

## Tetanus in Free-ranging Indian Grey Langur (*Semnopithecus entellus*)

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### ABSTRACT

A two-year-old rescued male grey langur was brought to the Referral Veterinary Polyclinic of the IVRI with a history of stiffness all over the body. Clinical and physical examination showed elevated rectal temperature (104°F), rigid limbs, opisthotonus, locked jaw, and a wound on the tail tip. Based on the history and clinical findings, the case was diagnosed as tetanus. The treatment was initiated by administering anti-tetanus serum, tetanus toxoid, amoxicillin, and metronidazole, along with supportive therapy including dextrose, normal saline and wound dressing with 6.5% hydrogen peroxide solution and povidone iodine ointment twice daily. Unfortunately, the animal died on the fourth day of presentation.

**Keywords:** Grey langur, Tetanus, Opisthotonus, Anti-tetanus serum

### INTRODUCTION

Tetanus is a neurological illness that affects both humans and animals. Wound contamination with the spores of *C. tetani* leads to infection and the subsequent clinical illness (Hassel, 2013). The present paper describes a case of tetanus in a free-ranging grey langur.

### HISTORY AND OBSERVATION

A two-year-old rescued male grey langur weighing about 17 kg was brought to the Referral Veterinary Polyclinic of the IVRI, Bareilly, with a history of anorexia, stiffness and rigidity all over the body. Detailed anamnesis revealed that langurs are free-ranging and inhabit near temples. The langur had elevated rectal temperature (104°F), congested mucus membrane, dehydration, rigid limbs and tail, opisthotonus, locked jaw and a wound on the tail tip (Fig. 1). Blood

analysis revealed leukocytosis ( $16.3 \times 10^3/\mu\text{L}$ ), while other blood parameters were within normal range. Based on the clinical findings and history, the case was diagnosed as tetanus.

### TREATMENT AND DISCUSSION

Treatment included administration of anti-tetanus serum (@1500IU, IV), tetanus toxoid (0.5 ml, IM), amoxicillin and clavulanic acid (@12mg/kg, IM, twice daily and metronidazole (@15mg/kg intravenously twice daily), diazepam (@1mg/kg, IV, twice daily). The recommended dose of diazepam for primates like monkeys, when used as a muscle relaxant, ranges from 0.5 to 1.0 mg/kg intravenously, although specific dosages can vary depending on the species, size, and clinical condition of the animal. The langur was also administered dextrose normal saline (@60ml/kg, IV daily) as a supportive therapy and wound dressing was done with 6.5% hydrogen peroxide solution and povidone iodine solution and ointment twice daily. Caretakers were advised to keep langurs in ventilated, cool and dark places. The langur was reviewed daily, but the animal died on the fourth day of presentation.

Non-human primates kept outdoors are likely to get tetanus because of close contact with contaminated soil and a higher chance of battle wounds (Springer *et al.*, 2009). The diagnosis of tetanus relies mostly on clinical manifestations, particularly the distinctive spastic paralytic signs, injury, and immunization history (Wassilak and Kretsinger, 2009; Popoff, 2020). The treatment includes eradication of the causative agent (antimicrobials), neutralisation with tetanus antitoxin, preservation of hydro electrolytic balance, thorough cleaning and antiseptic

management of wounds, provision of sedatives and muscle relaxants, and ensuring that the animals are kept in a tranquil and comfortable setting (Kay and Knottenbelt, 2007; Ribeiro *et al.*, 2018; Chun *et al.*, 2009). Benzodiazepines are the primary treatment for managing muscle spasms in tetanus and are preferred over other treatments due to their multifaceted effects as muscle relaxants, anticonvulsants, sedatives, and anxiolytics. It is an established treatment for

*Tetanus in free-ranging...* by Varun Kumar Sarkar tetanus, and it is unethical to deny a patient benzodiazepine medication in severe cases (Rodrigo *et al.*, 2014). The advised dosage of diazepam for primates, such as monkeys, as a muscle relaxant generally ranges from 0.5 to 1.0 mg/kg intravenously, while specific dosages may differ based on the species, size, and clinical condition of the animal. Methocarbamol, a muscle relaxant, is employed for the treatment of muscle spasms and discomfort.



**Fig. 1: (a) Wound on tail tip, (b) Locked jaw, and (c) Opisthotonus, rigidity of limbs and tail**

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Administration of human anti-tetanus immunoglobulin (HTIg) or equine anti-tetanus serum is an established practice in the treatment of tetanus (Rodrigo *et al.*, 2014). Since the damage caused by tetanospasmin that has entered the nervous system is irreversible, much emphasis is placed on neutralizing the circulating toxin before it enters the nervous system (Linnenbrink and McMichael, 2006; Attygalle and Rodrigo, 2004). Tetanus infection does not confer immunity; hence, active immunisation is advised for the patient as part of treatment. The administration of the tetanus toxoid and immunoglobulin must

take place at different locations (Rodrigo *et al.*, 2014). Patients with tetanus are given antibiotics on the assumption that this will stop *C. tetani* from growing locally at the site of the wound. Metronidazole has become the preferred medication for treating tetanus in humans and has also demonstrated efficacy in dogs, as it is bactericidal against anaerobic bacteria, attains therapeutic concentrations swiftly in nearly all bodily fluids and tissues (including abscess cavities), and its *in vivo* activity is unaffected by local pH or inactivating enzymes (Alhaji *et al.*, 2011; Fawcett and Irwin, 2014).

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