

A deadly strike of a needlefish

B M T P Nawasiwatte¹, S Bandusena¹, S Wadanamby², P S Gunaratne¹

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Introduction

Fatal and near fatal injuries inflicted by needlefish (*Tylosurus crocodilus*) among worldwide marine dwellers are heard infrequently. We report a young diver who developed a massive fatal middle cerebral artery (MCA) territory infarction following a piercing injury to right ear by a wandering needlefish, which is the first reported case of this nature.

Case history

A 41 year old healthy Maldivian professional diver was airlifted to Sri Lanka for acute management of sudden onset left hemiplegia and rapidly deteriorating level of consciousness.

Two days ago while diving in shallow sea he was accidentally hit by a needlefish and his right ear was penetrated deep in, with its long sharp beak. The patient managed to detach the fish and the beak from himself and later, a friend removed further particles from the ear. Apart from profuse ear bleeding, he remained well and had received a tetanus toxoid from his island health centre.

Three hours later, he developed bi-lateral visual blurring and sudden onset left face arm leg weakness necessitating transfer to a bigger hospital. His GCS dropped rapidly to eight and the right pupil was dilating. The NCCT brain showed acute right MCA territory infarction and patient was severely hypotensive on admission. At this point we received him for further management.

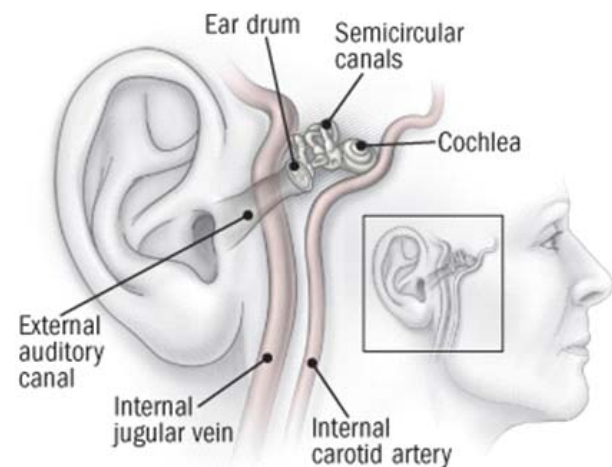
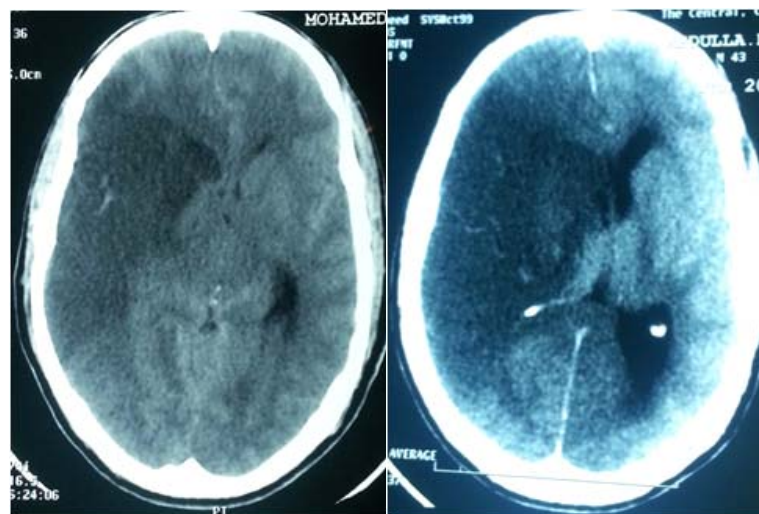


Figure 1. Anatomical proximity of internal carotid artery to the auditory canal.



Figures 2 and 3. NCCT brain of the patient 6h and 48h after.

¹Neurology Unit 2, ²Neuro Trauma Unit, National Hospital of Sri Lanka, Colombo.

He was resuscitated and the NCCT brain 48h later confirmed the massive infarction of the right MCA territory with cerebral edema and mid line shift, plunging his GCS to three. Initial biochemistry, coagulation profile and D-dimers were normal but his inflammatory markers were elevated (WBC 22,000 CRP 44mg/l). There was no evidence of hemolysis or thrombocytopenia. He was intubated and ventilated but by day three he developed intractable diabetes insipidus and deteriorating renal functions.

On examination, brain stem reflexes were repeatedly absent and patient was confirmed brain dead after 72 hours of the initial event. A decompressive craniectomy was not done and he was gradually weaned off from inotropes and ventilator. No specific therapy was instituted other than mannitol, dexamethasone and IV broad spectrum antibiotics.

Discussion

The needlefish (*Tylosurus crocodilus*), sometimes referred to as *Garfish* is a slender, long-beaked surface fish found in tropical and sub-tropical oceans including Sri Lankan coastal belt. The needlefish can cause serious bites but is non venomous¹. These fish are attracted to bright lights and can propel themselves out of the water towards the light source in a surprising speed and are capable of inflicting deep puncture wounds, in those who happen to cross their trajectory path, beak often breaking off inside the victim during the process.

There are three reported cases of fatal orbital and brain penetrations and one case ending up forming a carotico-cavernous fistula^{2,3}. Another handful of cases of stabbing through heart, neck and abdomen causing near fatal injuries are also published. However, this is the

first case that we came across of a cerebral infarction following a penetrative ear injury by a needlefish. His clinical presentation of stroke was confirmed radiologically.

Direct trauma to the MCA or internal carotid artery (ICA) primarily by the fish beak and secondarily during the forceful removal of it by the patient could have led to dissection or arterial spasm of either artery, causing the infarction. As the anterior cerebral artery territory was more or less spared, MCA is the likelier site than the ICA. Possibility of cerebral venous thrombosis causing a venous infarction is less likely because the infarction respected the arterial territory. Fish bites are known to cause a variety of exotic secondary infections that can lead to cerebral infarctions but the swiftness of events did not suggest that possibility. However, cerebral vascular studies could not be carried out due to the rapidity of clinical deterioration.

Diving and surfing are emerging pastimes in Sri Lanka among the locals as well as the foreigners. It may be worthwhile raising awareness of perils that may come along with adventures and educate regarding safety measures one should take while exploring the unfathomable oceans.

References

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