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Hook removal from a loggerhead sea turtle (*Caretta caretta*): Report of a tricky surgery under difficult conditions

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ABSTRACT

A sub adult *Caretta caretta* was found on the 23rd August, 2014 ca. 16 nautical miles south off S. Miguel Island, Azores (Northeast Atlantic), with a large pelagic trawl hook inside its mouth. The individual was kept in a basin of sea water and sent by boat to Terceira Island following instructions by the Azores Regional Government via the Environmental Authority in order to be examined by the author and, if possible, undergo the necessary hook removal procedures. In this note, we describe the surgical procedures and how the turtle was evaluated both pre- and post-surgery.

1. Introduction

Sea turtles often engage in human debris or fishing gear that generally cause severe wounds and even fatal consequences. Due to their highly opportunistic foraging strategy, loggerheads *Caretta caretta* (*C. caretta*) are more prone to ingest debris[1-3].

The total impact of these accidents is certainly poorly known worldwide and while just a low number of turtles are actually found alive, the needed surgeries are rare or unreported in journals. In fact, there is an underestimate for negative interactions between sea turtles and human activities which is also applicable to other groups such as cetaceans, pinnipeds and sea birds[4].

2. Case report

A loggerhead sea turtle (*C. caretta*) was collected by Mr. Paulo Garcia, BSc, from São Miguel Natural Park which, after contacts with the author and other colleagues, arranged for the turtle to be shipped to Terceira Island (Azores, Portugal, Northeast Atlantic). At about 2:00 am of the 28th August the individual was received. Following the Sea Turtle project protocol between the Azores University and the Archie Carr Center for Sea Turtle Research (University of Florida) the turtle was measured and tagged (right forelimb tag: N5832; left forelimb tag: N5995; curve carapace length: 531 mm).

The turtle arrived in good health with the objective of proceeding as soon as possible with a surgery for removal of a huge hook (n° 0 type swordfish long line stainless steel-see Figure 1) fixed on the dorsal anterior part of the esophagus.

Figure 1. The huge pelagic trawl hook removed from a loggerhead turtle (*C. caretta*) in Terceira Island, Azores (Northeast Atlantic), August 2014.
Photo by Isabel Barreiros.

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The hook's barbell was embedded in the mid palate and this excluded any chance of removal with a standard dehooker. That same evening the required (albeit tricky) surgery was performed. As this happened in full summer vacation period, facilities and trained personnel to help were simply not available.

The size of the hook had pushed the windpipe towards the right side of the throat and that obliged me to make this "Y" shaped incision (Figure 2) on the epidermis in order to reach the esophagus and safely remove the hook.

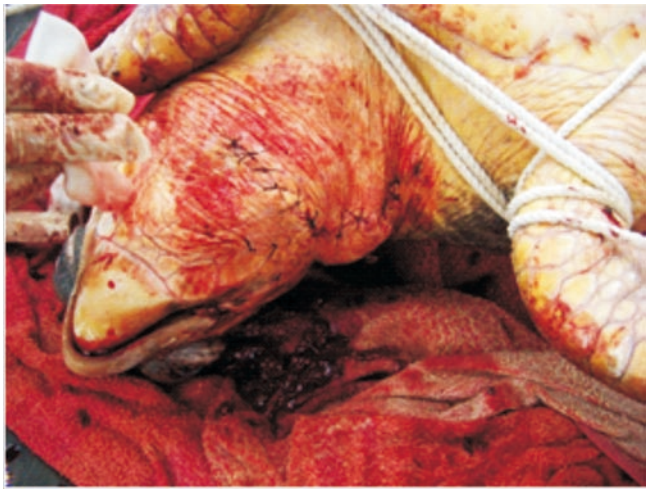

Figure 2. The "Y" shaped epidermal incision needed for the removal of a pelagic trawl hook from a loggerhead turtle (*C. caretta*) in Terceira Island, Azores (Northeast Atlantic), August 2014.
Photo by Isabel Barreiros.

Although it did take some time because of the hook's position, it was successfully removed by carefully moving it through another internal incision that was latter stitched with reabsorbable line on a standard N° 0 surgical curved needle. No important blood vessels were damaged as well as no affection of the major central (tracheal) nerve that passes quite near the dorsal face of the windpipe. The epidermis was closed with standard crossed stitches (not continuous) using the same line.

Prophylactic antibiotic was previously administered via the open esophagus. Disinfection and cleaning of the sutured area was done thoroughly and adequately. The whole surgical procedure took 2:25 h, on August 30, ending at 4:35 pm.

After a 48 h recovery that was amazingly fast and safe, this turtle showed very good reflexes, strong movements (head and limbs) and a perfectly normal cardiorespiratory parameter set.

Following the protocol of "Turtle Hospital" (Marathon, FL, USA) 2.5 mL of benzylpenicillin were administered for prophylactic reasons. Our "patient" was released in Angra do Heroísmo bay, Terceira Island's S coast, Azores, Portugal.

When approaching the beach the turtle became very "excited" and was gently placed on the water while being filmed both out and underwater. An anonym volunteered to snorkel with the turtle and reported that it swam in a straight line and with perfectly synchronized movements while very fast also[5].

After ca. 1 min, its head appeared at the surface and we heard a strong inhale and it disappeared.

3. Discussion

Cases such as this are probably understudied and many will certainly go undetected. The problem of negative human sea turtle's interactions in the Azores was recently reported by Barreiros and Raykov[4]. In fact, plastic debris and discarded/lost nylon fishing gear are part of a serious pollution problem affecting all the world's oceans. The real effects of this impact will probably remain understudied both because not every affected animal is reported or reached by researchers and certainly a vast number will die without even being detected.

Both veterinary doctors and medical doctors are perfectly able to technically perform this type of surgery. However, they're not acquainted and familiarized with reptile anatomy, a problem that could and should be lectured especially in veterinary schools.

Conflict of interest statement

I declare that I have no conflict of interest.

Acknowledgments

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