STATE TOXINOLOGY SERVICES

Toxinology Dept., Women's & Children's Hospital, North Adelaide SA 5006 AUSTRALIA

SNAKEBITE MANAGEMENT OVERVIEW DOCUMENT

www.toxinology.com record number SN0224

Family

Viperidae

Scientific name combined

Vipera latasti latasti

Common name

Lataste's Viper , Snub-nosed Viper

Global region in which snake is found

Eastern Europe

CLINICAL OVERVIEW

There is only limited clinical information on *Vipera latasti*, but it is reasonable to consider it similar to other Euro-African *Vipera* species. On that basis, bites could be expected to cause mild to moderate, occasionally severe local effects, notably pain, swelling, bruising and uncommonly, blistering. Necrosis, while possible, is unlikely. However the extent of swelling may cause fluid shifts and secondary shock. Systemic coaguloapthy and secondary renal failure is possible. As with other European vipers, an allergic-like response of angioneurotic oedema may be seen. A number of European vipers are now known to cause at least mild neurotoxic symptoms and this porobably applies to *V. latasti* as well, but major flaccid paralysis is unlikely. Antivenom and supportive therapy are essential in treatment.

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First aid

1. After ensuring the patient and onlookers have moved out of range of further strikes by the snake, the bitten person should be reassured and persuaded to lie down and remain still. Many will be terrified, fearing sudden death and, in this mood, they may behave irrationally or even hysterically. The basis for reassurance is the fact that many venomous bites do not result in envenoming, the relatively slow progression to severe envenoming (hours following elapid bites, days following viper bites) and the effectiveness of modern medical treatment.
2. The bite wound should not be tampered with in any way. Wiping it once with a damp cloth to remove surface venom is unlikely to do much harm (or good) but the wound must not be massaged.
3. All rings or other jewellery on the bitten limb, especially on fingers, should be removed, as they may act as tourniquets if oedema develops.
4. The bitten limb should be immobilised as effectively as possible using an extemporised splint or sling; if available, crepe bandaging of the splinted limb is an effective form of immobilisation.
5. If there is any impairment of vital functions, such as problems with respiration, airway, circulation, heart function, these must be supported as a priority. In particular, for bites causing flaccid paralysis, including respiratory paralysis, both airway and respiration may be impaired, requiring urgent and prolonged treatment, which may include the mouth to mask (mouth to mouth) technique of expired air transfer. Seek urgent medical attention.
6. Do not use Tourniquets, cut, suck or scarify the wound or apply chemicals or electric shock.
7. Avoid peroral intake, absolutely no alcohol. No sedatives outside hospital. If there will be considerable delay before reaching medical aid, measured in several hours to days, then give clear fluids by mouth to prevent dehydration.
8. If the offending snake has been killed it should be brought with the patient for identification (only relevant in areas where there are more than one naturally occurring venomous snake species), but be careful to avoid touching the head, as even a dead snake can envenom. No attempt should be made to pursue the snake into the undergrowth as this will risk further bites.
9. The snakebite victim should be transported as quickly and as passively as possible to the nearest place where they can be seen by a medically-trained person (health station, dispensary, clinic or hospital). The bitten limb must not be exercised as muscular contraction will promote systemic absorption of venom. If no motor vehicle or boat is available, the patient can be carried on a stretcher or hurdle, on the pillion or crossbar of a bicycle or on someone's back.
10. Most traditional, and many of the more recently fashionable, first aid measures are useless and potentially dangerous. These include local cauterization, incision, excision, amputation, suction by mouth, vacuum pump or syringe, combined incision and suction ("venom-ex" apparatus), injection or instillation of compounds such as potassium permanganate, phenol (carbolic soap) and trypsin, application of electric shocks or ice (cryotherapy), use of traditional herbal, folk and other remedies including the ingestion of emetic plant products and parts of the snake, multiple incisions, tattooing and so on.

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Clinical summary

Bites by *Vipera* species generally cause local effects, sometimes systemic effects. Only a few species have been studied, either for venom activity or clinical effects. The following comments are based on clinical experience with those species commonly causing bites. In the past, in Europe at least, there has been a common misconception that viper bites are rare and usually minor. More recent studies have shown that bites are not rare in many areas and that major, even lethal envenoming can occur.

A typical *Vipera* bite causes local pain and rapid local effects, including swelling, bruising, sometimes extensive haemorrhaging into the skin with massive bruising and potentially severe fluid shifts that can cause hypovolaemic shock. This is especially true in smaller children, who are most at risk of a fatal outcome. Local necrosis can occur at the bite site, though this is probably not common.

Systemic effects are generally limited to general symptoms, such as headache, nausea, vomiting and abdominal pain, plus a coagulopathy of variable severity. Systemic bleeding can occur, but is uncommon. Secondary renal damage can occur, particularly if there is shock. Rarely there may be multisystem organ failure. Myolysis and paralysis do not occur for most species, the exception being *Vipera ammodytes*, whose venom contains presynaptic neurotoxins, capable of causing significant flaccid paralysis, though this effect is not common or is usually minor. A number of other *Vipera* species have now been reported to cause very minor paralytic signs, notably ptosis, but not more extensive paralysis and certainly not respiratory paralysis.

At least for *Vipera berus* and *Vipera aspis*, possibly other *Vipera* species as well, envenoming may cause early angioneurotic oedema-like effects, with facial swelling. The cause of this effect is uncertain, but it is characteristic of envenoming by these snakes and is not expected from envenoming by other snake species, except as a true allergic phenomena in those previously bitten and even then it is rare.

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Treatment summary

Vipera bites are probably common in many parts of the range and are potentially severe. All cases should be urgently assessed and admitted. Children are at increased risk, particularly from hypovolaemic shock secondary to fluid shifts into the bitten limb.

Insert an IV line and give an initial IV fluid load, more if hypovolaemic shock is developing. Carefully monitor fluid input/output and renal function. Especially in children, beware late pulmonary oedema as fluid sequestered in the bitten limb is reabsorbed.

Antivenom (when available) is appropriate for all but mild local envenoming, because of the potential for both major local effects and systemic effects, including coagulopathy. Some experts list the following as indications for antivenom therapy:
- Circulatory shock
- Protracted or recurring GIT symptoms
- Progressive local reaction likely to involve whole limb or beyond
- Less severe circulatory effects + leukocytosis >20x10 9 / metabolic acidosis / increased CK / haemolysis / ECG changes / coagulopathy
- neurological symptoms, including paralysis (partial) or CNS depression.

If available to recently developed ovine F(ab)' antivenom (ViperaTab; Protherics) appears to be the most effective, safe antivenom, but it is expensive and the short half life of F(ab)' means repeated doses may be needed for recurrent envenoming. Initial dose is 2 vials IV, but a further 2 vials may be needed. A variety of other equine antivenoms covering *Vipera* species, or selected species, are available in some countries within the range of one or more *Vipera* species. All these antivenoms should be given IV, with adrenaline and resuscitation equipment ready. None are specific for *Vipera latasti*.

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Available antivenoms

ViperaTab
Protherics Inc. (US)
1207 17th Avenue South
Suite 103, Nashville
Tennessee 37212
U.S.A.
Phone: ++1-615-327-1027
Fax: ++1-615-320-1212
Email: info@prothetics.com
Website: www.protherics.com

Viper Venom Antitoxin, European
Institute of Immunology, Inc.
Rockefellerova Street 2
10000 Zagreb
Croatia
Phone: ++385-1-468-4500
Fax: ++385-1-468-4303
Email: imuno@iskon.hr
Website: www.iz.iskon.hr

Antiviperin Sera
Institut Pasteur du Tunis
13 Place Pasteur,
B.P. 74
1002 Tunis-Belvedere,
Tunisia
Phone: ++21-61-283022
Fax: ++21-61-791833
Email: gikram@excite.com
Website:

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Management Flowchart