



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.23

TPI 2021; SP-10(4): 132-134

© 2021 TPI

[www.thepharmajournal.com](http://www.thepharmajournal.com)

Received: 07-02-2021

Accepted: 09-03-2021

**D Vishnugurubaran**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**AR Ninu**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**N Krishnaveni**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**Chhavi Gupta**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**R Ramprabhu**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**S Kokila**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**Corresponding Author:**

**D Vishnugurubaran**

Veterinary Clinical Complex,  
Veterinary College and Research  
Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

## Chemical immobilization and radiographic diagnosis of spinal and pelvic injury in an Indian crested porcupine: A case report

**D Vishnugurubaran, AR Ninu, N Krishnaveni, Chhavi Gupta, R Ramprabhu and S Kokila**

### Abstract

An adult Indian crested Porcupine (*Hystrix indica*) was rescued and brought with the history of automobile accident while crossing road. The rodent was found to be active and aggressive with lacerated wound all over the body and unable to bear weight on its both hind legs. The Porcupine was chemically immobilized with Zoletil™ 50 (Tiletamine and Zolazepam) @ 8 mg per kg body weight intramuscularly and subjected to whole body radiograph after immobilization. Radiography revealed multiple bilateral pelvic fractures with complete dislocation and over riding of third lumbar vertebrae. The Porcupine was recovered from chemical immobilization smoothly after 32 minutes without any complication. The present case discussed about the chemical immobilization using tiletamine and zolazepam along with radiographic diagnosis of spinal and pelvic injury in an Indian crested Porcupine.

**Keywords:** Indian crested porcupine, chemical immobilization, zoletil, radiography, pelvic fracture

### 1. Introduction

The Indian crested Porcupine (*Hystrix indica*) is a hystricomorph nocturnal rodent species native to Southern Asia and the Middle East. It is listed as Least Concern on the IUCN Red List. It belongs to the Old World Porcupine Family <sup>[1]</sup>. The Indian crested Porcupine is a large rodent, weighing 11-18 kg <sup>[2]</sup>. The length of the animal measures between 70 to 90 cm, with the tail adding an additional 8 to 10 cm <sup>[3]</sup>. It is covered in multiple layers of modified hair called quills. The quills are flexible, brown or black with alternating white and black bands and are made up of keratin <sup>[3]</sup>. Contrary to popular belief, Indian crested Porcupine cannot shoot their quills <sup>[1]</sup>.

Zoletil™ 50 (Virbac Animal Health India Pvt. Ltd.) is an injectable anaesthetic consisting of mixture of tiletamine and zolazepam in an equal ration (125 mg each). Tiletamine is a dissociative anaesthetic agent that produces analgesia and anesthesia <sup>[4]</sup>. Zolazepam is a benzodiazepine that contrasts the convulsive seizures associated with tiletamine and provide adequate muscle relaxation <sup>[4]</sup>. Chemical immobilization is a common practice for the management and handling of wildlife <sup>[4, 5]</sup>. The tiletamine-zolazepam mixture has been widely used for chemical immobilization of wild mammals, including rodents <sup>[6-11]</sup>, due to its short induction time, good muscle relaxation, smooth recovery with few convulsions, and minimal effect on respiration <sup>[4]</sup>.

An adult Indian Porcupine measuring 76 cm length and weighing 12.5 kg was brought to the Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli, Tamil Nadu, India with the history of run over by a vehicle while crossing the road early in the morning at the Kalakaddu Mundanthurai Tiger Reserve forest range of Tamil Nadu, India. The animal was active and aggressive with lacerated wound all over the body and unable to bear the weight on its hind legs.

### 2. Materials and Methods

The Indian Crested Porcupine was chemically immobilized with Zoletil™ 50 at the dose rate of 8 mg per kg body weight deep intramuscularly as recommended by Massalo *et al.* 2003 <sup>[12]</sup> after restraining the animal securely with gunny bags (Figure 1).

Clinical examination of Porcupine revealed the adult male had lacerated wound behind the base of left ear; left medial shoulder joint, back region and inguinal region (Figure 2 and 3) and swelling and crepitation on either side of the pelvis.

The Porcupine was subjected to whole body radiograph in lateral, ventrodorsal and frog sitting position (Figure 4).

### 3. Results and Discussion

The animal showed signs of head resting the ground within 30 seconds of Zoletil™ 50 administration (Figure 1). Initially staggering gait was noticed followed by head resting and lateral recumbency in 2 minutes of Zoletil™ 50 administration. The muscle relaxation was assessed by jaw tone and found to be adequate and the depth of anaesthesia was assessed by pinching of digits using artery forceps and found to be in surgical plane of anaesthesia. This concurs with the findings of Massalo *et al.* 2003 [12]. The heart rate and respiratory rate was 85 beats per minute and 14 breaths per minute, respectively. There were no much complications like vomitus, salivation or catalepsy during entire period of anaesthesia. The immobilization lasted for 28 minutes, after that an additional maintenance dose of Zoletil™ 50 at the rate of 4 mg per kg body weight was given intramuscularly. Radiographic finding revealed bilateral ilium and pubis fracture (Figure 5) with dislocation and over ridding of third lumbar vertebrae (Figure 6) over second lumbar vertebrae (Figure 6). The lacerated wounds were cleaned with 5 per cent povidone iodine, sutured with polyamide size 2-0 and dressed with gamma benzene hexa chloride ointment. The Porcupine was administered with inj. ceftriaxone tazobactam at the dose rate of 10 mg per kg and inj. Dexamethasone sodium at the dose rate of 2 mg per kg intramuscularly. The animal was advised to keep in cage rest in a cool dark environment and oral antibiotics, steroids and neurotonics were advised. Oral mineral and vitamin supplements were provided to reduce the stress and calcium requirement for quill growth. The Porcupine was recovered completely from anaesthesia after 93 minutes without any evidence of convulsion or excitement



**Fig 1:** Resting the head to the ground after Zoletil™ 50 injection



**Fig 2:** Lacerated wound beneath the base of right ear



**Fig 3:** Lacerated wound at medial shoulder joint and ventral thorax



**Fig 4:** Whole body radiograph in frog sitting position



**Fig 5:** Bilateral ilium and pubic fracture



**Fig 6:** Third lumbar vertebrae dislocation

#### 4. Conclusion

In conclusion, single intramuscular injection of Zoletil™ 50 at the dose rate of 8 mg per kg i.m. provided adequate amount of deep anaesthesia and muscle relaxation required for clinical examination and radiographic examination and to perform treatment without any untoward anaesthetic complication. The time for induction of anaesthesia was not more than 2 minutes and recovery from anaesthesia took about 93 minutes. Whole body radiography was beneficial to establish a confirmatory conclusion and further medical management.

#### 5. References

1. Amori G, Hutterer R, Krystufek B, Yigit N, Mitsain G *et al.* *Hystrixindica* IUCN Red List of Threatened Species 2016: e.T10751A115099509.
2. Indian Crested Porcupine (*Hystrixindica*) - Information on Indian Crested Porcupine - Encyclopedia of Life. Encyclopedia of Life. Retrieved 22February 2021.
3. Indian Crested Porcupine. San Diego Zoo. Retrieved 22February 2021.
4. Lin HC, Thurmon JC, Benson GJ, Tranquilli WJ. Telazol A review of its pharmacology and use in veterinary medicine. *Journal of Veterinary Pharmacology and Therapeutics* 1993;16:383-418.
5. Tellaeche CG, Reppucci JI, Luengos Vidal EM, Clifford DL, Lucherini M. Field Chemical Immobilization of Andean and Pampas Cats in the High-Altitude Andes. *Wildlife Society Bulletin* 2020;44:214-220.
6. Lariviere S, Messier F. Immobilization of striped skunks with Telazol. *Wildlife Society Bulletin* 1996;24:713-716.
7. Samelius G, Lariviere S, Alisauskas RT. Immobilization of Arctic Foxes with Tiletamine Hydrochloride and Zolazepam Hydrochloride (Zoletil®). *Wildlife Society Bulletin* 2003;31:192-196.
8. Pitt J, Lariviere S, Messier F. Efficacy of Zoletil ® for Field Immobilization of Raccoons. *Wildlife Society Bulletin* 2006;34:1045-1048.
9. Morgan DR, Scobie S, Arthur DG. Evaluation of Zoletil and other injectable anaesthetics for field sedation of brushtail possums (*Trichosurus vulpecula*). *Animal Welfare* 2012;21:457-462.
10. Fournier P, Fournier-Chambrillon CH, Maillard D, Klein F. Zoletil® immobilization of wild boar (*Sus scrofa* L.). *Journal of Mountain Ecology* 2014;3:134-136.
11. King JD, Congdon E, Tosta C. Evaluation of three Immobilization combinations in the Capybara (*Hydrochoerus hydrochaeris*). *Zoo Biology* 2010;29:59-67.
12. Massolo A, Sforzi A, Lovari S. Chemical Immobilization of Crested Porcupines with Tiletamine HCl and Zolazepam HCl (Zoletil®) under Field Conditions. *Journal of Wildlife Disease* 2003;39:727-731.