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Caption: Lowland Tapir Tapirus terrestris (Medium—watercolours on watercolour paper) © Aakanksha Komanduri.

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SHORT COMMUNICATION



Successful rescue, medical management, rehabilitation, and translocation of a Red Panda *Ailurus fulgens* (Mammalia: Carnivora: Ailuridae) in Arunachal Pradesh, India

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Abstract: We document the rescue of a Red Panda from Yachuli circle, Lower Subansiri district and successful translocation to Eaglenest Wildlife Sanctuary, West Kameng district of Arunachal Pradesh, India. The head injury was surgically managed under the anaesthetic combination of ketamine and xylazine, and reversed with yohimbine. The animal was successfully rehabilitated and translocated in the Eaglenest Wildlife Sanctuary.

Keywords: Ailuridae, Anaesthetic combination, Eaglenest Wildlife Sanctuary, head injury, translocate, Yachuli circle.

Red Panda Ailurus fulgens is the only living member of the genus Ailurus and the family Ailuridae. Its present natural home range in India includes the states of Sikkim, West Bengal (Darjeeling district), and Arunachal Pradesh (Glatston et al. 2015). The largest population is in Arunachal Pradesh (Choudhury 2001), and it has been rapidly declining due to habitat loss & fragmentation, poaching, and inbreeding depression (Glatston et al. 2015). Based on the population estimate, the International Union for Conservation of Nature (IUCN) Red List of Threatened Species 2015 has listed the Red Panda under the 'Endangered' species category (Glatston et al. 2015). There is limited information on its management in captivity and use of anaesthesia for surgical interventions (Jha 2014). This paper documents the chance rescue of a Red Panda from Yachuli circle of Lower Subansiri district, its management in captivity and translocation to Eaglenest Wildlife Sanctuary, West Kameng district of Arunachal Pradesh, India.

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² Biological Park, Itanagar, Arunachal Pradesh 791111, India.

Case description

Mr. Taba Nepa, a Block Educational Officer in profession of Kebi village under the Yachuli circle, Lower Subansiri district of Arunachal Pradesh encountered an injured male Red Panda in his agricultural field on 6th February, 2016. He rescued the animal and informed the local veterinarian on the next day for veterinary care. After providing first aid, further contact was made with the officials at the Biological Park, Itanagar, Arunachal Pradesh for better health management of the animal. The animal was handed over to the wildlife veterinarian at the Park on 8th February at around 22.00 hours for further treatment and rehabilitation.

RESULTS

Clinical findings

At arrival in the Biological Park, the weight of the animal was recorded as 5 kg. It had very feeble body movement, unresponsiveness to external stimuli, and dyspnoea. There was a visible swelling on the left side of the axis of head near the zygomatic process, with a laceration over the lateral canthus of the left eye which required suturing. The animal was moderately dehydrated owing to anorexia which was ascribed to the injury, followed by pain and stress during transportation. Based on overall clinical status we assessed the condition as critical necessitating emergency veterinary care.

Veterinary care

A whole body radiographic investigation revealed no evidence of skeletal damage (Image 1). The cut injury was cleaned with antiseptic solution and topical antibiotic ointment was applied. The animal was immediately put under treatment with parenteral long acting antibiotic [enrofloxacin @ 7.5 mg/kg body weight i.m. (Fortivir, Virbac Animal Health India Pvt. Ltd.)], NSAID [nimesulide @ 5 mg/kg body weight i.m. (Nimovet, Indian Immunologicals Ltd.)], steroid [Dexamethasone @ 2 mg i.m. [Dexona, Zydus Animal Health Ltd.)], liver supportive [@5 ml orally (Liv.52, The Himalaya Drug Company)] and multivitamin supplement [@ 5 ml orally (Intacal Pet, Intas Pharmaceuticals Ltd.)]. The condition was monitored at every hour. After 24 hours of medication and care, there was improvement in the body condition, evidenced by physical movement and slight responses to external stimuli. The treatment regime was continued for seven days with a daily recommended diet as practiced elsewhere (Padmaja Naidu Himalayan Zoological Park, Darjeeling, West Bengal, India). Initially, the feeding schedule was divided into three times a day (morning, afternoon and evening). Gradually the frequency was



Image 1. Radiographic image of Red Panda skull.



Image 2. Weighing of the Red Panda.

narrowed down to twice a day (morning and evening) and then once daily (evening) as the Red Panda is a nocturnal animal. The diet composition was gradually substituted to its natural diet, i.e., bamboo leaves and

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Table 1. Diet composition of Red Panda.

Constituents	Quantity
Milk	200 ml
Honey	20 ml
Banana	1 no.
Apple	200 g
Bamboo shoots and leaves	4 kg
Raw egg	1 no.
Drinking water	11

Table 2. Data of vital parameters during anaesthesia.

Parameters	Recorded data
Body temperature	37.6 °C
Heart rate	93 beats/min
Respiratory rate	21 breathes/min
Ocular reflex	Present



Image 3. Red Panda in lateral recumbency under anesthesia.



Image 4. Suturing of the skin with black braided silk.

shoots by decreasing the feeding of supplements (Table 1). There was significant recuperation on a daily basis after hospitalization in the Park facility. The swelling on the head subsided. After two weeks of hospitalization, the Red Panda was administered with albendazole @ 25 mg/kg b.w. orally (Wormer Vet, Legend Remedies Pvt. Ltd.) for three consecutive days along with liver supportive supplement @ 5 ml orally (Liv.52, The Himalaya Drug Company). On the 3rd week the Red Panda was vaccinated against Rabies virus @ 1 ml intramuscular (Raksharab, Indian Immunologicals Ltd.) to be followed by a booster after one month, thereafter to be repeated annually.

As the clinical condition was significantly improved, the animal had to be translocated to a rehabilitation facility located at the Eaglenest Wildlife Sanctuary in the West Kameng district, which is 290 km west from the Biological Park. Prior to translocation a thorough health check-up was warranted. This demanded sedation of the animal on 32nd day of hospitalization.

Preoperative, operative and post-operative procedures

Before sedation, food and water was withheld for 12 hours. Weight of the animal was recorded to be 5 kg (Image 2). Accordingly, two anaesthetics were selected for intramuscular administration, i.e., ketamine HCl and xylazine HCl combination @ 10 mg/kg b.w. and 0.4 mg/ kg b.w., respectively. The drug induction and down time was at three and seven minutes after administration of anaesthesia, respectively (Image 3). The vital parameters of the animal were recorded (Table 2). Anaesthesia was maintained for 25 minutes to complete suturing of the wound.

During complete sedation, the lacerated wound was cleaned with non-irritant antiseptic. The lesion was closed with simple interrupted sutures (Image 4). Postoperatively, it was medicated with antibiotic [Ceftriaxone @ 20 mg/kg body weight (Intacef, Intas Pharmaceuticals Ltd.)], NSAID [Meloxicam @ 0.2 mg/kg body weight (Melonex, Intas Pharmaceuticals Ltd.)] with multivitamin supplement (Tribivet, Intas Pharmaceuticals Ltd.)] with multivitamin supplement (Tribivet, Intas Pharmaceuticals Ltd.) to be continued for five consecutive days. Once the post-operative procedures were accomplished, different physical and physiological parameters were recorded (Image 5, 6; Table 3, 4) and a microchip was implanted with No - 961 001000005995 subcutaneous on the left side of the neck region (Image 7).

Anaesthetic reversal

As reversal, yohimbine HCl @ 0.4 mg/kg b.w., i.m. was selected. Recovery was completed in 14 minutes of



Image 5. Measuring of the Red Panda.

Table 3. Mean physical measurements of body

Parameters	Length
Length from nostril to base of tail	68.5 cm
Length of tail (base to tip)	42 cm
Neck girth	23cm
Height of fore leg	20.5 cm
Height of hind leg	20.5 cm

Table 4. Haematological and biochemical parameters

Parameter	Value
Haemoglobin (g/dl)	12.5
Glucose (mg/dl)	75.5
Total protein (g/dl)	6.8
Alkaline phosphatase (IU/L)	35.8
Asparatate aminotransferase (IU/L)	74.5
Alanine aminotransferase (IU/L)	77.1
Total bilirubin (mg/dl)	0.3
Creatinine (mg/dl)	0.8



Image 6. Blood collection from cephalic vein.

reversal administration.

Translocation and rehabilitation

For transportation of the animal to the rehabilitation facility, a cage was prepared (Image 8) by mobile veterinary service unit of the Wildlife Trust of India (WTI). On the 41st day of hospitalization the animal was successfully translocated and rehabilitated in the Eaglenest Wildlife Sanctuary into a separate enclosure (Image 9). The enclosure was cuboidal in shape,

measured 60 feet in diameter and height of 12 feet at the periphery and 17 feet in the centre. There was a refuge den which was covered inside the enclosure with facility for watering and feeding (Image 10).

DISCUSSION

The present episode reveals a sustained rescue operation of an injured individual from an endangered (IUCN Red List of Threatened Species 2015) and Schedule-I species (Wildlife Protection Act, 1972) from Yachuli circle of Lower Subansiri district, its successful veterinary care with translocation and rehabilitation effort to Eaglenest Wildlife Sanctuary in the West Kameng district of Arunachal Pradesh, India. Red Pandas have been recorded from 11 districts of Arunachal Pradesh: Changlang, Dibang Valley, East Kameng, East Siang, Lohit, Lower Subansiri, Upper Siang, Upper Subansiri, West Kameng, West Siang and Tawang (Choudhury 2001; Chakraborty et al. 2015). Clandestine wildlife poaching and illegal trade is rampant worldwide wherever there is rich biodiversity. Under what circumstances the present Red Panda was rescued from its habitat is unclear, but the presence of traumatic swelling on head and the laceration was possible indication of a malicious attempt on its life. However, adequate veterinary care and medication in time could sustain its life. The treatment and feeding schedule with feed ingredients were found effective which progressively restored the animal's



Image 7. Microchip reading.



Image 8. Red Panda inside the transportation cage.



Image 9. Release in Eaglenest Wildlife Sanctuary.

health. The confinement of the animal into a dark area during induction of anaesthesia was also suggested by Roberts & Glatston (1994). This minimizes excitement and stress to the patient, and lowers the amount of anaesthetic drugs required. Dissociative anaesthetics in combination with sedatives or tranquilizers are the choice of anaesthesia for Red Pandas as ketamine HCl at the dose rate of 11–14 mg/kg body weight alone usually results in extreme muscle rigidity and minor Central Nervous System (CNS) stimulations. Hence, ketamine HCl at the dose rate of 5–10 mg/kg b.w. in combination with xylazine HCl at the dose rate of 0.2–0.4 mg/kg b.w. for immobilization in juvenile and adult Red Pandas was indicated (Wolff et al. 1990; AZA Small Carnivore TAG 2012; Jha 2014). Use of above combinations of anaesthetics and dose rate induced anaesthesia smoothly which was reproducible and found safe. Vital parameters recorded during anaesthesia (Table 2) were in agreement with the observations of Willesen et al. (2012). The physical parameters recorded (Table 3) may be of use for further growth and development studies in captivity. Present physical findings were similar to the observations of previous researchers (Burrell et al. 2018). The haematological and biochemical parameters (Table 4) were in corroboration with the findings of Wolff et al. (1990) for healthy male and female Red Pandas of all age groups indicating the normal physiological activity of the animal. These data may be used as baseline data for rescue and rehabilitation facility managers. In the present study yohimbine HCl was used @ 0.4 mg/kg b.w. intramuscularly. Philippa & Ramsay (2011) recorded that the effects of xylazine HCl can be reversed with yohimbine HCl @ 0.125 mg/kg b. w. using subcutaneous, intramuscular or intravenous route. There are also reports that yohimbine antagonized the xylazine HCl portion of ketamine-xylazine HCl anaesthetic combinations and thereby hastened smooth recovery from anaesthesia in Asiatic Lions, Tigers, and Leopards (Sontakke et al. 2009). The anaesthetic effect was successfully reversed in 14 minutes after the use of reversal indicating the procedure was safe and effective. The animal started normal feeding from the evening of same day and recovered uneventfully.

Combination of ketamine HCl and xylazine HCl is frequently used for immobilization, rescue and surgical interventions in wildlife. This paper represents a successful rescue, chemical immobilization for surgical management of head injury, rehabilitation, and translocation of a Red Panda in the Indian state of Arunachal Pradesh. This rescue operation was the first instance record of Red Panda in Yachuli circle, Lower





Image 10(a). External view of enclosure.

 Original State

 Original State

 Original State

 Original State

Image 10(b). Internal view of enclosure.

Subansiri district of Arunachal Pradesh, India.

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