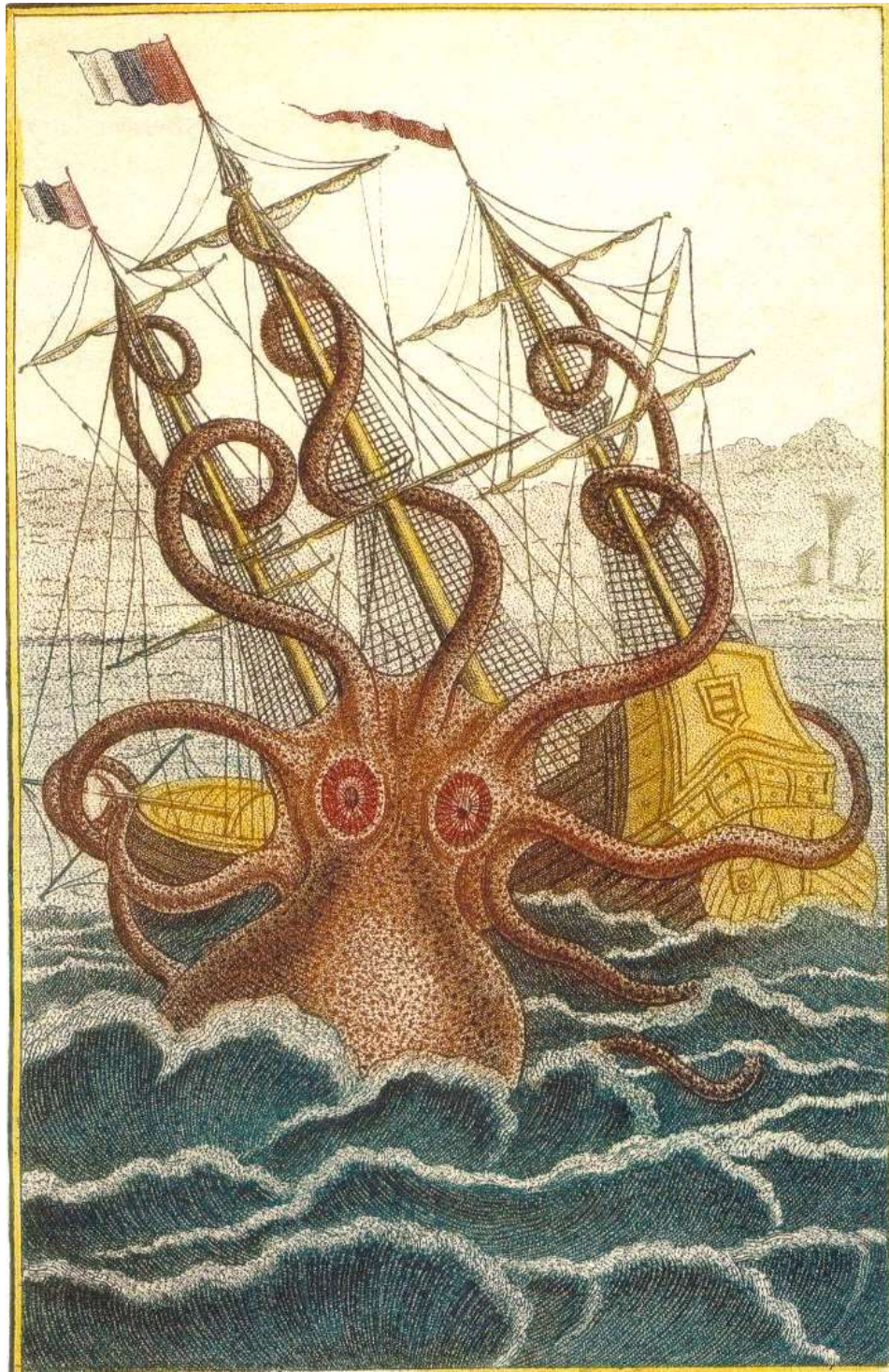


BLUE RINGED OCTOPUS



“La poulpe colossae”, engraved print, Histoire Naturelle des Mollusques, Comte de Buffon, 1805.

I stared at Conseil. Ned Land rushed to the window.

“What an awful animal!” he exclaimed. I stared in my turn and couldn’t keep back a movement of revulsion.

Before my eyes there quivered a horrible monster worthy of a place among the most farfetched teratological legends. It was a squid of colossal dimensions, fully eight meters long. It was travelling backward with tremendous speed in the same direction as the Nautilus. It gazed with enormous, staring eyes that were tinted sea green. Its eight arms (or more accurately, feet) were rooted in its head, which has earned these animals the name cephalopod; its arms stretched a distance twice the length of its body and were writhing like the serpentine hair of the Furies. You could plainly see its 250 suckers, arranged over the inner sides of its tentacles and shaped like semispheric capsules. Sometimes these suckers fastened onto the lounge window by creating vacuums against it. The monster’s mouth - a beak made of horn and shaped like that of a parrot - opened and closed vertically. Its tongue, also of horn substance and armed with several rows of sharp teeth, would flicker out from between these genuine shears. What a freak of nature! A bird’s beak on a mollusk! Its body was spindle-shaped and swollen in the middle, a fleshy mass that must have weighed 20,000 to 25,000 kilograms. Its unstable colour would change with tremendous speed as the animal grew irritated, passing successively from bluish gray to reddish brown.

What was irritating this mollusk? No doubt the presence of the Nautilus, even more fearsome than itself, and which it couldn’t grip with its mandibles or the suckers on its arms. And yet what monsters these devilfish are, what vitality our Creator has given them, what vigour in their movements, thanks to their owning a triple heart!

... “We’ll go with you,” I said. And we followed Captain Nemo, heading to the central companionway. There some ten men were standing by for the assault, armed with boarding axes. Conseil and I picked up two more axes. Ned Land seized a harpoon. By then the Nautilus had returned to the surface of the waves. Stationed on the top steps, one of the seamen undid the bolts of the hatch. But he had scarcely unscrewed the nuts when the hatch flew up with tremendous violence, obviously pulled open by the suckers on a devilfish’s arm. Instantly one of those long arms glided like a snake into the opening, and twenty others were quivering above. With a sweep of the axe, Captain Nemo chopped off this fearsome tentacle, which slid writhing down the steps. Just as we were crowding each other to reach the platform, two more arms lashed the air, swooped on the seaman stationed in front of Captain Nemo, and carried the fellow away with irresistible violence...

Captain Nemo gave a shout and leaped outside. We rushed after him.

What a scene! Seized by the tentacle and glued to its suckers, the unfortunate man was swinging in the air at the mercy of this enormous appendage. He gasped, he choked, he yelled: “Help! Help!”

These words, pronounced in French, left me deeply stunned! So I had a fellow countryman on board, perhaps several! I'll hear his harrowing plea the rest of my life!

The poor fellow was done for. Who could tear him from such a powerful grip? Even so, Captain Nemo rushed at the devilfish and with a sweep of the axe hewed one more of its arms. His chief officer struggled furiously with other monsters crawling up the Nautilus's sides. The crew battled with flailing axes. The Canadian, Conseil, and I sank our weapons into these fleshy masses. An intense, musky odour filled the air. It was horrible.

For an instant I thought the poor man entwined by the devilfish might be torn loose from its powerful suction. Seven arms out of eight had been chopped off. Brandishing its victim like a feather, one lone tentacle was writhing in the air. But just as Captain Nemo and his chief officer rushed at it, the animal shot off a spout of blackish liquid, secreted by a pouch located in its abdomen. It blinded us. When this cloud had dispersed, the squid was gone, and so was my poor fellow countryman!

*...THIS DREADFUL SCENE on April 20 none of us will ever be able to forget. I wrote it up in a state of intense excitement. Later I reviewed my narrative. I read it to Conseil and the Canadian. They found it accurate in detail but deficient in impact. To convey such sights, it would take the pen of our most famous poet, Victor Hugo, author of *The Toilers of the Sea*!*

*Jules Verne, "Vingt mille lieues sous les mers"
(Twenty Thousand Leagues Under the Sea), 1869.*

*The octopus had a fearsome reputation in the minds of the general public of the early Nineteenth century. Seafarers reported nightmarish stories of giant creatures in the high seas that could emerge suddenly from the deep and drag a ship and its entire crew down into the abyss below. The eminent French naturalist the Comte de Buffon depicted just such a sea monster as a giant octopus in his 1805 publication "*Histoire Naturelle des Mollusques*".*

Today of course we know better, Octopi (? Octopuses) simply do not reach such a size that could pose a threat to a ship on the high seas. It is thought that perhaps some of the stories of the ancient mariners were based on giant squid which certainly do exist in the great depths of the oceans and some are big enough to do battle with Blue whales! Some species of octopus however do indeed pose a deadly threat to humans - not by virtue their monstrous size - but by their deadly venom.

BLUE RINGED OCTOPUS



Blue ringed octopus, (Hapalochlaena maculosa)²

Introduction

The bite of the **Blue Ringed octopus** may impart a potentially lethal venom that acts by rapid paralysis.

They are not usually aggressive creatures normally only biting when disturbed.

The blue rings only appear when the creature is alarmed, and serves as warning to those who encounter it.

Treatment is principally in the form of airway and ventilatory support will ensure survival.

With the institution of airway and respiratory support, the paralysis resolves spontaneously within 24 hours.

Biology

The Blue Ringed octopus is a small octopus usually only growing up to around 12 cm.

The blue rings only appear when the creature is alarmed.

Scientific classification:

Kingdom:	Animalia.
Phylum:	Mollusca.
Class:	Cephalopoda.
Order:	Octopoda.
Family:	Octopodidae
Genus:	<i>Hapalochlaena</i>
Species:	<i>Maculosa/ lunulate.</i>

Over a dozen species throughout Australian and Indo-West Pacific waters are now recognized.

There are 2 main species of **Blue Ringed octopus** inhabiting Australian coastal waters are:

1. *Hapalochlaena maculosa*, or the Southern or Lesser blue ringed octopus.
2. *Hapalochlaena lunulate*, or the Northern or Greater blue ringed octopus.

Habitat

Shallow coastal waters around the whole coast of Australia.

Although relatively common it is not commonly seen as it tends to hide in rock crevices during the day emerging mainly at night to hunt out crabs.

The Southern or Lesser blue ringed octopus is only found in Australian waters.

Toxinology

The saliva from a bite of the Blue ring octopus contains **tetrodotoxin venom**.

Tetrodotoxin is a potent **sodium channel blocking neurotoxin**.

In *Hapalochlaena maculosa* this is known as **maculotoxin**.

Interestingly the venom is produced by bacteria resident within the salivary glands of the octopus.

Venom is introduced from the beak under the body of the octopus, *not* from its tentacles.

Clinical Features

Collapse and paralysis on a beach, after a seemingly minor, bite is the classical description of Blued Ringed octopus envenomation.

1. Bite site:

- The bite is relatively painless.
- Local symptoms are then minimal or absent.

2. Neurotoxicity:

Systemic envenomation is characterized by a flaccid neurological paralysis which is:

- **Descending**
- **Rapid**
- **Progressive**
- **Symmetrical**

Early features include:

- Ptosis
- Diplopia with blurred vision.
- Difficulty swallowing.

If left untreated:

- Generalized paralysis.
- Respiratory failure, leading eventually to secondary hypoxic cardiac arrest.

3. **With the institution of airway and respiratory support, the paralysis resolves spontaneously within 24 hours.**

Differential diagnosis:

Sudden collapse on a beach with paralysis may also be due to stinging by the Box jellyfish, *Chironex fleckeri*, however this diagnosis is usually easily made in view of the severe pain, characteristic welts and adhering tentacles.

Investigations

There are no specific investigations required for Blue Ringed octopus bites.

Any that are done therefore are directed toward ruling out alternative diagnoses or secondary complications.

Spirometry or peak flow measurements may be helpful in monitoring respiratory function.

Management

After any suspected bite from a Blue Ringed Octopus a period of close medical observation is mandatory.

Treatment is entirely supportive.

1. Immediate attention to ABC issues, via BLS initially and ALS as required will lead to survival.
 - **Note that a paralysed and ventilated patient will be fully aware, so will require ongoing sedation.**
2. **Pressure bandage and Immobilization (PB&I):**
 - This is an important first aid measure.
3. Hypotension:
 - Hypotension may be seen, but will usually respond to IV fluids resuscitation.
4. Anti-venom:
 - There is **no** current anti-venom available.
5. Tetanus immunoprophylaxis may be given as clinically indicated.

Disposition:

Patients who are symptom free at 6 hours will not be envenomed and may be medically cleared.



Hapalochlaena maculosa, or the Southern or Lesser Blue Ringed octopus. (Mark Norman - Museum Victoria).

References

1. Blue Ringed Octopus in L Murray et al. Toxicology Handbook 3rd ed 2015.
2. Barwon Bluff Marine Sanctuary, Parks Victoria:
 - www.barwonbluff.com.au
3. Sutherland S. K & Tibballs J. Australian Animal Toxins, South Melbourne OUP, 2001.

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