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Surgical management of mandibular symphysis fracture in a jungle cat (*Felis chaus*)

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Abstract

A Jungle Cat (*Felis chaus*) was rescued weighing 6.5 kg with a history of mandibular symphysis fracture, which was caused by an automobile accident. An orthopedic surgery was performed under general anesthesia using Ketamine and midazolam. The fractured mandible was aligned and stabilized by mandibular wiring by maintaining the animal under propofol.

Keywords: Mandibular fracture, anesthesia, orthopedic surgery, wiring, automobile accident

Introduction

The jungle cat is widely observed around forest plantations and sugarcane fields that are scattered within their natural habitat in Tropical Asia ^[1]. The jungle cat (Order Carnivora, Family Felidae, Genus Felis Species *Felis chaus*; Schreber, 1777) is one of the least-charismatic species of small felids and is distributed from Egypt in the west to Cambodia on the east throughout the Indian subcontinent. It inhabits diverse environments, preferably wetland habitats with thick vegetation, and feeds mostly on small mammals, and can consume about three-five rodents per day. Its other prey includes birds, reptiles and fish. Though the species is regarded as a biological pest controller in the wild as well as in the adjoining agricultural areas of forests, the farm owners hunt and poison them, suspecting them to be pests, as they also predate on poultry and other livestock. They are currently listed as a species of least concern ^[2], but their population in wild is declining due to the destruction of their natural habitat, its degradation, and fragmentation due to urbanization along with retribution killing/poaching ^[3]. The jungle cat is a majestic feline species that roams the wilderness with grace and agility. However, like all animals, they are susceptible to injuries, especially when they come into close contact with human habitats.

Materials and Methods

One such unfortunate incident occurred when a jungle cat weighing 6.5 kg was rescued and brought to the PFA Wildlife Hospital and Rehabilitation Centre on 10 August 2024 with a mandibular symphysis fracture caused by an automobile accident (Fig.1). The mandibular symphysis is a crucial part of the jaw that plays a vital role in the cat's ability to eat, groom, and communicate with others. The veterinary team at the rehabilitation centre quickly sprang into action to provide the necessary surgical management to ensure the jungle cat's speedy recovery.

The mandibular symphysis was found to be fractured upon a detailed radiographic examination (Figure 2).

A fracture in this area can have serious consequences if not treated promptly and effectively. The first step in the surgical management of the mandibular symphysis fracture was to perform mandibular wiring. This procedure involves aligning the fractured bone fragments and stabilizing them with wires to promote proper healing. The meticulous process requires precision and expertise to ensure that the jaw regains its function and strength. To facilitate the surgical procedure, the jungle cat was placed under general anaesthesia (Figure 3).

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The induction phase involved the administration of ketamine @ 10 mg/kg IM^[4] and midazolam @ 0.3 mg/kg IM^[4] to sedate the cat and prepare it for the operation. Throughout the surgery, anaesthesia was maintained with propofol to keep the cat in a controlled and pain-free state.



Fig 1: Fractured mandibular symphysis



Fig 2: Radiographic examination



Fig 3: Animal maintained under general anaesthesia

Symphyseal fractures are best treated with cerclage wire. A single wire serves as effective treatment for symphyseal fractures. Symphyseal cerclage wires encircle the mandible caudal to the canine teeth. The wire can be removed once the fracture has healed (generally six to eight weeks) by cutting it with wire scissors where it is exposed behind the canine teeth (Figure 4).



Fig 4: Mandibular wiring done

Post-operatively, the jungle cat was prescribed a regimen of medications to aid in its recovery. Antibiotics such as ceftriaxone @ 20mg/kg IM and clindamycin @ 11 mg/kg SC^[5] were administered to prevent infection and promote healing. Pain management was also a crucial aspect of the post-operative care, with buprenorphine @ 0.02 mg/kg IM^[5] provided to alleviate any discomfort experienced by the cat. In addition to medications, the veterinary team supplemented the jungle cat's treatment with iron dextran to support its overall health and well-being. To address any potential head injury, mannitol, an osmotic diuretic, was administered @ 0.25 g/kg IV over 20 min to reduce intracranial pressure and promote fluid balance^[6].

To ensure a speedy recovery, the jungle cat was also given tribivet, a multivitamin supplement, to bolster its immune system and aid in tissue repair. Fluid therapy comprising solutions like DNS and RL were administered to maintain hydration and electrolyte balance in the cat's body. Furthermore, SAMePET tonic, a nutritional supplement containing essential amino acids, vitamins, and minerals, was provided to support the jungle cat's overall nutritional needs during the recovery period. Additionally, aRBC pet, a hematinic, was given to assist in the production of red blood cells and promote oxygen delivery throughout the cat's body. The animal was fed with soft foods until the fracture healed completely. After two weeks the animal was able to catch and kill a live prey (Figure 5).



Through skilful surgical intervention, meticulous post-operative care, and a comprehensive treatment regimen, the jungle cat was able to recover successfully and regain its strength and mobility.

Results and Discussion

Mandibular fractures generally heal without a large callus. The prognosis for healing of mandibular fracture is generally excellent if proper techniques are used.

Acknowledgments

The surgical management of mandibular symphysis fracture in the jungle cat exemplifies the importance of prompt and effective treatment in ensuring positive outcomes for injured wildlife. The collaborative efforts of veterinarians, curators, and support staff at wildlife rehabilitation centres play a crucial role in preserving the health and well-being of wild animals, allowing them to return to their natural habitats and thrive once again. The Authors thanks all the staff at PFA wildlife Hospital for their expertise in handling animals, rescuing the jungle cat and Rahul J, Vasanth R and Srinivas M for their help with post-operative care and rehabilitation.

Conflict of interest

Not available

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