



## Ask Dr. Debbie...

### Toxic and Venomous Marine Injuries: What you need to know...

*By Debra A. Hill, MD*

**W**E ALL WANT to avoid contact with toxic and venomous marine life. Most of the time good buoyancy control and avoiding active touching of marine life is all it takes but there are those unforeseen times when accidents do happen. The questions are: which organisms are of greatest concern and what do we do when we are the victim of a sting or puncture from a venomous animal?

Individual variations can cause a more severe reaction to a toxin or venom. Even the seemingly most benign sting from a sea anemone could result in anaphylactic shock in someone who is allergic to that venom or toxin.

- Avoid contact with anything known to be a stinging organism
- If you have been stung, minimize further stinging and spread of the venom or toxin
- **Most importantly, seek immediate emergency medical attention if you develop body rash or trouble breathing as this may be an indicator of an anaphylactic allergic reaction which can be deadly in a very short time.**
- Many serious toxins can also cause muscle paralysis not only manifested by weakness, but also by trouble

breathing and cardiac arrest.

#### **First Aid for Stings from Anemones, Fire Coral, Stinging Hydroids, and Jellyfish:**

These organisms all fall into the phylum of Coelenterates (aka Cnidaria) which are known to have stinging nematocysts of two different types. One type sticks to its prey by a coiled spring or sticky mucous and the other is like a needle penetrating its prey. The toxicity of the venoms of these organisms varies widely from the deadly Portuguese man of war and box jellyfish to the less dangerous sea anemone.

- The key here is immediate flooding of the sting with household vinegar to keep not-yet discharged nematocysts from firing. This is not meant to reduce pain, but to prevent further stings.
- Be sure to pluck off any vinegar-soaked tentacles with tweezers or any implement—not with your bare hands.
- Ice packs are best for pain.
- **If shortness of breath, weakness, muscle cramps, chest pain, palpitations, nausea, blurred vision, or headache occurs seek immediate emergency medical attention.**

There is controversy regarding use of alcohol or urine as some studies have indicated that use

of these substances actually worsened the discharge of the nematocysts which may depend on variations in organisms around the world.

In our local waters, we may be more likely to suffer from stings from hydroids that grow on mooring lines. As we grasp the line during our safety stops we may then carry these stinging hydroids on our gloves. A word of caution: carefully remove your gloves when back on the boat before removing your mask or wiping the mucous from your nose to avoid potential hydroid stings.

#### **First Aid for Cone Snail Stings:**



Photo contributed by Mark Rosenstein  
<http://markrosenstein.com>

***The key here is recognizing the cone snail and not touching it.***

The cone snail has a proboscis, or tubular appendage, with a venomous barb on the end of it that can suddenly extend out of the shell to kill its prey. If you do happen to get a sting from a cone snail the risk is significant. Not all cone snail stings are fatal but there are many types of cone snails.



Photo contributed by Debbie Karimoto

- **The best thing to do is abort the dive.**
- Once out of the water hold the bite site below the core of the body and apply a pressure bandage over the bite as tight as you would wrap a sprained ankle to slow the spread of the venom, but make sure fingers stay pink and warm indicating adequate circulation.
- Seek immediate emergency medical care.
- Cone snail venom can cause numbness and tingling that may extend from the sting up to the

mouth and lips and be accompanied by muscle weakness and even paralysis. Trouble with speech and swallowing typically occurs prior to paralysis. Vision becomes blurred due to paralysis of the eye muscles and shallow, rapid breathing occurs as the venom impacts the respiratory muscles which can proceed to unconsciousness and cardiac failure.

**So, don't risk it, don't touch shells!**

## **Did you know?**

*An added bit of info regarding cone snails that may seem ironic:*

Recent research at the University of Melbourne indicates that there is a component in the venom of the cone snail called ACV1 that may be useful as a non-addictive pain killer for those suffering from neuropathic pain from diabetes or those with chronic pain associated with cancer, AIDS, and arthritis. In

rat tests it has even been found to accelerate wound healing where nerve damage has occurred.

Don't take this to mean that you should go out and try to harvest cone snails to use them for pain control. It is a specific component of the venom that has been shown to be useful in this way.

**All ocean wounds carry the risk of tetanus.** Be sure to update your tetanus booster shot about every 5 years. If you aren't sure when your last tetanus shot was, see your doctor about getting a tetanus booster shot.

Next month I will cover marine injuries from venomous fish and a few other marine animal injuries. If you have a marine animal injury or diving accident that you would like me to comment on, please email it to me and I will be happy to include it in future articles.

Knowing what to avoid and what to do in case of an accident can make all the difference!

Happy and Safe Diving!

All the best,

*Debra A. Hill, MD*

## *First Aid items to add to your dive kit:*

- **Household white vinegar and 4x4 inch gauze pads to use with vinegar application to the sting.**
- **Rigid object like a credit card to scrape off tentacles.**
- **Ace bandage wrap for pressure dressing (If not available, use any piece of cloth. A T-shirt will do.)**