

TWO CASES OF NEAR FATAL BOX JELLYFISH
STINGS SUSTAINED IN LITTORAL WATERS OF
THE SULTANATE OF OMAN

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The Sultanate of Oman lies almost entirely within the geographical latitudes 17° North to 26° North. The Northern Batinah coast of Oman, where these two cases occurred, abuts the Gulf of Oman, and surface sea water temperatures of 40° and above have been recorded during the months of August and September at bathing beaches along this coastline.

The majority of the populace of the Sultanate of Oman live on the Batinah coast and its immediate environs. So the beaches on this coast sustain heavy use by bathers particularly during the hot weather months of June to October each year.

Several anecdotal accounts of jellyfish stings with severe systemic complications have been related to me by both Omanis and expatriates. The Omani fishermen who work this area of the sea refer to the very unpleasant effects suffered by persons coming into contact with particular types of jellyfish which are caught in their fishing nets. 'Dijna'a' and 'Halwa el bahr' are two of the several Omani names which are applied to the local species.

The Gulf of Oman and adjoining Arabian Sea form part of the Indo-Pacific Ocean system, and are in direct contact with the tropical and subtropical waters of the system. No barrier of temperate seawater separates these parts, and free migration of larval forms of poisonous tropical jellyfish to Omani waters can therefore occur, with maturation to adulthood taking place under suitable climatic conditions.

This paper describes the clinical courses of two victims of jellyfish envenomation, and seeks to show the probable culprit as a species of Cubomedusan Box Jellyfish.

Case One

A thirty-five year old European expatriate employee of the Ministry of Defence of the Sultanate of Oman was stung by a jellyfish whilst bathing at Seeb beach in August 1981. He later described the offending specimen as resembling a plastic bag in appearance.

The patient sought immediate medical attention at the Force Base Hospital Casualty Department nearby because of the excruciating pain which he was experiencing. He arrived at hospital within minutes of being stung.

On examination in the Casualty department he was noted to be fully conscious and orientated. Red urticarial wheals were noted on the patient's right infra-axillary, mammary and scapular regions where he had been stung.

The patient's blood pressure was recorded as 120/75 mm Hg and pulse 86/min on arrival, and IM Chlorpheniramine 10 mg and IM Pethidine 50 mg were given.

Shortly afterwards the patient complained of difficulty in

breathing, and examination of the chest revealed generalised rhonchi. IV Aminophylline 250 mg and IV Decadron 2 mg were given but did not relieve his symptoms. The patient continued to sweat and experience difficulty in breathing. He also exhibited pallor and coldness of extremities. Anaphylactic shock was diagnosed.

His symptoms continued to worsen in spite of an intravenous infusion of Mannitol 20% and oxygen given by mask. His blood pressure rose to 230/120 mm Hg and cardiac monitoring was commenced. IV Adrenalin was given in 1 mg boluses with little effect on the bronchospasm, a total of 3 mg being given within the space of 15 minutes.

Some 2 1/2 hours after he reached the hospital he had had a total of

IV Adrenalin 5.5 mg	IM Chlorpheniramine 10 mg
IV Dexamethasone 10 mg	IV Mannitol 20% 400 ml
IM Pethidine 150 mg	IV Crystalloid fluids 4 litres.

His blood pressure was 170/80 mm Hg and his pulse rate variable.

Seven hours after admission, the patient's pulse was noted to vary from 40/min to 80/min, and cardiac monitoring showed episodic nodal rhythm with occasional 2:1 atrioventricular block. Atropine 0.3 mg IV gave a rapid tachycardia for 30 seconds which then settled after admission, when a bradycardia of 40/min was noted, together with a blood pressure of 140/100 mm Hg. By the following day, the patient's blood pressure was 150/90 mm Hg and his cardiac rhythm was regular. On the fourth day after admission, he was fit for discharge, but has sustained permanent scarring in the regions of his chest and back where he had been stung.

Case Two

The twelve year old son of a European expatriate employee of the Diwan of Royal Court Affairs of the Sultanate of Oman dived off a surfboard into the sea at the Sultan's Armed Forces Aqua Club at Ras al Hamra in early September 1984. He recalls seeing a mass of reddish-brown strands which he thought were seaweed just before diving, and immediately came into contact with them.

He screamed with pain on surfacing and was quickly rescued from the water. Red urticarial wheals were noted to cover extensive areas of the abdomen, trunk and arms and his respirations were wheezy. Cold cream was rubbed into the affected areas by a well meaning rescuer and IM Chlorpheniramine 10 mg administered by a nurse who was fortuitously present.

The patient was transferred to a nearby civilian hospital and required cardiac massage and expired air resuscitation during the journey. Anaphylactic shock was diagnosed on arrival at hospital and treated with hydrocortisone and antihistamines. He began passing urine of 'Pepsi Cola' appearance which was positive on testing for blood. His blood pressure remained elevated at 140/90 mm Hg for 24 hours during which period there was no evidence of central overload or cardiac failure.

After the passage of dark urine he became oliguric and was referred to the Nephrology Service. Necrosis was noted on the affected areas of the patient's skin.

He was treated with IV fluids, frusemide and hydrocortisone but the oliguric renal failure persisted. Peritoneal dialysis was commenced and was required for three weeks. Oliguric renal failure secondary to myoglobinuria was diagnosed. On the fifth day after being stung he developed severe pulmonary oedema secondary to hyperkalemic cardiac failure. Emergency haemodialysis with forced ultrafiltration via a femoral vein catheter gave a dramatic response with clearing of the pulmonary oedema and improvement in the patient's cardiac status.

His laboratory investigations at the time of referral to the Nephrology Service were:

Hb 16.8 g/dl
 WCC 21,000/c mm with PMN 81%
 Normal platelet count
 Prothrombin time normal
 Albumin 49 g/l
 Phosphate 2.93 mmol/l
 CPK 1328 u/l
 Urea 30 mmol/l
 Creatinine 490 µmol/l
 Na 132
 K 4.7 mmol/l
 Calcium 2.31 mmol/l
 Urates 584 µmol/l
 LDH 1749 u/l

Whether the muscle breakdown with consequent myoglobinuria was a toxic effect of the jellyfish sting, or else was caused by severe muscle spasms secondary to the pain of the stings is not clear. The patient continued to recover well and two months after being stung his renal function was virtually normal. Extensive scarring at the sites of the stings remains however.

Discussion

The near fatal immediate clinical effects of jellyfish stings in these two cases together with the permanent cosmetic disfigurement sustained as a result of necrosis of the envenomated skin raises the question as to whether or not Commonwealth Serum Laboratories Sea Wasp antitoxin would be helpful in the management of future cases. The oscillations in blood pressure of the first case and oliguric renal failure in the second case indicate that toxins from a Cubomedusan species of jellyfish were acting in both cases.

A Cubomedusan jellyfish specimen taken from littoral waters near the site of the second case has been tentatively identified as *Carybdea alata* by the Department of Zoology at the University of Queensland. The reports of the victims on the appearance of their jellyfish contacts support this type of coelenterate as being the most likely culprit, and it may be that the Omani variety is more poisonous than its Australian counterpart. No reports of Chironex species in Omani waters exist but investigation of this possibility continues.

The views of the expert speakers at the SPUMS Annual Scientific meeting are particularly sought on the question of the usefulness or otherwise of Commonwealth Serum Laboratories Sea Wasp antitoxin in the management of such cases in Oman.

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A TENTATIVE GUIDE TO MANAGEMENT OF MARINE STINGS

SK Sutherland

Pain relief (often required for fish stings).

Bathe in warm, not scalding, water. Use outboard engine cooling water if necessary.

Local anaesthetics. A regional nerve block may even be necessary (eg. bupivacaine).

Opiates

Emetine (rarely available)

Antivenom for severe stonefish stings

Local tissue damage.

Take positive action and remove foreign bodies or dead tissue. Ensure good drainage. X-ray if indicated.

Wash well with fresh water as sea water may encourage bacterial growth.

The wound is potentially infected so remember marine bacteria represent a wide range of organisms, many of which are not fully characterized. Many are resistant to common antibiotics. Expert opinion is that trimethoprim sulphamethazole (Respin, Bactrim, Seprim) is the best first choice.

Tetanus prophylaxis if indicated. Death from tetanus has occurred especially after stingray injuries.

NB. It may be necessary to rest the injured region for days for satisfactory healing to occur.