Case Report
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The Unusually complicated wasp stings

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Abstract

Wasp stings can cause severe morbidity and mortality. Anaphylaxis, acute kidney injury, multi organ dysfunction and uncommonly nervous system involvement are some of important complications of wasp stings. We report a rare case of wasp stings complicated by acute kidney injury due to possible acute tubule interstitial nephritis and intracerebral hemorrhage in the absence of aneurysm of vessels and coagulation abnormalities.

Keywords:

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1. Introduction

Wasp stings are common in certain geographical areas and can result in severe morbidity and mortality. Acute kidney injury, occasionally dialysis requiring, often complicates multiple stings that cause hemoglobinuria or myoglobinuria. Various forms of nervous system involvement also can be seen in wasp sting cases as a part of multi organ dysfunction or as isolated occurrences. We describe a case of multiple wasp stings complicated by AKI consistent with acute tubulointerstitial nephritis without any evidence of hemoglobinuira or myoglobinuria and intracerebral hemorrhage (ICH), a rare nervous system complication.

2. Case

A 65 year old gentleman, residing in a village in eastern India, presented to his nearby community health center with history of unprovoked multiple wasp bites on all extremities, trunk, face on 8/26/15. He was restless with an abnormal behavior. There was no history of fall or trauma to head, loss of consciousness or seizures. He did not have any shortness of breath immediately after wasp bites. There was no history of high colored urine / hematuria, decrease in urine output, swelling, weakness or yellowish discoloration of eyes or urine. His vital parameters were: Pulse rate: 90/min, regular; BP: 136/84 mm of Hg; temperature : 38.4 ^{o}C. He had multiple sting marks with local reaction in all the above mentioned areas (as shown in figure 1). He had no obvious signs of dehydration. The cardiovascular, respiratory and abdomen examination was unremarkable. The nervous system examination revealed no focal deficit but severely impaired higher mental functions. His urinary bladder was catheterized with a Foley's catheter in view of his altered mental status. Investigations revealed progressive of rise of serum creatinine (SCr) over 5 days and hence he was referred to our center (details given in table 1)



Figure 1. Wasp stings with local reaction.

Other labs: Urine R/E: Protein 2+, RBCs: 1 – 3/hpf, PC: 10 – 12/hpf

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Table 1. Laboratory parameters

Date	Hb	TLC	DLC	PLT	UREA	SCr*	Na	K
28/7/15	11.8	21000	N70L30M1	1.9L	70	1.9	137	4.4
29/7/15	11.3	24000	N67L31M2	1.5L	162	5.1	137	4.4
31/8/15					131	3.2	137	4.4
02/9/15	11.2	8000	N70L28M2		174	7.5	131	3.4
05/9/15					257	6.5	136.4	5.2
10/9/15					200	5.6	136.6	5.1
12/9/15	11.0				172	3.9	139	4.3
17/9/15					115	1.9	140	4.4
23/9/15					70	1.5		

*SCr: serum creatinine in mg/dl

Urine Dipstick blood: negative ; Urine culture: No growth.

Sr. Calcium (total):8.0, Phosphate:4.1, Total protein:6.2, Sr. albumin: 3.7

SGOT: 28, SGPT: 27, ALP:127 ; PT: 13 sec, INR: 1.0, aPTT: 36.5 sec

CPK Total: 160 U/L

HIV I and II, HbSAg, Anti HCV: all Non reactive.

USG whole Abdomen was normal.

The patient was non-oliguric throughout with urine output of about: 1300-1500ml/day. Hence, he was planned to be given renal replacement therapy if uremic signs/symptoms or other indications of emergency dialysis arose. The investigations and course of acute kidney injury (AKI) were consistent with acute tubulo interstitial nephritis (ATIN). He was started on 1mg/kg prednisolone. Renal biopsy was considered but was not done as patient was not co-operative and the renal function showed an improving trend.

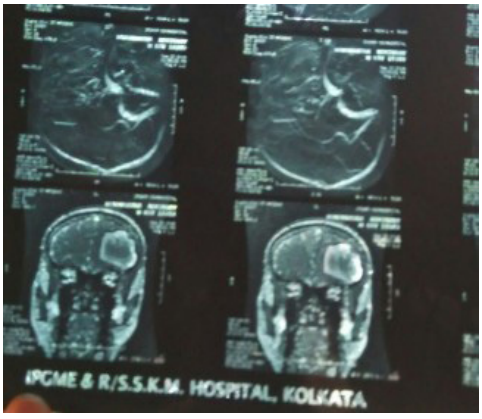


Figure 2. MRI Brain showing frontal hemorrhage.

After removal of Foley's catheter patient had urinary incontinence. MRI brain was planned in view of persistent altered mental state despite of improving renal function and bladder involvement. MRI brain showed (figure 3 and 4) intra cerebral hemorrhage in left frontal region, late subacute stage, being 54.8mm*42.6mm with peri-lesional edema. No aneurysm noted on MR Angiography. Bilateral carotid Doppler: normal. Renal function recovered however he did not improve neurologically until one month post the event of wasp stings.

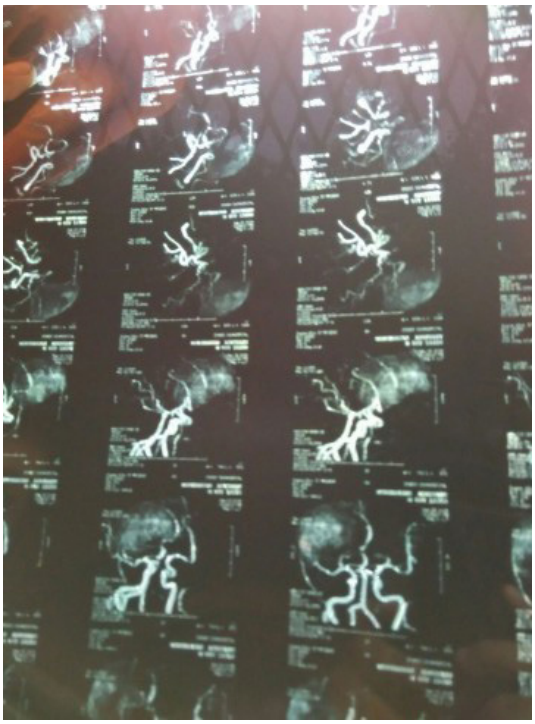


Figure 3. MR angiography showing no aneurysm or AV Malformation.

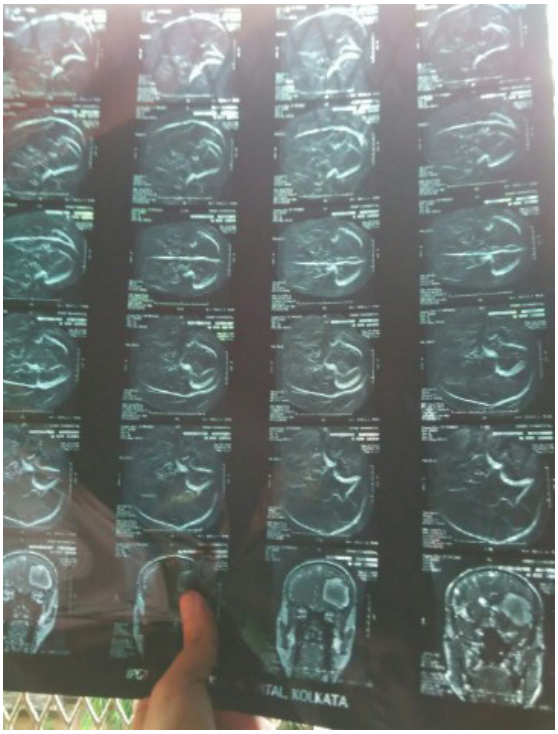


Figure 4. MR angiography.

3. Discussion

Wasp stings are an important cause of acute kidney injury and multiple organ dysfunction. Acute kidney injury may develop after multiple wasp stings which can be severe to the extent of requirement of renal replacement therapy[1,2,3]. In the developing countries with limitations of resources and availability of widespread tertiary level heath care management of wasp sting complications can be challenging. The mechanism of renal failure after wasp bite ranges from acute tubular injury/necrosis following anaphylaxis, intravascular hemolysis with hemoglobulinuria, rhabdomyolysis with myoglobulinuria, or direct nephrotoxicity of venom. Nervous system involvement has been reported after wasp stings. Various central and peripheral nervous system presentations have been described including wasp sting encephalopathy, cerebral infarction, optic neuropathy, polyradiculopathy, neuromuscular junction disorders, etc[4,5,6,7]. We report a rare case of wasp sting associated with AKI consistent with acute tubulointerstitial nephritis and ICH. The venoms of different species are biochemically and immunologically distinct. Direct toxic effects are mediated by mixtures of low-molecular-weight compounds such as serotonin, histamine, acetylcholine, and several kinins. Enzymes in the wasp venom include hyaluronidase and phospholipases[8]. While inflammation and cell damage have a potential to trigger thrombotic events, the anticoagulant properties of venom of some species can lead to bleeding manifestations[9]. Bleeding can also occur as a part of disseminated intravascular coagulation or multi organ dysfunction syndrome that rarely complicates wasp stings. In our patient the coagulation parameters and liver function tests were normal. There was no evidence of aneurysmal rupture leading to ICH.

ATIN as possible cause of AKI has been described in literature uncommonly[10].Renal biopsy could not be performed for histopathological diagnosis, however, the patient had been non-oliguric throughout with pus cells in urine in the absence of urinary tract infection, and had prompt response to short course of oral steroids indicating ATIN as the possible cause of AKI.

4. Conclusion

Wasp stings can be complicated by AKI due to various causes. Our case had two unusual complications of wasp stings. Firstly, AKI consistent with ATIN and secondly, ICH after wasp stings which has not been reported earlier. In cases especially those that have atypical features not attributable to uremia early neuroimaging can clinch the diagnosis.

5. Conflict of interests

None to declare

6. Acknowledgement

The guardian of the patient for consenting on behalf of patient to publish the case (patient was not in the capacity to give informed consent).

7. References

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