination facial puffiness and blackish discoloration, edema, ecchymoses over the bite site was present, she was conscious, afebrile, irritable, responding to oral commands, Bp=?, Heart rate=120/mt, peripheral pulse not felt, b/l carotid felt, cbg=93mg/dl. On systemic examination CVS-s1s2+, Rs-Nvbs+,P/A soft, no organomegaly, Bs+, CNS-NFND, b/l pupils reacting to light, b/l plantar-flexor. Patient was immediately given inj adrenaline 0.5 mg (1.1000) i.m stat, inj hydrocortisone 200mg.i.v stat, inj pheneramine maleate 25mg im stat. She was started on I.v antibiotics and i.v adrenaline infusion (1mg in 500ml NS) at 7 drops per minute. She developed hematuria, her whole blood clotting time was more than 20 minute and her urine output also got decreased. Patient's prothrombin time and APTT were elevated. Patient started developing acute renal failure. She was given 1 FFP transfusion and i.v fluids at a rate of 100ml/hour was given to improve the output. Patient became drowsy, her ABG showed metabolic acidosis with respiratory acidosis, she was intubated and connected to mechanical ventilator on VCV mode. Patient went in for sudden cardiac arrest after three hours on mechanical ventilator and CPR was started as per ACLS protocol. Despite resuscitative efforts, patient could not be revived and declared dead.



Fig-1: Ecchymoses



Fig-2: Hematuria



Fig-3: Chilli red wasp

Investigations

Hb	7.2
WBC	12.000
Platelet	3.07
RBS	234
Urea	30
Creatinine	0.8
Na+	137
K+	3.7
Cl-	96
PT with INR	1.94
APTT	58 seconds
Total bilirubin	0.9
Direct bilirubin	0.2
SGOT	3200
SGPT	2149
ALP	120
Total protein	5.0
Albumin	3.0
Globulin	2.0

Urine r/e -Albumin-3+, sugar-2+, granular cast-8-10/Hpf, 10-12 rbc seen ECG-Normal axis, normal sinus rhythm, hr=100/mt, No ST changes

Discussion**Mechanism of disseminated intravascular coagulation**

Hymenoptera venom consists of non-allergenic compounds which consist of vasoactive amines like histamine, kinins and unique toxic peptides which include apamine, melittin, and the antiinflammatory peptide (mast cell degranulating peptide). Other substances are five-hydroxy- tryptamine, bradykinin, catecholamines and cholinesterases. Coagulation abnormalities in wasp sting is rare.^{3,4}

Role of phospholipase A2

PLA2 (phospholipase A 2) in wasp venom plays an important role in coagulation abnormalities. This peptide catalyzes the hydrolysis of two-acylbonds in lipids, such as the structural membrane phospholipids of cells, mitochondria, and golgi bodies and thereby inhibits cellular functions. Melitin is known to cause intravascular hemolysis because of interactions with PLA2. The antithrombin performs a leading function with the pathogenesis of blood coagulation disturbances caused by an anaphylactic response after a wasp sting. The anaphylactic response leads to the release of kallikrein and bradykinin into the blood stream, and these can also propagate coagulation abnormalities. Also, neutrophils secretes tissue thromboplastin, and mast cells may additionally cause the activation of extrinsic pathway of coagulation.⁵

Conclusion

In this case report after multiple wasp stings, patient presented with anaphylaxis, giddiness and ecchymoses over bite sites. She later developed hematuria, elevated APTT, PT and her whole blood clotting time became greater than 20 minutes. Hence we concluded that elevated APTT, PT may be because of the disseminated intravascular coagulable state due to the venom of the wasp stings. We record this case for its rarity. Physicians mainly in rural India should be privy to varied manifestations of wasp sting envenomation and ought to be prepared to treat such complications if need arises.

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