

## CASE REPORT

# The Uncharted Danger of Living in the Tropics: A Needlefish Impalement of the Sigmoid Colon

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### ABSTRACT

Penetrating injury to the abdominal viscera is not uncommon unless when it is caused by marine life. We present a 39-year-old fisherman from a tropical country who had sustained a penetrating injury from a stab wound to the abdomen due to needlefish impalement. He sustained a small perforation of the sigmoid colon during exploratory laparotomy and primary repair was done. Although this incident is rare, there are cases involving seawater activities either for leisure, sport or diving for fishing. We highlight this rare incident and discuss the management plan.

**Keywords:** Needlefish, penetrating injury, sigmoid colon

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### INTRODUCTION

Penetrating injury caused by marine life to human is unusual. Despite its rarity, the incidents are escalating as more people are involved in seawater activities either for leisure, sport or as a source of economy such as diving for fishing (1). Majority of cases are reported to occur involving needlefish and swordfish (1). It is a well-known evidence that these fish attacks can result in critical injury and fatal complications (2,3). The involvement between sharp beak fish and penetrating injury is undeniably important. We highlight a case of a fisherman who sustained an injury due to a penetrating stab wound to the abdomen as a result of needlefish impalement.

### CASE REPORT

A 39-year-old male fisherman was presented to us 12 hours after being attacked by a needlefish during deep-sea diving in the middle of the night. He had sustained a penetrating injury to the left lower abdomen followed by a severe abdominal pain. The pain had gradually worsened with time. He had initially sought medical attention from the island health centre and he was referred to the capital Male' as peritonitis had set in, which called for definitive surgical management. He appeared to be clinically septic with a tense and board-like rigid abdomen. He was tachycardic with a pulse of

100 beats per minute while maintaining blood pressure at 120/70 mmHg. Urgent erect chest radiograph was taken which showed gas under the diaphragm, confirming pneumoperitoneum (Figure 1).

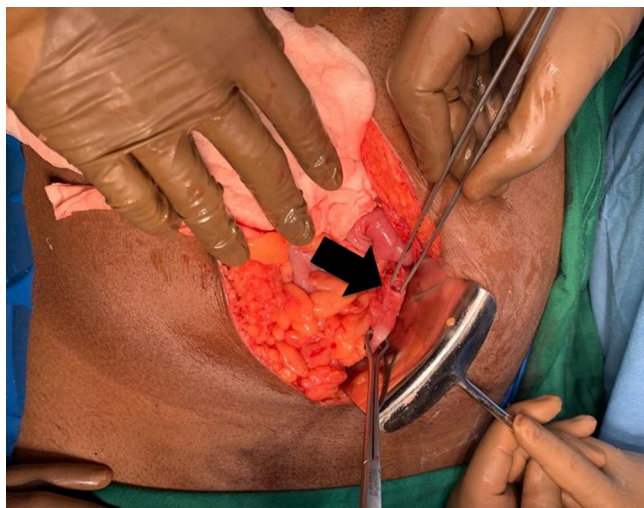
He was immediately rushed to the operation theatre for exploratory laparotomy. Intraoperative findings revealed a 10-cm long oblique tract of penetrating wound, entering from the left iliac fossa (Figure 2) and breaching the parietal peritoneum resulted in a single sigmoid perforation <1 cm (Figure 3). However, faecal contamination was not identified. Vicryl 2-0 was used



**Figure 1: Erect chest radiograph showing a significant air under both sides of diaphragm**



**Figure 2: The entry point (arrow) at the left iliac fossa just next to the anterior superior iliac spine**



**Figure 3: Intraoperative findings revealing a small perforation (arrow) at the sigmoid colon without faecal contamination**

for primary repair of the perforation, followed by using copious amounts of irrigation water for peritoneal lavage. The tract of the wound was also irrigated and the defect of peritoneum was oversewn. The recovery period was remarkable as he was discharged home after 4 days. Upon the follow-up in 2 weeks, he did not exhibit any complications and was then discharged from our hospital visit.

## DISCUSSION

Living in a tropical country such as the Maldives offers precedential surprises especially when the main sectors of income depend on fishing and tourism-related activities. While sourcing for food, the needlefish (Figure 4) can, however, become an imminent threat to the swimmers. The injuries are commonly accidental from a startled needlefish instead of a deliberate attack. They are attracted to bright lights, for example, night fishermen are usually using a flashlight and spreading their nets to fish. As in our case, our patient went for



**Figure 4: Picture of needlefish which is common in the tropics (not the same fish causing the injury)**

deep-sea diving and sustained the injury.

The protocol of advanced trauma life support can be adhered to while managing patients who sustain penetrating injury. Both nature and the speed of the needlefish's beak entry are taken into account based on its effect towards the severity of penetrating injuries (3). Beak entry on the abdomen has a higher risk on the visceral organ injury as compared to the back and limbs (4). As in our case, we were suspecting visceral organ involvement due to the alarming initial clinical presentation. Radiograph imaging is crucial as it helps to determine a visceral perforation and to search for any retained foreign body left, for example the beak or teeth of the fish (4). The role of computed tomography (CT) imaging is beneficial for injuries towards abdomen and chest, as well as head and neck, provided that the patients are stable with no evidence of perforation or active bleeding from the clinical evaluation and simpler radiological imaging.

The initial injection of anti-tetanus toxin (ATT) should be given. In addition, appropriate broad-spectrum antibiotics are mandatory as marine wounds are prone to a secondary infection. Penetrating wounds have to be explored. In milder injury with superficial wound, the wound should be irrigated copiously, debridement may be needed and the wound should be explored locally. With surgeons' expertise and available facilities, laparoscopy in the penetrating trauma may have an important role. It has both diagnostic and therapeutic roles. In the future, it is recommended if objective protocol or guidelines are developed to increase the value of the laparoscopy role in trauma (5). However, if the wound is suspected to be breaching the peritoneum, open surgical exploration in the operating theatre should be necessary. Surgical interventions should be organ-specific. Bowel injury can proceed for bowel resection and anastomosis with or without a stoma, or even simple primary repair. Solid-organ bleeds may require packing, primary repair and or even organ removal.

## CONCLUSION

Although the penetrating injury by needlefish is rare, it is, however, life-threatening. The management for such injury treatment should focus on the possible injured organs and the related structures that are involved in the injury. Simple imaging is beneficial to examine for evidence of perforated viscus, as well as to identify the presence of retained foreign bodies. Besides, ATT injection and proper antibiotics should be provided to facilitate treatment. Finally, Adequate wound debridement, irrigation and exploration are compulsory to facilitate more serious complications.

## AKNOWLEDGEMENTS

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