

Case Study

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## Surgical Retrieval of a Fish Hook from the Cervical Oesophagus of a Freshwater Turtle

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### ABSTRACT

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An adult freshwater turtle was presented with the history of anorexia since three days. Clinical and radiographic examination under sedation revealed fish hook lodged in the cervical oesophagus. Foreign body retrieval was performed under Midazolam and Ketamine general anaesthesia. Initially retrieval of fish hook through oral route was tried. The attempt was failed since chances of tearing of mucosa of oesophagus during the procedure due to reverse cutting pointed edge of fish hook. So surgical retrieval was attempted. A small nick incision was made on ventro-lateral aspect of neck region on the area where fish hook was present. It was removed from the site by giving slow traction with grasping forceps. After thorough lavaging with normal saline oesophagus was sutured using Poliglecaprone 25 No. 3-0 in simple interrupted pattern with knot buried inside the lumen. Skin was sutured using polyamide No. 3-0 in simple interrupted pattern. Post-operatively Meloxicam and Ceftriaxone was administered intramuscularly for five days. Turtle recovered uneventfully without any complications.

### Introduction

Freshwater turtles are extensively found in ponds in India. The life threatening condition in the turtles like foreign body obstruction or lodgements are commonly seen. The common foreign bodies causing harm to turtles are plastic materials like straws, tiny sharp metallic objects and fish hooks. Fish hook causes perforation or rupture of any part of the digestive system.

### Case Report

An adult freshwater turtle weighing 700g of unknown age was presented to Outpatient unit of Veterinary Surgery and Radiology department, Veterinary College, Bidar by a bystander who had witnessed the Fish hook thread from the mouth of turtle. The turtle was unable to take food and water since 3 days. The turtle was presented and examined after three days from incident. On clinical

examination, was adequately hydrated and no abnormalities were found except a small piece of fish thread in mouth of turtle. Turtle was retracting its head, so unable to palpate the neck. The turtle was positioned for a dorso-ventral radiography. The dorso-ventral radiograph of the turtle revealed, fish hook lodged in the most caudal part of cervical oesophagus (Fig. 1.). It appeared that fish hook's pointed edge was pointing towards oral cavity. So it was decided to attempt manual retrieval under general anaesthesia and if it get failed then to go for surgical retrieval of the fish hook.

Turtle was anaesthetized using Midazolam and Ketamine combination at the dose rate of 0.3 mg/kg and 30 mg/kg administered via intramuscularly. After 3 min from administration of anaesthesia, turtle expanded its head and neck outside the shell. Anaesthesia depth was monitored by evaluating toe and tail pinch response.

Turtle was taken to sternal recumbency, and the cranial side of body was elevated. Hemostats were used as grasping forceps and attempt was made to retrieve the fish hook manually through oral route. Initially manual traction was applied. The attempt failed and since there was also risk of tearing of mucosa of oesophagus due to the reverse cutting pointed edge of fish hook. So it was decided to attempt surgical retrieval of fish hook.

Turtle was taken to dorsal recumbency, and the cranial side of body was elevated. The left ventrolateral neck was aseptically prepared and routinely scrubbed. A 0.5 cm nick incision was made on the ventrolateral aspect of left neck region on the area where fishhook was present. The incision was made on the skin and oesophageal muscularis and mucosa where fish hook was everted to avoid other tissues from incising. The foreign body was spotted in the lumen of oesophagus. The fish hook was grasped using grasping forceps. The fish hook was removed from the oesophageal lumen by giving slow traction with grasping forceps. After retrieval of the fish hook, the area was lavaged with normal saline. Oesophagus was sutured using Poliglecaprone 25

No. 3-0 in simple interrupted pattern with knot buried inside the lumen. The skin was sutured using Polyamide No. 3-0 in simple interrupted pattern. Post-operatively Meloxicam and Ceftriaxone was administered intramuscularly at the dose rate of 0.2mg/kg and 20 mg/kg respectively for five days. The turtle was kept in a dark and quiet place until it recovered from anaesthesia. The turtle didn't took water for 12 days and food for 6 days. Water was sprayed on head and neck and limbs except at surgical wound for first 15 days. Caudal half of the body was submerged daily in water for one hour for first 15 days for hydration. Then full access was given after this. Sutures were removed on day 33, when wound appeared to have healed. Turtle recovered uneventfully without any complications.

## **Results and Discussion**

Foreign bodies ingested by turtle cause serious problems leading to death of turtle. In some cases, foreign bodies will get lodged in thoracic oesophagus, then surgical retrieval through neck or through celiotomy and oesophagotomy is the best possible surgical options. If foreign bodies will get lodged in stomach, then surgical retrieval through celiotomy and gastrotomy is the best possible surgical option. Endoscopic retrieval of foreign bodies can be done if foreign body get lodged within stomach and oesophagus but in case of sharp metallic objects chances of perforation of oesophagus and stomach is more and moreover for small turtles weighing less than 2 kg it is very tedious due to size of endoscope and small lumen of oesophagus. Sometimes, foreign objects consumed by turtles may pass through their digestive systems without creating any clinical conditions (Hyland, 2002). Fish hooks, on the other hand, are more likely to pierce the stomach, which can have significant repercussions like oesophagitis, stricture formation with subsequent regurgitation, cellulitis, peritonitis, and even death (Hyland, 2002). The surgical retrieval of fish hook is justified in this case as it was lodged in the oesophagus, manual retrieval can cause perforation and this attempt was likely to have less complications. There are many number of

anaesthetic protocols advocated for use in turtles. Pre-medications may be used solely for the purpose of sedation or as part of a balanced anaesthetic protocol in chelonian species (Longley, 2009). In turtles that are difficult to examine or to obtain access of a vein for intravascular administration of medications, Ketamine is often used to sedate.

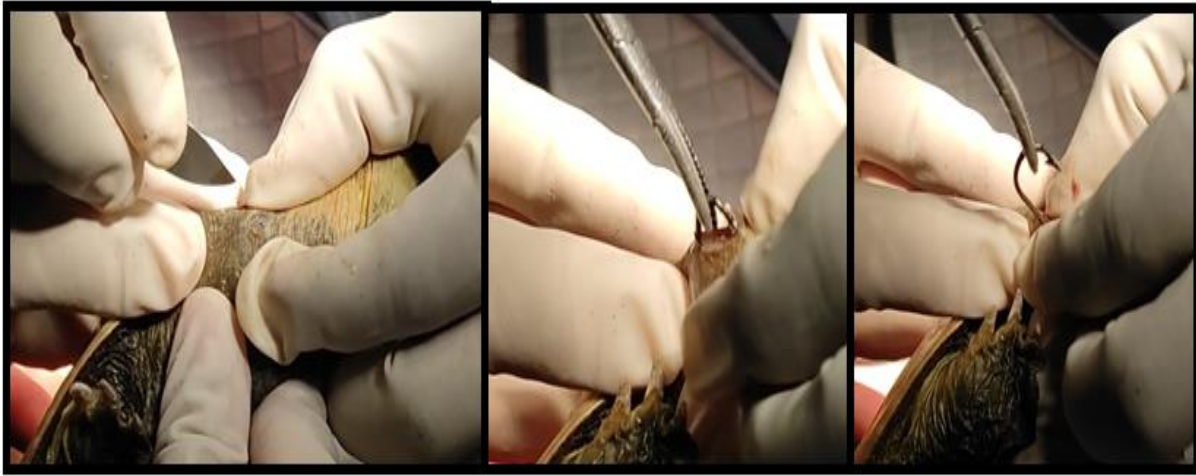
Ketamine has relatively wide margin of safety, but it may be dangerous in debilitated or dehydrated turtles. The dose dependent effects are seen in ketamine, usually 20mg/kg producing sedation in most chelonians and alone it can be administered upto 90mg/kg intramuscularly for light general anaesthesia but prolonged recovery is seen (Crane *et al.*, 1980; Holz and Holz, 1994; Johnson, 1991; Longley, 2009). The dissociate-benzodiazepine combination is most commonly used in chelonians for general anaesthesia. Benzodiazepines, such as diazepam and midazolam produce good muscle relaxation, so they are often administered with ketamine to produce muscle relaxation and sedation (Bienzle and Boyd, 1992). Tiletamine and zolazepam combination at lower doses i.e., at the

dose rate of 4-8mg/kg produce sedation (Millichamp, 1998). Phenothiazines, such as acepromazine and chlorpromazine have been used as pre-anaesthetics in chelonians. Acepromazine addition to ketamine sedation allows more rapid induction and recovery than ketamine alone, and also reduces the ketamine dose required (Longley, 2009). Induction of anaesthesia using volatile agents such as isoflurane alone in chelonians will be unsuccessful due to breath holding i.e, switching to anaerobic respiration (Longley, 2009). Propofol is widely used to produce anaesthesia in chelonians with prior administration of Butorphanol, which will produce mild sedation sufficient to obtain intravenous access or induction with propofol (Heard, 1993). Medetomidine can be used in combination with ketamine, but oxygen and assisted ventilation should be administered to reduce side effects (Chittick *et al.*, 2002; Dennis and Heard, 2002). The use of ketamine and midazolam is justified in this case as it was retracted its head, so intravenous access was very difficult and intubation and intravenous catheterization may be disturbed during the manual and surgical retrieval procedure.

**Fig.1** Pre-operative dorso-ventral radiographic image of the turtle, Fish hook lodged in the cervical oesophagus.



**Fig.2** The following are intraoperative images. (A) A nick incision is made on the ventro-lateral aspect of left neck region in this turtle. (B) The fish hook is grasped using grasping forceps. (C) The fish hook is removed from the oesophageal lumen using grasping forceps.



The chelonian digestive system and divisions of the gastrointestinal tract are similar to those of mammals. The oesophagus of turtle leads to a simple, spindle shaped and thicker walled stomach (O'Malley, 2005). The cervical part of oesophagus will be outside the carapace when the neck is extended and thoracic oesophagus inside the carapace. Approach for foreign body retrieval in thoracic oesophagus can be attempted through incision in cervical esophagus if the foreign body is non-perforative. In this case, surgical approach was opted on the basis of location where fish hook was lodged.

## References

- Bienzle, D., and F. J. Boyd. 1992. Sedative effects of ketamine and midazolam in snapping turtles (*Chelydra serpentina*). *J. Zoo. Wildl. Med.* 23: 201-204.
- Chittick, E. J., M. A. Stamper, J. F. Beasley *et al.*, 2002. Medetomidine, ketamine, and sevoflurane for anesthesia of injured loggerhead sea turtles: 13 cases (1996-200). *J. Am. Vet. Med. Assoc.* 221:1019-1025. <https://doi.org/10.2460/javma.2002.221.1019>
- Crane, S. W., M. Curtis, E. R. Jacobson *et al.*, 1980. Neutralization bone-plating repair of a fractured humerus in an alibaba tortoise. *J. Am. Vet. Med. Assoc.* 177(9): 945-948.
- Dennis, P. M., and D. J. Heard. 2002. Cardiopulmonary effects of a medetomidine-ketamine combination administered intravenously in gopher tortoises. *J. Am. Vet. Med. Assoc.* 220:1516-1519. <https://doi.org/10.2460/javma.2002.220.1516>
- Heard, D. J. 1993. Principles and techniques of anesthesia and analgesia for exotic practice. *Vet. Clin. North Am. Exot. Anim. Pract.* 23:1301-1327. [https://doi.org/10.1016/s0195-5616\(93\)50157-2](https://doi.org/10.1016/s0195-5616(93)50157-2)
- Holz, P., and R. M. Holz. 1994. Evaluation of ketamine, ketamine/xylazine and ketamine/midazolam anesthesia in red-eared sliders (*Trachemys scripta elegans*). *J. Zoo. Wildl. Med.* 25: 531-537.
- Hyland R J. 2002. Surgical removal of a fish hook from the oesophagus of a turtle. *Aust.Vet. J.* 80, Nos 1 & 2: 54-56. <https://doi.org/10.1111/j.1751-0813.2002.tb12834.x>
- Johnson, J. H. 1991. Anesthesia, analgesia and euthanasia of reptiles and amphibians. In:

- Proc. Am. Assoc. Zoo. Vet. 132-138.
- Longley L A. 2009. Chelonian anaesthesia. *Anaesthesia of Exotic Pets*. 233-234.
- Millichamp, N. J. 1998. Surgical techniques in reptiles. In: E. R. Jacobson and G. V. J. Kollias (eds.) *Exotic Animals*. Churchill livingstone, New York. 49-74.
- O'Malley B. 2005. *Clinical anatomy and physiology of exotic species*. 51-52.  
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