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Management of shell repair in Indian pond terrapin: Case study

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Abstract

An Indian Pond terrapin was rescued with the history of vehicle run over after examination it was noticed that it had a shell fracture in the carapace. The Terrapin weighed 500 gms. Shell repair was performed under General anaesthesia using Ketamine and butorphanol and maintained under isoflurane. To bring the shell into opposition metal dress hooks were used and these hooks were anchored to the shell with epoxy putty, and Stainless-steel wires were placed in the cloth hook and tightened to bring the cloth hooks and the shell closure to each other and thus facilitating healing process.

Keywords: Indian pond terrapin, shell fracture, wildlife rehabilitation, reptile surgery

Introduction

The Indian Pond terrapin, *Melanochelys trijuga* (Family Geoemydidae), is a medium sized (carapace length to 38.3 cm), mainly still-water species from northern, northeastern, and peninsular India, Sri Lanka, Myanmar, Nepal, Bangladesh, Thailand, and possibly Pakistan. Six subspecies are currently recognized. The turtle has been introduced to some of the islands of the western Indian Ocean by seafarers. Omnivorous in dietary habits, the species takes aquatic plants in addition to invertebrates and carrion. Two to 16 elongated, brittle-shelled eggs are laid, with eggs and hatchlings showing considerable size variation. The species, although in no immediate danger in India, is exploited in unknown numbers for food, and population declines have been reported from Sri Lanka (Indraneil Das). The carapace is elongated, relatively more elevated in adults and more depressed in juveniles and Tricarinate with feebly serrated marginal posteriorly. The nuchal scute is small and distinctly triangular (Indraneil Das), The plastron is about as long as the carapace, and truncated anteriorly (Indraneil Das) The head is moderate in size, with a short snout, which is shorter than the diameter of the eye (Indraneil Das). Shell injuries are a common presentation in wild and captive turtles should be provided with immediate analgesia and supportive care followed by fracture fixation if required. There are many methods of fracture fixation and the decision for which method to use is based on the characteristics of the fracture, the veterinarian's familiarity with the method as well as the time and money available for the case. Epoxies and adhesives are suitable for some fractures. Methods that bridge the fracture include cable ties, metal bridges, clothing hooks and the Top Closure method. Orthopaedics fracture fixation methods include metal sutures, screws with wire and metal plates (Jane Roffey, Sasha Miles), this case was presented with a carapace fracture and was fixed using metal cloth hook and a metal wire.

Materials and Methods

An Indian Pond terrapin was presented to PFA wildlife rescue and conservation centre, Bangalore with the history of vehicle run over. On examination it was noticed that it had fracture in the carapace (Fig.1), the animal was immediately treated with Tramadol @5 mg/kg IM (James W. Carpenter 2022) ^[4] for pain management, the animal was stabilised with subcutaneous fluids and tramadol for 3 days before the surgery. On the day of surgery tramadol followed by Ketamine @10 mg/kg (James W. Carpenter 2022) ^[4] and butorphanol @1 mg/kg IM (James W. Carpenter 2022) ^[4].

After induction isoflurane was used for maintenance with oxygen at the level of 2 l/min.

Cloth hooks were placed on the shell and were fixed with epoxy putty and let it dry overnight. Stainless steel wires were used to anchor to the hook. Precut pieces of wire is wrapped around one hook and the passed to the other screw by bringing the fractured shell in opposition and closure, but by passing it in between the two screws which makes an eight pattern (Fig.3), this is repeated and made sure the knot is in the centre of both the hooks (Fig.4).



Fig 1: An Indian Pond terrapin rescued with a fracture in Carapace



Fig 2: Cloth hooks are placed on the shell using epoxy putty



Fig 3: Stainless steel wires are wrapped around the hook in a figure of 8 pattern.

Post-operative antibiotics Enrofloxacin @5 mg/kg IM was given along with tramadol @ 5 mg/kg IM, Meloxicam @0.1 mg/kg IM and the wound was flushed with a 2% Solution of chlorhexidine followed by normal saline (MADER& DIVERS). The terrapin was released back to the wild after eight months of rehabilitation.



Fig 4: Knot is made with the stainless wire to keep the fragments in position.



Fig 5: Healed Shell Fracture after Eight Months

Results and Discussion

Medical management and surgery of shell fracture in chelonians can be challenging and time consuming, it takes around eight to twenty months for the shell to completely heal and successfully rehabilitate it and release it to the wild.

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