

# Dangerous creatures of the Maltese sea: Injuries and treatment - Part 2

**DR DAVID JAMES SAMMUT**

## ABSTRACT

This is the second of a two-part article intended to give information about different organisms which inhabit the Maltese sea and which are potentially harmful. Doctors working in the primary health setup and sometimes also in secondary care are often faced with injuries related to these organisms. The nature of the injury and its treatment is then discussed. Treatment however is not evidenced based as little if any studies have been conducted in this field of medicine. After the first article considered venomous organisms, this second article will review sea creatures that may cause injury through bites, spines and electricity.

## KEY WORDS

Bites, moray eel bites, sea urchin puncture

## INTRODUCTION

The second part of this article will detail the other dangerous sea animals which do not possess any venom (Table 1). Most injuries are caused by sea urchins. Though frequent, this type of injury is only minor. The worse injuries in this category are those of bites. Several fish possess strong jaws capable of inflicting serious injuries which are sometimes fatal. These types of injuries are luckily uncommon, and fatalities very exceptional. The last organism to be mentioned in this article is a very peculiar one, because it uses electricity to defend itself.

## CREATURE CAUSING INJURY THROUGH SPINES

### The Organism and Nature of Injury

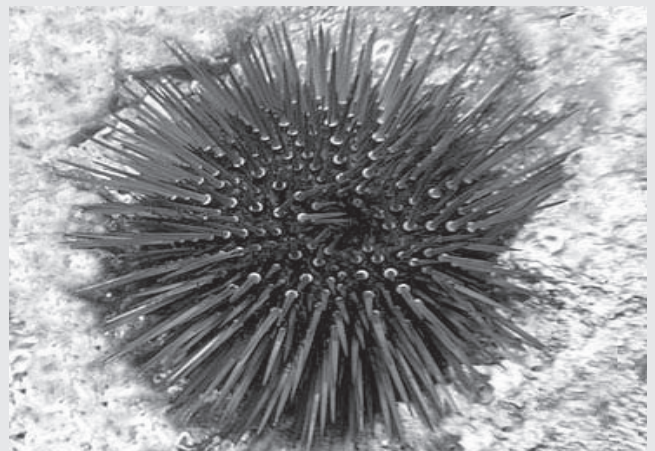
Sea urchins (Figure 1, Table 2) are bottom dwellers, living in shallow waters in rocky areas. They feed on algae which they scrape off the rocks (Sultana et al., 1995). Injury occurs when they are either stepped upon or when they are collected. Spines penetrate the skin and break off, with the palms and soles mostly affected. Often multiple spines are present in the same area. The spines of sea urchins are very sharp but brittle, so they do not penetrate

deeper than the epidermis. The common Mediterranean sea urchin does not possess any venom in its spines, thus injury is often of a minor nature.

## Treatment

Treatment options vary. Embedded spines can either be removed immediately, after a few days, or left to come out spontaneously. Any large projecting spines should be carefully removed with tweezers (Drobina, 2008). Deeper spines are more difficult to remove. Removing them immediately is often time consuming, painful and may cause more trauma to the site. Superficial spines are best left undisturbed, as they will eventually be rejected spontaneously as the epidermis renews itself. Deeper spines will come out easier if left for a few days before attempting to remove them. The skin over the spine is broken with a needle and the spine is easily removed by applying pressure at the sides of the spine. This procedure is facilitated if the area affected is left immersed in hot water for 5-10 minutes to allow the skin to become softer before the procedure. Some doctors advocate the use of magnesium sulphate paste to aid spontaneous removal of the spines. Sometimes the area can become infected, with pain, swelling and redness developing around the area. This should be treated with antibiotics.

Figure 1: Sea Urchin



**Table 1:** Dangerous creatures divided according to mechanism of injury.

VENOMOUS	BITES	SPINES	ELECTRIC
Anemones	Sharks	Sea Urchin	Electric ray
Jellyfish	Moray eel		
Bristle worm	Conger eel		
Greater Weever	Barracuda		
Lesser Weever			
Scorpion fish			
Sting ray			
Eagle ray			

**Table 2:** Information about the Sea Urchin

FAMILY	Echinidae
SCIENTIFIC NAME	Paracentrotus lividus
ENGLISH NAME	Sea urchin
MALTESE NAME	Rizza
MAXIMUM LENGTH	15cm
HABITAT	Rocky Bottom

## CREATURES CAUSING INJURY THROUGH BITES

There are several organisms living in the sea that can bite and cause injuries (Table 3). A full description of all these creatures is beyond the scope of this review.

### 1. Shark family, Conger Eel & Barracuda The Organisms and Nature of Injuries

Members of the shark family all possess sharp teeth capable of ripping off flesh if the occasion arises. The number of the larger and most dangerous sharks has declined drastically and shark attacks in the Mediterranean waters are unheard of. According to the Florida Museum of Natural History (2012), there have been 22 recorded unprovoked white shark attacks in the Mediterranean since 1907. Two of these occurred in the Maltese territorial waters, the most recent in 1956. Other members of the shark family, mainly dogfish and

six-gilled sharks, live on the bottom in deep waters and are commonly caught by deep-sea long lines. Since these are cartilaginous fish which do not possess air bladders, they are not affected by drastic pressure changes. As a consequence they remain very active and strong even when brought up from the deep. Fishermen have to stay very careful not to be bitten while handling these fish, as they can incur very nasty bites, tearing off flesh instantly.

The Conger Eel (scientific name: *Conger conger*, Maltese name: Gringu) is an eel which lives in crevices and holes (Sammut, 2001). It is mostly a nocturnal fish lying in its hole during the day and scavenging for food during the night. The conger eel possesses powerful jaws with tiny teeth capable of inflicting serious injuries (World Health Organisation, 2012). The bite does not rip off flesh, with damage being more due to the pressure exerted and the powerful wriggling of the fish. It will not attack on its own accord unless provoked or when trying to free itself when caught.

The Barracuda (scientific name: *Sphyraena sphyraena*, Maltese name: Lizz) is a free swimming predatory fish that can reach a length of 1.2 m and weigh a maximum of 8 kilos (Sammut, 2001). Juveniles are often found in shoals, while adults are either solitary or in pairs. Over the past few years, the barracuda has increased in numbers in Maltese coastal waters and is an avid catch for many amateur fishermen. It possesses a large mouth and powerful jaws lined with strong pointed teeth with which it catches its prey. This fish secretes a slimy fluid from its body which together with its streamlined body and violent wriggling action makes it very difficult to hold once caught. As a result one can very easily be bitten

**Table 3:** Dangerous biting fish (Sammut, 2001)

ORGANISM	MALTESE NAME	SCIENTIFIC NAME	MAX. SIZE	MAX. WEIGHT
Great White Shark	Kelb Abjad	<i>Charcharodon carcharias</i>	8m	6000kg
Shortfin Mako	Pixxitondu	<i>Isurus oxyrinchus</i>	4m	600kg
Spotted Tigershark	Tawru	<i>Eugophodus taurus</i>	3m	280kg
Kitefin Shark	Murrana Sewda	<i>Dalatias licha</i>	1.6m	30kg
Spiny Dogfish	Mazzola Griza	<i>Squalus acanthias</i>	1.2m	22kg
Barracuda	Lizz	<i>Sphyaena sphyaena</i>	1.2m	8kg
Conger Eel	Gringu	<i>Conger conger</i>	2.8m	65kg
Moray Eel	Morina	<i>Moraena helena</i>	1.5kg	10kg

while trying to unhook it, especially when handling larger specimens. While the fish is being unhooked, it will continue to fight vigorously and may cause the hook to pierce the fisherman's hand, especially if treble hooks are being used. Since usually large hooks are needed to catch these strong fighters, a minor operation under local anaesthesia is often needed to remove the hook from the fisherman's hand. This has been experienced firsthand by the author. It is always wise to avoid inserting the fingers in the fish's mouth and to use pliers to remove the hook. There are no reports of any attacks on bathers or divers in the Mediterranean by the barracuda as occurs in tropical seas where nasty injuries and even fatalities have occurred from bites of a very similar species.

### Treatment

Treatment of bites consists of cleaning the area well, debridement and suturing as necessary, tetanus toxoid prophylaxis and treating any complicating infection.

## 2. Moray Eel

This article will now focus on another fish which more commonly causes severe injuries and is well known for this: the moray eel.

### The Organism

This very common fish, as the name implies, is an eel which lives in crevices and holes on rocky sea beds, from very shallow to deep waters (Figure 2, Table 4). The moray eel has a small pointed head with a thicker body which is not covered by scales, rendering it very slippery. It has powerful jaws lined with razor sharp teeth capable

**Table 4:** Information about the Moray Eel

FAMILY	Muraenidae
SCIENTIFIC NAME	<i>Muraena helena</i>
ENGLISH NAME	Moray eel
MALTESE NAME	Morina
MAXIMUM LENGTH	1.5 m
HABITAT	Rocky Bottom

**Figure 2:** Moray Eel



of ripping off flesh with a snap (Sammut, 2001). It is a curious fish which is not easily scared, giving it a fierce look. Moray eels are solitary and stay on the lookout for anything which happens in their surroundings. Scuba divers favour these fish as they keep to the same holes and are not shy of divers. They often feed them octopus and dead fish by hand. This is a potentially dangerous practice as the eel may grab the diver's fingers in the process (Barreiros & Haddad, 2008).

### Nature of Injury

The moray eel will fight with all its strength to free itself once caught. Its relative calm appearance when seen in its hiding place is deceptive, as it will put up a fierce fight if disturbed or caught. It will twist and twirl its powerful body and snap at anything within reach of its mighty teeth, even itself. When it bites, the sharpness of its teeth together with the twisting movement of its body will rip off chunks of flesh in a split second. Since the fish is very slippery it is impossible to hold, rendering it more dangerous when it frees itself in the boat. One has to be very careful not to be bitten in the feet by it. Once dead the head should be cut off and thrown away somewhere safe as the teeth can be dangerous if touched. Since this fish is a scavenger, its teeth are full of bacteria giving rise to nasty infections. Persons bitten by moray eels sometimes describe an intense stinging pain at the site of the injury, more than one would expect from the bite itself, as if some poison was injected into the wound. Whether moray eels do in fact produce toxins is controversial, however some studies do support this hypothesis (Lichtenberger, 2007). Toxins from bacteria in the eel's mouth could also be the reason for such pain.

### Treatment

Emergency treatment consists of stopping the bleeding and cleaning the area well. Often secondary care is needed for the more extensive bites. The laceration should be thoroughly cleaned. Debridement and suturing of the wound may be necessary under anaesthesia. Antibiotic cover, as well as tetanus toxoid, should be given due to the high possibility of infection. Ciprofloxacin, cefuroxime, tetracycline or trimethoprim/sulfamethoxazole are often chosen for these wounds due to the concern for infection with *Vibrio* and *Pseudomonas* species (Erickson et al., 1992).

**Table 5:** Information about the Electric Ray

FAMILY	Torpinidae
SCIENTIFIC NAME	Torpedo marmorata
ENGLISH NAME	Electric ray
MALTESE NAME	Haddiela komuni
MAXIMUM LENGTH	0.8m x 0.5m
HABITAT	Sandy/Posedonia bottoms

## CREATURE CAUSING INJURY THROUGH ELECTRICITY

### Electric Ray

#### The Organism

This is a very peculiar fish. It is a ray which lives on the bottom of the sea. It is rounded in shape with a short thick tail without any barb (Figure 3, Table 5). It is a very clumsy swimming fish which one can even touch where it not for the ingenious system of defence which this fish possesses (Sammut, 2001). This fish

**Figure 3:** Electric Ray



is capable of producing an electric current which it discharges either to capture its prey or in self defence. It is a very potent discharge of about 220 volts which can be repeated several times in rapid succession, even 8-10 times. Specimens can be found even in very shallow water less than 50 cm deep. These rays can bury themselves completely in the sand rendering them invisible.

### Nature of the Injury

Despite the high voltage that this fish can discharge, the current has very low amperage. This does not lead to any injury, although it makes you release the fish with a start. Most commonly these fish are caught through spear fishing and discharge their electricity on being handled. Rarely they can cause a fright to bathers who accidentally step upon them in shallow sandy beaches.

### Treatment

No treatment is needed as they do not cause any persisting injury.

### CONCLUSION

Having reviewed the dangerous sea creatures which inhabit the local Maltese waters and their potential injuries, one has to mention that serious injuries are often rare. However the 'creature' which causes the most frequent and often the most severe injuries is not a marine one but a bipedal one. Human activity is often the cause of injuries through a number of factors. Miscalculation of risky bathing in strong currents or rough seas is a major factor. Also scuba diving when one is not perfectly fit can result in fatalities. Probably the worst of all injuries is being hit by a powerboat or jet ski while snorkelling or swimming, resulting from complete neglect of safety measures. Persons snorkelling should have a red buoy marking their position and should keep away from zones

of heavy marine traffic in the midst of summer. On the other hand, drivers of motor boats should keep on the constant lookout for any swimmers or people who are snorkelling, and pass at least fifty metres away from any buoy at a safe speed. Only by respecting the sea and its environment, and by abiding to safety procedures, can these potentially fatal situations be avoided.

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**Dr David James SAMMUT MD, MMCFD**  
*Specialist in Family Medicine*  
E-mail: [djsammut@hotmail.com](mailto:djsammut@hotmail.com)