

Pitfalls of differential diagnosis - deep vein thrombosis or snake bite?

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Symptoms of *Vipera berus* bites

Bites by *Vipera berus* are often “dry” and hence do not cause any symptoms besides a possible wound infection. When venom is injected, symptoms are generally mild. Typical features are local swelling and subsequent haemorrhagic oedema with a bluish discolouration of the tissue that can last up to 72 hours, whereas necrosis is rare. Signs of systemic envenomation include gastrointestinal and systemic circulatory disturbances, as well as anaemia, haemolysis, renal impairment and bleeding in severe cases. (1)



Vipera berus [https://commons.wikimedia.org/w/index.php?curid=3308789]

Management of snake bites

In order to minimize local damage, as well as spreading of the venom, patients bitten by a snake should be advised to rest, and the bitten limb should be immobilized, preferably in an elevated position. The site of the bite should not be manipulated in any way. A tourniquet should not be used. Patients should always be transported to the nearest hospital - not walk themselves. If necessary, support of vital functions should be applied. (1)

Objective

Vipera berus distribution in Germany seems to have increased in recent years, probably due to global warming. Therefore, bites by this species have become a common enquiry to the Poisons Information Centre (PIC) Erfurt. Especially in rather warm summers, such as in 2018, snake bites occur regularly in our PIC's area of responsibility. Surprisingly, most citizens are still not aware of (any) snakes living nearby. We report on a case that initially presented as deep vein thrombosis but most probably was a *Vipera berus* bite.



Picture 1

Discussion

The PIC Erfurt has observed more significant symptoms after *Vipera berus* bites in several cases, when patients either had to use the bitten limb (i.e. in order to walk home) or did not follow the doctor's recommendation of immobilisation. These patients often developed extensive swelling and livid discolouration of the extremity. However, even in those cases administration of antidote was not necessary.



Picture 2

Case report

A 57 year-old male presented to his family physician on a Wednesday morning with swelling and livid discolouration on his right leg (Picture 1), and was promptly referred to hospital under suspicion of deep vein thrombosis. Diagnostic measures were implemented, but the suspected diagnosis could not be confirmed. Further examination of the leg revealed a bite mark above the ankle (Picture 2). When the patient was consequently interviewed again, he informed the doctor, that he had been to the woods the previous day, and may have been bitten by “something”. He remembered to have felt a “sting” and a “sharp pain” above his right ankle, and found a red spot of about 2 to 3 cm in diameter. As he did not clearly see an animal, he then walked home a longer distance. In the evening, the whole leg began to feel tender, and the patient felt dizzy and queasy. The following morning, he found his leg as stated previously, and went to see his doctor. In hospital, the leg was cooled and elevated, and symptoms resolved over the next three days. Besides a mild and transient elevation of C-reactive protein and creatine kinase (CK-MB), laboratory findings were within normal limits, and no coagulopathy was detected. Antivenom was not administered.

Conclusion

Although *Vipera berus* bites often remain asymptomatic, or otherwise generally cause only mild local symptoms, severity of symptoms can increase in cases when immobilisation is not applied. This case emphasises the benefit of (early) immobilisation for the prevention of more pronounced and prolonged local symptoms. Unless unavoidable, patients should be strongly discouraged to use the bitten limb. It also shows the importance of differential diagnosis, especially in cases that initially seem obvious.

References

(1) Meier J, White J. Handbook of clinical toxicology of animal venoms and poisons. Boca Raton: CRC Press, 1995.