

Isolated Prolongation of Activated Partial Thromboplastin time Following Wasp Sting

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Reactions after bee or wasp sting are similar to anaphylaxis. Symptoms such as weakness, fatigue, vomiting, diarrhea, urticaria, and hypotension may occur. Serious toxic reactions usually occur after numerous stings. Massive bee envenomations can result in immediate onset of shock, hemolysis, rhabdomyolysis, disseminated intravascular coagulation (DIC), coma, and renal failure. In milder cases, patients may only have isolated prolonged activated partial thromboplastin time (aPTT) and normal prothrombin time (PT), clinically without a tendency to bleed. As a rule, they recover spontaneously without any complication. We report three cases of wasp stings; they all manifested prolongation of aPTT and finally recovered completely. Isolated prolongation of aPTT in cases of wasp stings may be related to an extract from the venom inhibiting the coagulation pathway. (Acta Paediatr Tw 2005; 46:164-5)

Key words: wasp sting, activated partial thromboplastin time

INTRODUCTION

Wasp or bee stings are a common problem among children in the summer months. After wasp stings, various clinical reactions, including localized pain, redness and swelling cause the child great discomfort. Occasionally, severe toxic reactions such as nausea, vomiting, breathlessness or anaphylactic shock occur. The outcome of a wasp sting event may be predicted based on the number of stings, previous venom allergic status, victim's body size and his/her general health. We report three cases with isolated prolongation of aPTT following wasp stings. Bee or wasp stings may cause multiple systemic reactions, but isolated prolonged aPTT is rare.

CASES REPORT

From July 1, 2002 to August 30, 2002, we encountered three patients diagnosed with wasp sting. One sting occurred during mountains trip and the other two (Nos. 2, 3) occurred while the siblings were playing near a longan tree. All three patients were sent to our emergency department soon after the events (see Table).

On admission, their general conditions were stable. Painful local erythematous swelling was present at the stung areas. The number of stings was from 6 to 1 (see Table). Tetanus toxoid was given immediately.

Liver, renal function, and complete blood counts were all normal. Coagulation screening on these three children revealed prolonged aPTT and normal PT (see Table). The X-rays of all patients were unremarkable. The patients were hospitalized. Corticosteroid and antihistamine were given for 3 days. The follow-up aPTT 2 days later were all normal. Assay of coagulation of factor 8 and factor 9 in one patient (No. 1) was normal. These three children remained asymptomatic except for local discomfort. They were discharged without any complication after adequate observation.

DISCUSSION

Stings from bees or wasps cause a variety of clinical reactions.¹ The venom of the insects may cause local tissue inflammatory reactions, immediate or delayed hypersensitivity, and direct systemic toxicity.² The most frequent manifestations are localized pain, itching, redness and swelling. Toxic reactions are closely

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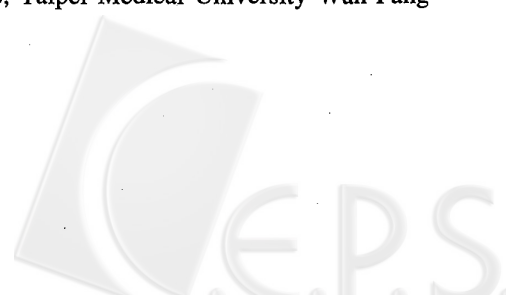
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related to the number of stings, and severe symptoms such as gastrointestinal discomfort, dizziness, headaches, fever, muscle twitching, seizure and urticaria are nearly unavoidable. In all cases with hypotension and consciousness disturbance and in some envenomed asymptomatic patients, laboratory studies on delayed hypersensitivity reactions, blood clotting, liver function abnormalities, renal injury, cardiotoxicity, rhabdomyolysis and disseminated intravascular coagulation are valuable and should be performed.³

Wasp stings are common among children in the summer months. Pediatric patients relatively receive a higher dose of insect venom because of their smaller body size.⁴ It is recommended that the observation period for all pediatric wasp sting patients should be no less than 24 hours. Physicians need to be aware of the presentation, treatment and possible complications of multiple bee stings in children.⁵

Hemostatic defects were demonstrable after wasp sting anaphylaxis. Reduced titers of nearly all coagulation factors have been reported.⁶ They caused coagulation abnormalities with or without bleeding. Clinically, isolated prolongation of aPTT is commonly associated with factor VIII and IX deficiency, mostly with a bleeding diathesis. Zeerleder reported a patient with isolated prolongation of aPTT without hemorrhagic diathesis anamnesis: severe, hereditary factor XII deficiency.⁷ Deficiency of contact factors (FXII, prekallikrein, high molecular weight kininogen) result in prolonged aPTT not associated with bleeding. However, in a study of experimental anaphylaxis, the titers of proaccelerin (factor V) and high molecular weight kininogen were reduced markedly, but the titer of the Hageman factor (factor XII) was normal, which may argue against contact-activated mechanisms in the induction of the abnormalities observed.^{8,9} All of our three cases manifested isolated transient prolongation of aPTT without clinical bleeding. This phenomenon may present either a mild reaction to a small dose of toxic venom or deficiency of contact factors. The exact cause was unknown.

All patients with anaphylactic reactions should be treated with a 3-day course of antihistamine and corticosteroids to prevent relapse.¹ Corticosteroids should be used empirically because of their recognized effect on membrane stabilization. Antihistamine is recommended by its effect in preventing anaphylaxis. In cases presented with anaphylaxis or severe local reactions, epinephrine should be administered. Victims of anaphylaxis should be cautioned against future outdoor activities and advised not to wear bright clothing and avoid using perfume. Desensitization may occasionally be needed in particular cases.

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Table : General Data of all Patients

Case no.	1	2	3
Age (years)	8	8	6
Time elapsed	1 hr.	1/2 hr.	1/2 hr.
Number of stings	6	4	1
WBC (/ μ l)	8830	6700	6900
Hb (g/dl)	11.9	14.8	13.6
Hct (%)	33.7	40.0	37.3
Platelet (/ μ l)	275000	210000	269000
Neutrophil (%)	47.3	52.6	41.8
Lymphocyte (%)	42.9	40.6	50.6
Monocyte (%)	6.7	5.8	5.1
Eosinophil	2.5	0.6	2.2
PT (sec)	14.2/13.3	13.7/12.8	13.1/12.8
INR	1.09	1.09	1.03
aPTT (sec)	112.7/35.4	69.9/35.3	98.5/35.3
Factor 8	92%	Nil	Nil
Factor 9	75%	Nil	Nil
Glu (mg/dl)	117	98	92
BUN (mg/dl)	15	14	11
Cre (mg/dl)	0.9	0.6	0.5
AST (u/l)	22	25	20
ALT (u/l)	16	20	19
CK (mg/dl)	233	145	98
Urinalysis	N	N	N

WBC: white blood cells, Hb: hemoglobin, Hct: hematocrit, PT: prothrombin time, INR: international normalized ratio, aPTT: activated partial thromboplastin time, BUN: blood urea nitrogen, Cr: creatinine, AST: aspartate transaminase, ALT: alanine transaminase, CK: creatine kinase, N: normal

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