Elaine Walker

Some Observations on the Behaviour and Pharmacology of Snakes and their Venoms

All the snakes that have been proved homœopathically so far are venomous, front-fanged snakes, known as the Proteroglyphs and the Solenoglyphs. They come from four sub-families, as follows:

ELAPINAE:

(*Naja*)	Naja Tripudians, an Asiatic Cobra
(*Elaps*)	Elaps Corallinus, a coral snake
(*Bung*)	Bungarus Fasciatus, the Banded Krait

HYDROPHINAE:

(*Hydroph*)	Hydrophis Cyanocinctus, a sea serpent

CROTALINAE:

(*Cench*)	Cenchris Contortrix, the Copperhead snake
(*Toxi*)	Toxicophis, the Moccasin or Cottonmouth snake
(*Both*)	Bothrops Lanceolatus, the Fer-de-lance
(*Crot-c*)	Crotalus Cascavella, the Brazilian rattlesnake
(*Crot-h*)	Crotalus Horridus, an American rattlesnake
(*Lach*)	Lachesis Mutus, the Bushmaster snake

VIPERINEAE:

(*Vip-a*)	Vipera Aspis, an asp
(*Vip*)	Vipera, a mixture if the venoms of Vip-a, Vip-r and Vip-b
(*Vip-l-f*)	Vipera Lachesis Fel
(*Vip-r*)	Vipera Redi
(*Vip-b*)	Vipera Berus, the German viper
(*Clotho*)	Clotho Arictans, the Puff adder

Five other snake-like remedies that do not fit into these classifications are (*Amph*) Amphisboena Vermicularis the snake lizard, (*Salam*) Salamandra Maculata the salamander, (*Lacer*) Lacerta Agilis the green lizard, (*Saurur*) Saururus Cernuus the lizard's tail and (*Helo*) Heloderma Suspectum the Gila monster.

The Mythology

Early humanity felt that the snake, with its inscrutable face and swift movements, was propelled by spirit rather than matter. They were particularly impressed that it shed its own skin, appearing to renew its youth as well as increasing in size and strength. According to ancient myth, when a snake had fulfilled its long span of life, it consumed itself and by feeding on its own body was reborn or resurrected. This meant that the snake became associated with deity, immortality and the perennial renewal of life through death, and there was always a more or less unconscious equation of the snake with the phallus and sexual activity. Examples of the snake symbolising godhead can be seen in the Naga and Nagini of the Hindu religion, Quetzalcoatl of the Aztecs, Agathos Daimon of the Romans and the Greeks – even the precursor of Zeus was worshipped in the form of a snake – and a snake also appears as a central figure in the creation myth of the Christian religion.

The Reality

Snakes are reptiles and therefore are termed 'cold-blooded', although this is a misleading term as a snake basking in the sunshine can become very warm blooded! In fact, the temperature of a snake's body is the same as the temperature of its environment, with the result that the snake will become inactive in very hot or very cold weather.

Snakes live in a variety of environments, from the sea to the desert. They need a rough surface in order to move quickly, and movement is a purely muscular action that is co-ordinated through the vertebrae.

Prey is always swallowed whole, so the lower jaw is separate from the skull, and the ribs are not joined to the lower side of the body, in order to open out to let the food pass.

Snakes are super-sensitive to their bodily contact to the ground. They have no external ear and pick up vibrations via the jaw. They have no eyelids and cannot even partially close the eye, and the eye-covering is shed when the snake casts its skin. Snakes have no external nose either – the flickering tongue carries the scent particles to the organs of smell. Snakes are poorly equipped to deal with distant stimuli, but much better adapted for close contact conditions.

Pharmacological Data

The main function of snake venom lies in the procuring of food and its digestion. The death of the prey is due to respiratory and circulatory failure caused by various neurotoxins, cardiotoxins and enzymes. Most venoms have direct action on skeletal muscle, causing twitching, contracture, decrease of excitability and necrosis. Venoms are usually non-toxic if taken orally, due to their polypeptide nature.

Various enzymes injected into the prey start the digestion of tissues. They cause local capillary damage, coagulant/anticoagulant reactions, and induce hypotension and pain. Crotalinae and Viperinae have the venom which is richest in enzymes, and the effect is usually haemorrhage, thrombocytopaenia, circulatory collapse, oedema, local necrotic effect or disturbance of blood coagulation, although hemolysis in circulating blood is more probable in the Elapinae than the Crotalinae or the Viperinae. The venom of Crotalinae and Viperinae contains haemorrhagins which produce tears in the small vessels by acting directly on the vessel walls.

Neuro-toxins are the most toxic constituent of snake venoms. There are predominantly two types, the presynaptic, which has a much higher lethality, and postsynaptic, which is

a curaremimetic, i.e. it mimics the action of curare. Neurotoxins are also the poisons that are produced by spiders, scorpions and poisonous toads. The postsynaptics prevent the depolarising action of acetylcholine, and the presynaptics prevent the release of acetylcholine. Elapinae and Hydrophinae contain the largest amounts of neurotoxins (mostly postsynaptic) and cardiotoxins. The most characteristic symptom of neurotoxic venom is paralysis of the voluntary muscles, which results in flaccid paresis and respiratory failure.

Apart from Crotalus cascavella, which has a potent neurotoxic component, the venoms of the Crotalinae and Viperinae have generally no blocking effect on neuromuscular transmission, although conversely the neurotoxins do have some necrotic and haemolytic action.

Cardiotoxins have a detrimental effect on the heart, by causing slowly progressive contracture and abolishing the excitability of the heart muscle. The effect, unlike the neurotoxic effect, is generalised along the whole length of muscle fibre.

The general rule is that the Elapinae and Hydrophinae are low in digestive enzymes, but high in the neurotoxins and cardiotoxins that cause flaccid paresis and respiratory failure. Crotalinae and Viperinae are low in neurotoxins and cardiotoxins, but are rich in the enzymes which cause haemorrhage and necrosis. There are of course exceptions or differences of degree. We have already seen that Crotalus cascavella is more neurotoxic than other Crotalinae, and far less haemorrhagic. Both Toxicophis and Cenchris are half neurotoxic and half haemorrhagic.

Enzymes

start the digestion of tissues
cause haemorrhage, necrosis, and other disturbances of the blood.

Neurotoxins

induce hypotension and pain
paralyse the voluntary muscles
cause flaccid paresis and respiratory failure.

Cardiotoxins

affect coagulation
act primarily on heart muscle, causing slowly progressive contracture and decreasing excitability
cause flaccid paresis and respiratory failure.

All the Crotalinae and Viperinae victims experience a fall in blood pressure due to peripheral vasodilatation, particularly in the visceral area since volume of the intestines is markedly increased while limb vessels are unaffected or even decreased. This fall is followed by cardiac arrest and artificial respiration fails to maintain blood pressure.

With the exception of Bungarus, which has a Viperinae element to it, all the Elapinae and Viperinae experience a fall in blood pressure due to the presence of cardiotoxins, but artificial respiration is effective. This fall is followed by an asphyxial rise in blood pressure, with marked slowness of the heartbeat before respiratory arrest.

Viperinae and Crotalinae are also unlike Elapinae in that the snakes themselves tend, when attacking, to stab and withdraw whereas Elapinae bite and chew. The venom of Crotalinae and Viperinae tends to gather in the lung, whereas that of Elapinae and Hydrophinae gathers in the kidney. The venom of Viperinae generally causes more tissue destruction and necrosis than any of the others.

Family	Name	Enzymes	Neuro toxins	Cardio toxins
Elapinae	*Naja*	Low	High	High
	Bung	Med	Med	Med
	Elaps	Low	High	High
Hydrophinae	*Hydroph*	Low	High	High
Crotalinae	*Cench*	High	High	Low
	Toxi	High	High	Low
	Both	High	Low	Low
	Crot-c	Low	High	Low
	Crot-h	High	Low	Low
	Lach	High	Low	Low
Viperinae	*Vip-a*	High	Low	Low
	Vip	High	Low	Low
	Vip-l-f	High	Low	Low
	Vip-b	High	Low	Low
	Clotho	High	Low	Low

Observations

As with plants and elements, it is clear that the creatures of the homœopathic materia medica can profitably be studied within their family groups. The pharmacological research illustrates two main points – firstly that every snake belongs in a clearly defined group, and secondly that examining these groups enables us to classify and sort remedy information in a logical and memorable way.

Other points that arose out of this work, which is part of a larger study into the snakes of the materia medica (and I would like to take this opportunity to thank Jeremy Sherr for the original inspiration) are as follows:

i) There is a clear relationship between the more neurotoxic of the snakes (also *Heloderma*), some of the spiders (for example, *Latrodectus mactans, Aranea, Aranea ixobola, Latrodectus katipo, Mygale, Tarentula, Theridion*), other creatures with neurotoxic venom (such as *Bufo, Androctonos, Buthus australis)* and *Curare*. These relationships are observable in the relevant rubrics, i.e. rubrics that reflect the neurotoxic action (see 'Sensitive to noise', and 'Playful', 'Numbness; external', 'Weather; wet<', 'Bread; aversion', 'Inflammation; lymphangitis', 'Cold feeling in single parts' and 'Hypotension' – there are many more to be found.) Other relationships that emerge from such a study are too far-reaching to be included in this article, but the most obvious ones are *Agaricus* and *Spigelia*, and also the 'snake plants' – plants that have been used by native peoples all over the world to treat the poisonous effects of snake venom – for example, *Cimicifuga, Senega, Cedron* and *Asarum.*

ii) There are some aspects of snake behaviour that are reflected in our materia medica. For example, if we look for signs of snake-moult, we see the following:
Delusion; body only half alive – *Crotalus horridus*
Delusions; of skeletons – *Crotalus cascavella*
Dreams; of dissecting dead bodies at autopsies – *Cenchris*
Sensation of a cut around the eye – *Crotalus cascavella, Crotalus horridus*
Acne rosacea in elliptical spots, followed by desquamation – *Amphisbaena*
Intolerance of clothing – *Cenchris, Crotalus cascavella,*

Crotalus horridus, Lachesis
The skin of the hand is dead and comes off like a glove – *Vipera*
The skin comes off during suppuration – *Bothrops.*

Other aspects of snake behaviour such as the lack of perception of distant stimuli can be seen in such rubrics as Absent-minded, Absorbed, Concentration difficult, Brooding, and Ailments anticipation. The snake's fast reaction to short range stimuli can be observed in such rubrics as Excitement, Vivacious, Hysteria and Quarrelsome.

Bibliography

Poisonous Snakes, Tony Phelps
The Life of Reptiles, Angus Bellair
Men and Snakes, Ramona and Desmond Morris
Handbook of Experimental Pharmacology Vol 52, Chen Yuan Lee

Diseases of the Nervous System, Asbury, MacKhan, McDonald
Principles of Neurology, Addams, Victor
The Encyclopaedia of Pure Materia Medica, Allen
Materia Medica with Repertory, Boericke
Materia Medica of Homœopathic Medicines, Phatak
A Dictionary of Practical Materia Medica, Clarke
Lectures on Homœopathic Materia Medica, Kent
Guiding Symptoms, Hering
Materia Medica of New Homœopathic Remedies, Julian
A Materia Medica and Repertory, Stephenson
The Combined Repertory and Materia Medica from CARA For Windows.

Elaine Walker RSHom practises in Bristol.

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