Portuguese Man-of-war alarm in the Mediterranean Sea

The **Portuguese man-of-war** not only has a melodious Latin name (*Physalis physalis*), but also an extremely beautiful structure. It's an ingenious product of evolution. It is not an actual jellyfish, but a union of many individual polyps, a colony. Each polyp develops its individual specialisation: navigation, digestion, and, of course, special attack and defence equipment. This work of art only acts as a colony, with buoyant bodies (*pneumatophore*) and a kind of inflated sail, which shimmers in beautifully blue-violet, almost as pure as a rock, and ensures sailing on the water surface. The stately jellyfish draws nice filaments of up to 10 meters in length. Smaller specimens with a 10 cm sail still have tentacles of up to 2 meters. Tentacles have a bead-like appearance, and each bead contains special stinging cells (nematocysts), which produce a debilitating sting.

But enough praise now, because whoever is caught by these filaments understands how comparatively harmless the North Sea and Baltic Sea Lion jellyfish are. The pain caused by the man-of-war is the "perfect pain", because preys must remain motionless if the colony is to be fed…



Mallorca: a new attack?

Although the alarm in the Mediterranean is justified, it probably has nothing to do with global warming. Back in 1975, as a future high-school graduate with a scientific background, I was able to admire and examine several specimens, as that year entire swarms of jellyfish stranded off the Dutch and German

Frisian Islands.

The man-of-war doesn’t like heat, so so it may occasionally search for colder waters. The Mediterranean is not in the phase of the first attack: there have already been multiple attacks on Mallorca. Anyone there now knows what this jellyfish is able to do.

This colony behaves like an aggressive, agonising creature who expands its territory at its own discretion, discretely drifted by currents, winds and weather. However I doubt that the colony itself controls the whole thing.

Poisoning by man-of-war

The poison released in ten thousandths of a second by this shooter is highly toxic and lethal to small marine organisms. The aim is to feed the whole colony. This special jellyfish has little competence in criminal prosecution. Therefore, everything must happen quickly and be as effective as possible!

If a person is stung, the pain can be excruciating, a result of the highly toxic neurotoxin that is present in the poison. It is said it can paralyse other marine organisms instantly. Adults, as well as a children, are still quite big and can easily survive an attack almost in all cases. Only rare cases of deaths have been reported, all of secondary nature, such as heart attacks due to stress or serious allergic reactions associated with the poison. The only jellyfish which represents a real threat to humans is the Pacific Box Jellyfish (*Chinorex fleckeri*), whose venom, presumably one of the strongest out there, can even kill adults.

After the painful sting, serious skin lesions develop in the affected area. The patient therefore needs a dermatological therapy based on cortisone, to counteract the formation of scars.



First Aid

This article should provide clear guidance on the correct initial treatment.The matter is complicated, however. Since I've been part of the medical community, that is almost four decades now, I've come across several publications that propose questionable remedies, none of them proven effective. Some examples: yeast powder, shaving foam, fresh water, urine, alcohol... All this is believed to neutralize the poisonous attack of the jellyfish.

Obviously you always bring some yeast and shaving foam on your diving gear, don't you? At least do not forget urine, fresh water or alcohol... I fear, though, that this won't be of any use, as none of these remedies actually work. If anything, they will only make things worse.

Let's ask science

Fortunately, scientifically proven remedies exist (Toxins 2017, 9, 149; toi: 10.3390 / toxins9050149).

It is true that stings by man-of-war cause severe pain, but this jellyfish fortunately strikes with caution, because it only uses 1% of its firepower. This means that most of its urticating organs remain inactive. If it already hurts so much at 1% and causes such nasty skin lesions, what would happen if the entire army rebelled? A disaster. Therefore, it's important, whilst providing first aid, to avoid activating 99% of its dormant poisonous power. As Hawaiian scientists pointed out, grandmother's remedies such as baking powder, shaving foam, urine, fresh water and alcohol could start the remaining 99% of its firepower, as tentacles that have been already torn out long ago (even days) are truly independent bodies.

A safe antidote is normal, undiluted domestic vinegar. You should always take it with you when you are in areas where this jellyfish lives. At least 5% undiluted acetic acid is required. If pure vinegar is not available, salt water is the best way to rinse off urticating cells. It is available everywhere, because the sting, when it occurs, can only be associated with salty water. On the other hand, rubbing urticating cells with sand and scraping them with the back of a knife could fall in the 99% range of false remedies that trigger further urticatory reactions.



Minimisation of personal risk

Prevention is very simple: wear full neoprene protection. In areas where man-of-war jellyfish have been spotted, divers should always dive with a long wetsuit, hood and gloves. Rescuers should also wear gloves, because even slightly touching tentacles can cause the same reaction and the same risks.
If someone spots a man-of-war, which is easily recognizable by its sail, keep a wide distance and, if necessary, warn people nearby. Bathing children are more at risk than adults because of their low body mass.

A bottle of domestic vinegar is the best immediate treatment on the spot when hit by urticating cells. It is advisable to have it at hand at all times in areas at risk. If not, rinse the tentacles / urticating cells with sea water, but do not rub. Only very few urticating cells are activated when the part burns and causes pain. Any other action can only worsen the event by activating the dormant urticating cells.

If you have the misfortune to be stung, remember: keep calm, as simple contact with the man-of-war is not at all pleasant, but not fatal either.

In order to prevent marine life injuries, identify injuries caused by hazardous marine life and provide first aid, check out our **HMLI course**.

About the author:

Dr. med. Ulrich van Laak is co-founder of DAN Europe and has been Medical Director for Germany, Austria and Hungary since almost 30 years now. He is Diving and Hyperbaric Consultant former President of the German Society of Diving and Hyperbaric Medicine, and currently acts as Surgeon Captain (German Navy) and trained specialist for Maritime Medicine, Diving and Submarine Medical Officer (US Navy, German Navy). He also works as Head of Department Maritime Medicine at the German Naval Institute of Maritime Medicine (NIMM) in Kronshagen (Kiel), Germany. Beside Diving Medicine, his prominent field of engagement is submarine safety and rescue, pathophysiology of immersion/submersion, rescue equipment and procedures, survival at sea, fleet telemedicine.