

# Prolonged anaesthetic and surgical management of Asiatic Lion for lumbo-abdominal infighting injuries

Chaudhary Surender Singh Memorial Zoo, Bhiwani, Haryana is presently housing three males (one adult and two cubs) and one female Asiatic Lion (*Panthera leo persica*). Infighting during mating among carnivores is mostly due to non-cooperation by the mating partner. However, Asiatic Lions are relatively said to be tolerant due to their social structure. But there are reports of infighting among mating partners in few cases. Mating among carnivores in zoological parks always remains a challenging task for veterinarians and zoo management (Singh et al. 2022). A female aged around three years during mating sustained infighting injuries in the rump region, posterior thigh region, and lumber region reaching up to lateral abdominal flank area. Visible symptoms included profuse bleeding, shock and bradypnea.

## Anaesthetic management

Estimated body weight of lioness was 125 kg.



Supplemental oxygen to control decreased oxygen level of lioness. © Ashok Khasa.

## Induction of anaesthesia

Injection Xylazine (Concentration 100 mg/ml) 150 mg IM (intramuscular) and injection Ketamine (concentration 100 mg/ml) 350 mg IM was given by remote drug delivery systems, i.e., by using a blow pipe from 3 m distance.

## Induction time

After 15 minutes lioness was recumbent but was showing ear movements when touched by a long bamboo gently. Therefore, a top up dose was also given after 15 minutes

of first dose which included injection Xylazine 25 mg IM and injection Ketamine 50 mg IM. Thus, full induction of anaesthesia was achieved after five minutes of top-up dose or twenty minutes [15 minutes (after first dose) + 5 minutes (after top-up dose) = 20 minutes total] after giving first dose of drug combination.

## Maintenance of anaesthesia

On any response from animal during the procedure injection Ketamine was given 100 mg twice IV (intravenously) through intravenous catheter

in tail vein. But at the last stage of the procedure, the injection Ketamine 100 mg was given intramuscularly due to the catheter slipping out of the vein.

Thus, total dose during procedure was found to be injection Xylazine 175 mg and injection Ketamine 700 mg.

### **Surgical procedure**

Wounds were instilled with injection Ethamsylate to prevent bleeding. Once the bleeding was checked the wounds were cleaned with normal saline solution followed by Povidone Iodine solution. All the underlying tissues and skin were sutured using vicryl suture material. Total time of procedure was approximately two hours.

### **Complications**

The animal exhibited some complications such as very shallow breathing, mild hyperthermia which was initially 102.8 °F but was reduced to 99 °F after temperature management. However, all other parameters remained within acceptable range.

### **Treatment**

Supplemental oxygen was given to control the decreased oxygen level. Cold gel packs were put on thigh and shoulder regions and ethyl alcohol was sprayed on body surface to bring down body temperature.

### **Medications**

- Injection Amoxicillin plus Sulbactam 4.5 g IM was followed by 3 g bolus daily orally in meat.
- Injection Ranitidine 3 ml (25 mg/ml) IM
- Injection Atropine Sulfate 6 ml (0.6 mg/ml) IM

- Injection Meloxicam 5 ml (5 mg/ml) IM followed by oral bolus in meat
- Injection Chlorpheniramine Maleate 6 ml (10 mg/ml) IM
- Injection Multivitamin 5 ml IM followed by orally in drinking water
- Injection Ivermectin 3 ml (1%) SC (Subcutaneous)
- Injection DNS 500 ml IV
- Injection Vitamin-C 3 ml (500 mg/ml) IM

### **Reversal of anaesthesia and recovery**

After surgical procedure, the lioness was revived by using reversal agent injection Yohimbine 2 ml (10 mg per ml) IM. Total recovery time was around two hours. Overall recovery was smooth and eventless.

### **Result and Discussion**

Wounds of the lioness healed after 45 days. She again showed estrous after six months and 15 days and successful mating with same male was on 20 February 2024. Cubs were delivered on 05 June 2024.

Induction dose was found to be 1.4 mg/kg for injection Xylazine and 3.2 mg/kg for injection Ketamine. Whereas, maintenance dose was 0.8 mg/kg for injection Ketamine. Several anaesthetic protocols have been described by the different authors (Sontakke et al. 2017), but in India, injection Xylazine and injection Ketamine are very easily available drugs, therefore in this case both drugs were used successfully. Our drug combination and doses also somewhat correspond with the doses prescribed by the SOP, Etawah Safari Park and Singh et al. (2024). Post-surgical management of wounds among wild carnivores is one of the

toughest parts for a veterinarian. In this case the lioness was continuously observed and was kept in a small cage in order to prevent biting of sutures.

Another challenging task was to prevent antimicrobial resistance, which was achieved by local application of antimicrobial and fly repellent thrice daily, which proved very fruitful in controlling settlement of infection on the wound and reduced oral or parenteral use of antimicrobials. Our study equates with that of Yadav et al. (2024) who in a study described that most of the samples from Asiatic Lions were found to be resistant against commonly used antibiotics. The lioness completely recovered after 45 days and again mated successfully with the same male.

#### References

**Singh, R.K., A.K. Patel & S. Patel (2024).** Rescue Compendium: rescue operations and chemical immobilisation of wild animals: a practical approach. Etawah Safari Park, Uttar Pradesh.

**Singh, R.K., U. Shukla, U.C. Srivastava, M. Nasir & S.N. Mishra (2022).** Ex-situ breeding of lions -a success story. *Cheetal* 59(2): 61–66.

**Sontakke, S., G. Umapathy, D. Kumar & D.N. Singh (2017).** A manual on chemical immobilization of wild animals. Central Zoo Authority, New Delhi and LaCONES, CSIR-CCMB, Hyderabad.

**Yadav, R.S., A.K. Patel, S. Singh, S. Kannan & R.K. Singh (2024).** A study on antimicrobial resistance (AMR) among Asiatic Lions *Panthera leo persica*. XXIX Annual convention of ISVIB and national conference on challenges in animal health and production amidst climate change: innovative, sustainable solutions and their translation. VIBCON 2024, Madras Veterinary College, Chennai.

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