

## CASE REPORT

# Cerebral atrophy and subdural haemorrhage after cerebellar and cerebral infarcts in an 8-month-old child after having been stung by a scorpion

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## SUMMARY

A scorpion sting causing cerebellar and cerebral infarctions with corpus callosum involvement and bilateral cerebral atrophy with subdural haemorrhage in an 8-month-old girl, has not been previously described to the best of our knowledge.

## BACKGROUND

Envenomation from a scorpion sting produces unexpected results in a child.

## CASE PRESENTATION

A healthy 8-month-old girl was stung by a yellow scorpion—*Leiurus quinquestriatus*—on the left side of her neck. Approximately 10 min later she started sweating and vomiting. She began to convulse in hospital. She achieved two times tonic-clonic seizures during the following 3 days. Her ECG was normal. Her heart rate was 180/min, blood pressure 80/45 mm Hg and temperature 36.2°C. On the fourth day, EEG showed diffuse cerebral suppression of voltage that refers to organic pathology. An MRI was performed, which showed focal intensities in cerebellum and extensive cortical and subcortical intensities in cerebrum including corpus callosum on T2-weighted image that caused bright signal on diffusion-weighted imaging (DWI) with decreased apparent diffusion coefficient (ADC; figures 1 and 2). This represents an ischaemic brain with cytotoxic oedema.

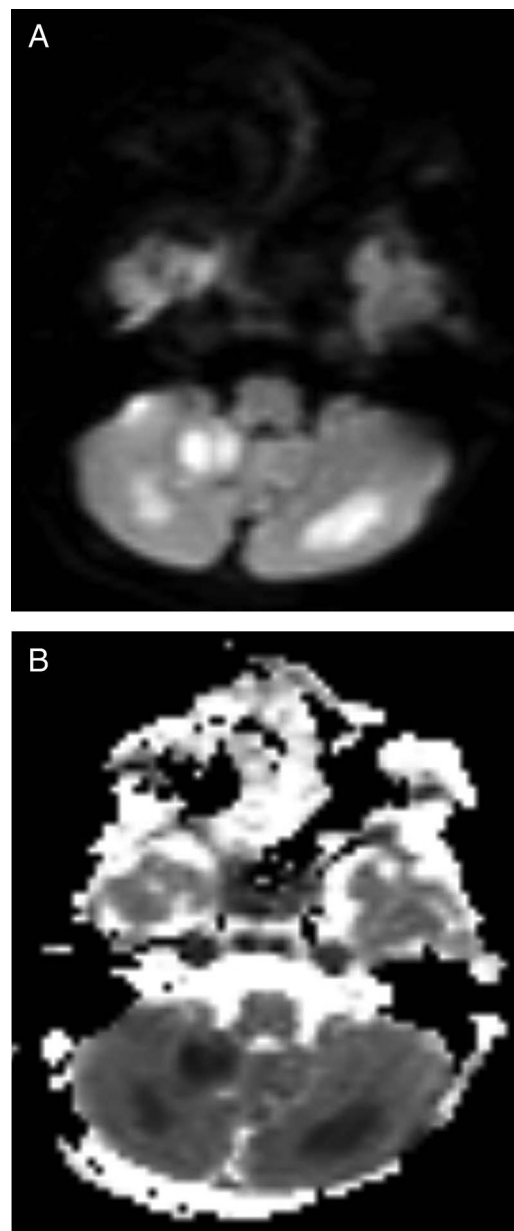
After 4 months she could not hold her head up. The EEG showed findings of diffuse cerebral disorganisation. MRI was evaluated and showed diffuse cerebral atrophy with bilateral subdural haemorrhage (figure 3).

## OUTCOME AND FOLLOW-UP

The patient suffers from neurological problems.

## DISCUSSION

Central nervous system complications are rare, accounting for only 2% of all complications.<sup>1</sup> There are few reports of scorpion stings leading to brain infarcts and haemorrhage.<sup>2,3</sup> Fernandez-Bouzas *et al*<sup>2</sup> reported two cases with brain infarcts in the pons and right hemisphere. They presented only T2-weighted MRI and explained MR angiography findings as focal hyperaemia in the infarcted area. In our case MRI showed cerebral and cerebellar bright signals on DWI with decreased ADC representing an ischaemic brain with cytotoxic oedema.



**Figure 1** Cerebellar diffusion-weighted image (A) and apparent diffusion coefficient (B) showing infarcts at the fourth day.

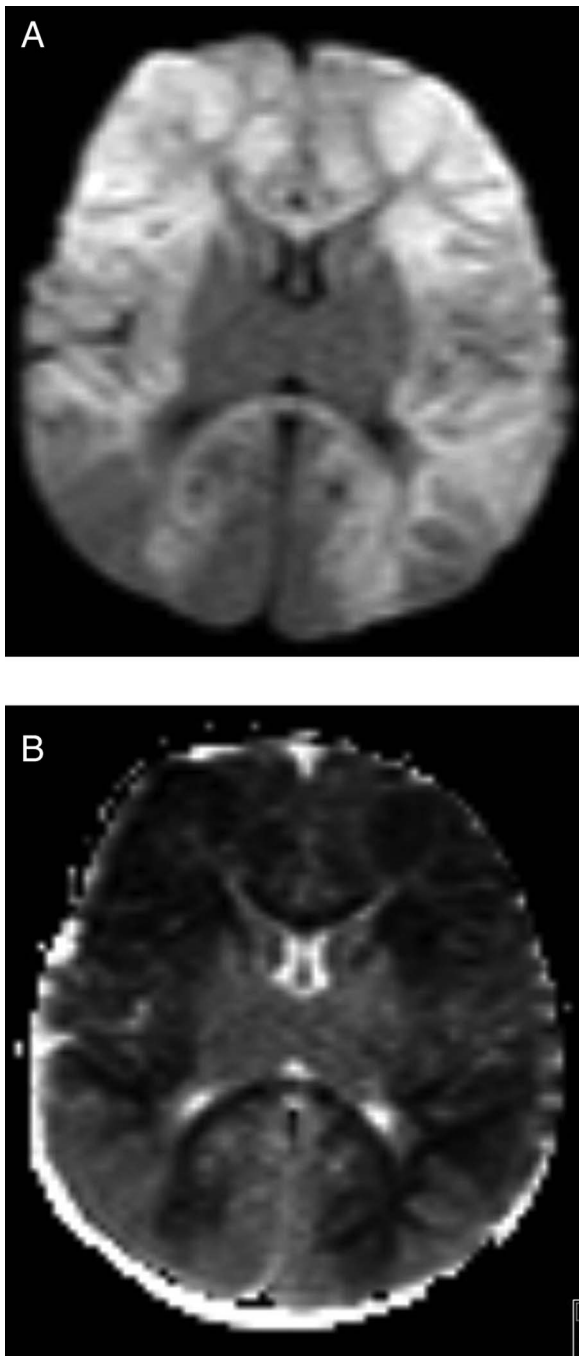
There are mechanisms that explain the occurrence of cranial involvement in scorpion stings.

Catecholamines released by stimulation of the hypothalamus cause sympathetic and parasympathetic effects. Vasospasm leads to hypertension and



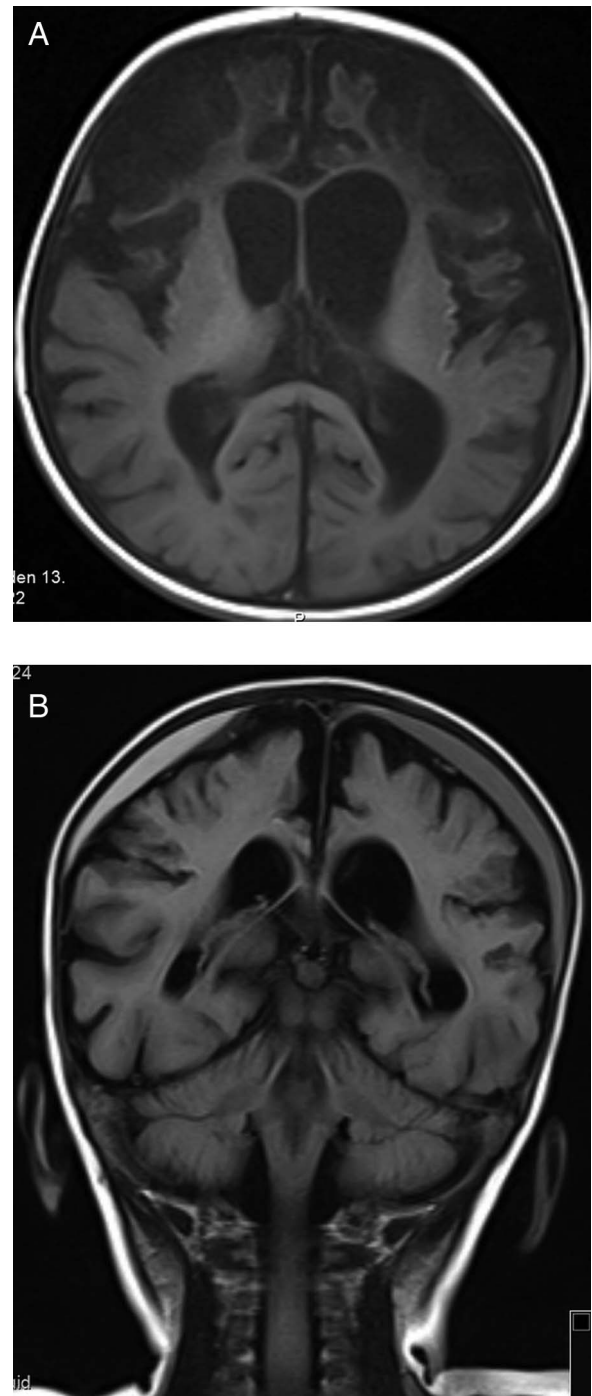
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**Figure 2** Cerebral diffusion-weighted image (A) and apparent diffusion coefficient (B) showing bilateral parenchymal infarcts including corpus callosum at the fourth day.

systemic hypoperfusion. High blood pressure may rupture vessels resulting in haemorrhagic infarct. Systemic toxicity may cause myocarditis leading to stasis of blood in the heart and subsequent thromboembolism. Bilateral multiple cerebral infarcts are explained as compatible with the resultant hypoperfusion infarction.<sup>4</sup> In our case, hypoperfusion due to hypotension or vasospasm may have been the cause of cerebral infarcts; infarcts were present in the cerebellum, corpus callosum and symmetrically in frontoparietal and upper occipital parenchyma. Cerebellar infarction is extremely rare.<sup>5</sup> To the best of our knowledge, infarct in the corpus callosum has not been described after a scorpion sting.



**Figures 3** Four months later, showing (A) cerebral atrophy on axial T1 image and (B) bilateral subdural haemorrhage on coronal fluid-attenuated inversion recovery image.

Bonilha *et al*<sup>6</sup> reported a 15-year-old girl who had been stung by a scorpion at the age of 4 years and who has widespread destructive lesion of her right cerebral hemisphere on MRI. In our case, cerebral atrophy and bilateral parieto-occipital subdural haemorrhage were present 4 months after a scorpion sting. Bilateral frontal, parietal, temporal and occipital parenchymas have atrophy in decreasing order of influence. Bilateral, symmetric cerebral atrophy could suggest hypoperfusion as the possible mechanism instead of focal vascular involvement. Subdural haemorrhages may be the result of cerebral atrophy.

Although central nervous system complications are rare, cerebellar and cerebral infarcts with corpus callosum involvement and bilateral cerebral atrophy with subdural haemorrhage after a scorpion sting, as in this case, have not been mentioned earlier to the best of our knowledge.

### Learning points

Scorpion sting causes cranial infarctions and, corpus callosum involvement and, atrophy with subdural haemorrhage.

**Competing interests** None.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

### REFERENCES

- 1 Karnad DR. Hemodynamic pattern in patients with scorpion envenomation. *Heart* 1998;79:485–9.
- 2 Fernandez-Bouzas A, Morales-Resendiz ML, Llamas-Ibarra F, *et al*. Brain infarcts due to scorpion stings in children: MRI. *Neuroradiology* 2000;42:118–20.
- 3 Nagaraja D, Verma A, Taly AB, *et al*. Cerebrovascular disease in children. *Acta Neurol Scand* 1994;90:251–5.
- 4 Souza DG, Tanaka K, Algemirow W, *et al*. Hemorrhagic stroke following scorpion sting. A case report. *Rev Chil Neurocir* 2013;39:69–70.
- 5 Jain MK, Indurkar M, Kastwar V, *et al*. Myocarditis and multiple cerebral and cerebellar infarction following scorpion sting. *J Assoc Physicians India* 2006;54:491–2.
- 6 Bonilha L, Cendes F, Ghizoni E, *et al*. Epilepsy due to a destructive brain lesion caused by a scorpion sting. *Arch Neurol* 2004;61:1294–6.

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