be started immediately. This can minimise the injury and reduce recovery time.

The aquatic and land based programme reported here offered an effective rehabilitation protocol for the female athlete. However, a case study does not allow generalisation of the conclusions. Further investigation is needed to estimate the effectiveness of this early intervention in achieving rapid return to unlimited activity.

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Surfer wipe out by predator fish

G M M J Kerkhoffs, J W op den Akker, E R Hammacher

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Needlefish injuries, commonly reported in the Indo-Pacific region, have not been previously reported along the European coastlines. This case report describes a penetrating injury to the heel of a professional surfer during competition off the Portuguese coast. Diagnostic as well as therapeutic recommendations are made.

Reports of hazardous marine animals have increased over the last two decades.[1 2] Along the European seaboard, stingrays and catfish commonly cause penetrating injuries, but there are no reports of injury by needlefish. Human injuries by needlefish result from the ability of the fish to leap out of the water at high speed. Injury occurs by impalement of the needlefish beak. This produces a stab wound, often with the beak intact. Injuries by needlefish, especially among windsurfers, divers, and fisherman, have only been reported in New Caledonia,[3] Papua-New Guinea,[4] the Red Sea,[5] and Hawaii.[6] This case report describes a penetrating injury to the heel caused by a needlefish, which occurred during a professional surf contest in European waters. Management of the injury is discussed.

CASE REPORT

A 25 year old man presented to the emergency department of our hospital with persistent swelling and pain in his right heel. Two weeks before, while riding a wave in a professional competition off the coast in Portugal, he had suddenly felt a violent thump and pain in his right heel. The sharp pain and profuse bleeding caused him to be thrown off the wave and return to shore. On arrival in the Portuguese emergency ward, initial evaluation revealed a foreign body sticking out of the right heel. The doctor removed the protruding part of the foreign body and bandaged the wound. Thereafter the patient was discharged from further care.

Two days later, on return to the Netherlands, the heel was still warm, swollen, and painful. Consultation with the patient's general practitioner and sports medicine doctor resulted in prescription of rest and antibiotics (flucloxacillin 500 mg four times a day) for seven days. After the antibiotic course had been completed, the swelling and pain persisted although there was no fever. Three days later the patient presented to the emergency department. Initial evaluation showed a painful, inflamed, fluctuating swelling at both the medial and lateral side of the right heel. The lateral wound produced a small amount of pus. Body temperature was 37.1℃.

The presence of a foreign body was noted on a standard lateral radiograph of the heel. This was seen as opacity at the cranial border of the posterior part of the calcaneus. This opacity was shaped as two dense parallel lines (fig 1). With the clinical characteristics and our anamnestic experience, a fish wound was suspected. The fish was found to be a needlefish, a member of the Belonid family (fig 2). The patient was operated on the same day.

The patient underwent surgical exploration of the lateral and medial side of the right heel with removal of the fish remnants and careful debridement (fig 3). Antibiotics were not prescribed, because all the foreign body had been removed. The wound was left to heal by secondary intention.

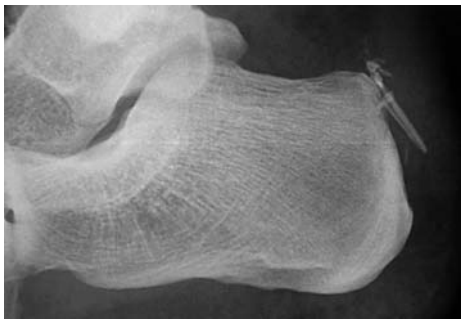

Figure 1 Lateral view radiograph of the right heel showing part of the beak at the cranial part of the posterior calcaneal border. The appearance of two semiparallel lines of opacity is typical of a needlefish beak.

Figure 2 The Belonid needlefish.

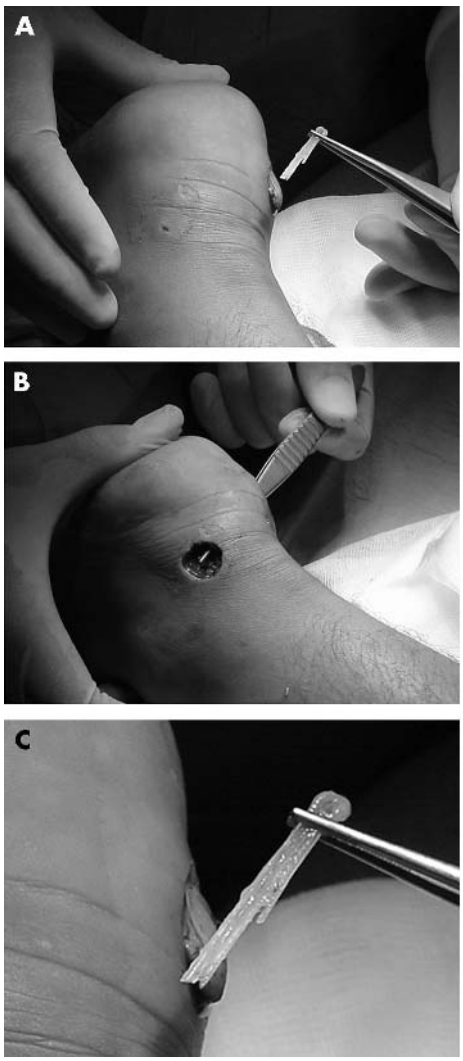

Figure 3 (A) Removal of part of the needlefish beak; (B) the heel after vigorous irrigation and debridement; (C) the pieces of the beak removed.

Take home message

Penetrating injuries by needlefish require surgical intervention. The use of antibiotics is optional.

The wound was dressed with wet gauze and flushed twice daily. The patient was kept in hospital for two days, and immediate improvement was seen. There were no complications. Four weeks after the accident, the patient had resumed his professional activities.

DISCUSSION

Needlefish belong to the Beloniform order which is composed of two families, the Belonids and the Hemiramphids. These are found in (sub) tropical waters of all oceans. The fish are long and slender, ranging in length from 0.5 m to more than 1.5 m. The long, narrow ''beak'' is comprised of jaws filled with sharp, little teeth. The colour, bluish green on top and silver on the bottom, is adapted for surface dwelling. Needlefish are surface carnivore predators.

Needlefish injury should not be confused with a stingray or catfish injury; all three fish produce penetrating injuries. However, stingray and catfish are bottom dwellers. Injury by a stingray typically occurs when it is stepped on or handled. Catfish injuries generally occur only while handling the fish. Both stingray and catfish cause injury with envenomation, which should be treated by immersion in hot water. Management of the wound is similar for all three.

A needlefish injury should be treated like a stab wound. The small diameter of the fish's snout allows it to penetrate between bony structures of the thorax, spinal canal, and skull.[4] Abdominal, ocular, and articular injuries have also been described.[3] After penetration of the skin, the beak can break into several fragments and inflict severe damage at a distance from the entry point. Standard radiographs are recommended to determine the presence of retained beak. The appearance of two semiparallel lines of opacity is typical of a needlefish beak. Radiographic and clinical evaluation lead to diagnosis and early surgical treatment.

There are no prospective studies providing evidence for optimal antibiotic selection for marine acquired infections or prophylaxis. Immunocompetent patients do not always require prophylaxis. A surgical debridement is the mainstay of treatment. Tetanus prophylaxis is required if not up to date. Wounds generally should be left to heal by secondary intention.

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Two cases of suprascapular neuropathy in a family

M Ravindran

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Suprascapular entrapment neuropathy is well known in certain athletes, especially volleyball players. A brother and sister presented with right shoulder pain and wasting of the scapular muscles, particularly the infraspinatus. They had played volleyball for over six years and were forced to retire because of disability. Investigations showed involvement of the rhomboid muscles also, suggesting a probable extension of this syndrome to other nerves in the region such as the dorsal scapular nerve.

Suprascapular nerve entrapment with scapular and shoulder pain, associated with weakness and wasting of the spinati muscles, is well documented in sports people, especially volleyball players.[1–6] Several mechanisms have been proposed to explain the symptoms, but excessive traction[7–9] or stretching of the nerve is the most plausible pathomechanism. When this condition develops with an identical clinical profile in two siblings, both volleyball players of some repute, then some anatomical peculiarity seems logical. A brother and sister presented with weakness and wasting of the right scapular muscles and the details are reported here.

CASE REPORTS

Case 1

A 35 year old right handed male volleyball player developed right shoulder and scapular pain after a strenuous match in 1986. He was forced to rest for several weeks but the pain remained unabated. Before the onset of pain, he played volleyball regularly for almost seven years, often representing the state.

Within 2–3 months, wasting of the scapular muscles was observed. He was briefly investigated by radiography and electrophysiology, when neurogenic changes were observed in the right infraspinatus muscle. A year later, he had surgical decompression of the right suprascapular nerve at two levels: the suprascapular notch and the spinoglenoid notch. The surgical notes did not indicate the presence of any nerve atrophy, tight ligaments, or ganglions. However, he continued to deteriorate with persistent pain and progressive wasting, even after decompression, while he continued to play volleyball. He had to retire from active sport around 1990. Since then the condition has stabilised and the pain lessened. However, the pain recurred when he became active again as a volleyball coach. He has no history of right shoulder injury or dislocation.

Physical examination showed an athletic man with no systemic disease or skeletal deformities. There was a surgical scar extending from the right scapula to the upper arm.

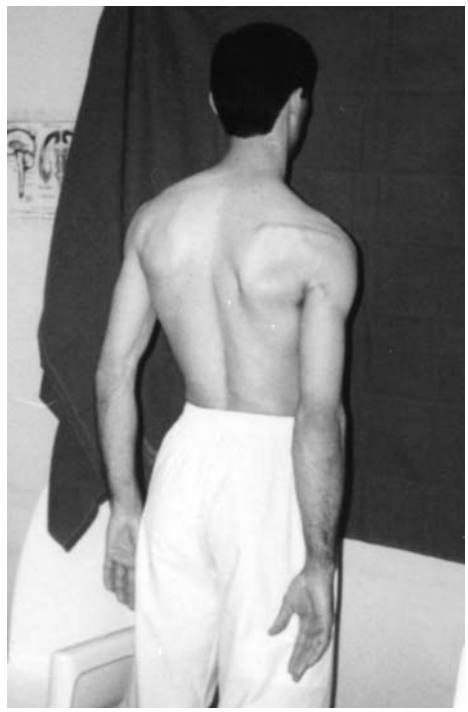

Figure 1 Wasting of the right infraspinatus muscle, with a surgical scar over the right scapula extending to the arm and mild winging of the scapula.

All cranial nerves were intact; no abnormality of the facial muscles, sternomastoids, or trapezii was found. He had considerable wasting of the right infraspinatus muscle with weakness of external rotation of the right arm (fig 1). Right shoulder abduction was weak from initiation to 30°. He had mild winging of the right scapula but the power of the serratus anterior was near normal. There was no weakness or wasting of the right deltoid muscle. Other muscles were normal. No muscle fasciculations or myotonia was found.

Deep tendon reflexes were normal and symmetrical in both upper and lower limbs, and plantar responses were flexor bilaterally. All sensations were intact. The right shoulder showed a full range of passive movements. There was mild tenderness over the right scapular spine and acromioclavicular joint.

Routine haemogram, erythrocyte sedimentation rate, and blood chemistry were normal, including normal muscle enzymes. Collagen screening was negative. A radiograph of the right shoulder and cervical spine was normal.