AMPUTATION OF TAIL IN A PALM CIVET *VIVERRICULA INDICA* UNDER XYLAZINE AND KETAMINE ANAESTHESIA

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web supplement

Amputation of tail is indicated for some incurable lesions as ulcers, a necrotic vertebra or malignant tumour of the tail in domestic animals (O'Conner, 1980), which may also be applied to wild animals. A case of necrotic wound in the tail of a Palm Civet (*Viverricula indica*) and its management by caudectomy under Xylazine and Ketamine anaesthesia is reported in this paper.

Case history: One of the female Palm Civets kept at the nocturnal animal house of the Arignar Anna Zoological Park had a fight with an inmate, and as a result lost her lower third of the tail. The animal was immediately brought to the zoo veterinary hospital for treatment. The wound was cleaned and dressed by using hydrogen peroxide, povidone iodine and tincture benzoin. For easy monitoring and treatment, the animal was kept in the small mammal house adjacent to the hospital. Oral antibiotic therapy with Ampicillin+Cloxacillin (10mg/kg bodyweight) was given to the animal through feed and water. The wound was sprayed with povidone iodine and boric acid powder twice daily.

The wound started to heal, evident by the appearance of granulation tissue. As the healing progressed, the animal started to lick the wound. The wound extended anteriorly with exposure of the vertebral bone as the animal started to bite aggressively. To prevent further aggravation of the condition and to facilitate healing, it was decided to do caudectomy.

Anaesthesia: The animal was anaesthetized by using a combination of Ketamine HCl and Xylazine HCl @ 10mg/kg and 2mg/kg bodyweight respectively. The intramuscular injection was given in the left thigh region after restraining the animal. After two minutes, the animal became quiet and laid down in a corner of the enclosure. Six minutes after the injection, occasional twitching of both the ear pinnas and mild salivation were noticed. From the eleventh minute, the twitching became violent with lateral movements of the head in an attempt to keep the head upright. After sixteen minutes, the animal became recumbent, still with the twitching of ear pinna and head movements. After nineteen minutes, the movements ceased, the blinking and swallowing reflexes remained undisturbed. The civet was removed from the enclosure on the twenty-second minute and brought to the operation theatre.

Surgical procedure: The extent of injury was assessed and the eighth intercoccygeal space was selected for caudectomy. The area around the site of incision was shaved and prepared aseptically. A tourniquet was applied around the base of the tail. The method of incision differed as against the usual V-shaped lateral incisions performed in dogs and cats. In this case, the caudectomy was completed by a single incision. The skin incision was started 4cm caudal to the eighth intercoccygeal space in the dorsal aspect of the tail and was continued in the subcutis anteriorly without taking the scalpel, up to the eighth intercoccygeal space and then severing through the intercoccygeal space and caudally in the ventral side to about 4cm to get skin flaps. The tail of this Palm Civet had a thick layer of subcutaneous fat and after removing the tourniquet minimal bleeding was noticed.

An incremental dose of Ketamine (10mg) and Xylazine (5mg) was injected as recovery signs were noticed (30^{th} minute after induction). Lateral and ventral coccygeal vessels were ligated with 1-0 chromic catgut as an additional measure to prevent heamorrhage. The edges of the skin flaps were trimmed and the stump was closed by opposing the skin flaps with silk, in a simple continuous manner.

Post-operative care: The surgical wound was cleaned with hydrogen peroxide, dressed with povidone iodine, then packed with boric acid powder and bandaged. The civet was placed in a small cage for the ease of monitoring and dressing the wound. Signs of recovery were noticed after 45 minutes of induction. Complete recovery was noticed after 75 minutes. A course of Ampicillin+Cloxacillin (15mg/kg) was given through beef for a period of five days. The animal removed the bandage on the second day. Povidone iodine and boric acid were sprayed over the surgical wound. No swelling or discharge could be detected. The surgical wound healed quickly and this time licking and biting were minimal as the animal could not reach the short tail stump, which helped in proper healing. Complete healing of the wound was noticed after two weeks and the animal was transferred to the enclosure.

In this case, the female civet lost a portion of her tail in the fight with a male, which tried to mate but unsuccessfully. The itching sensation developed during wound healing might have caused the animal to continuously lick and bite the affected area, which in turn resulted in the exposure of the vertebral bone. Wallach and Boever (1983) observed that chemical restraint of viverrids is similar to that of other carnivores. They suggested the use of Ketamine and Xylazine @ 10mg/kg and 2mg/kg bodyweight respectively and also opined that the dose may be doubled to attain surgical plane of anaesthesia. Rettig and Divers (1986) observed no serious side effects with 11-22mg/kg Ketamine alone. To achieve muscle relaxation, they opined the addition of Xylazine at the dosage of 1.1-2.2mg/kg bodyweight. Arora (2000) suggested 0.25ml of Hellabrunn's mixture (i.e. 25mg Ketamine & 31.25mg Xylazine) to immobilize Palm Civets. The dosages used in our case differed from that of the above authors with more Xylazine than Ketamine.

With a dosage of 10mg/kg and 2mg/kg bodyweight of Ketamine and Xylazine respectively, the induction and recovery were smooth with satisfactory muscle relaxation. An incremental dose

See Image of animal at ww.zoosprint.org

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of 10mg and 5mg Ketamine and Xylazine, found to be satisfactory to perform caudectomy. The salivation noticed during the induction phase persisted throughout the period and due to the swallowing reflex being intact, no untoward effects could be noticed. The twitching of the ear pinna and lateral movements of the head observed, showed the animals effort to get to normal position.

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be detected. Blood samples were collected and the animal was dewormed with Pyrantel pamoate (5mg/kg bodyweight). Tetanus toxoid (0.5ml) was administered as a prophylactic measure. The decubitous ulcers were cleaned and dressed twice daily. The animal's position was changed once in three hours to avoid continuous pressure over the pressure points. Diet was supplemented with haematinics and multivitamin syrup and was the diet intake was monitored carefully. A course of Ampicillin and Cloxacillin (20mg/kg bodyweight) injection was given intramuscularly.

The blood samples were sent to Centralized Clinical Laboratory, Madras Veterinary College for haematology, which revealed low PCV (16%) and haemoglobin (4g/dL). Heparinized blood samples were sent to Central University Lab, TANUVAS and the samples were negative for any haemagglutinating virus.

Radiological examination was done and an old compressed fracture of T_8-T_9 thoracic vertebrae with calcification was detected.

Based on the above findings, the condition was diagnosed as upper motor neuron affection and the prognosis was found to be unfavourable. It was decided to manage the case accordingly, so that the life of the chimp was extended as long as possible. To treat and to avoid further development of decubitous ulcers, the chimp was kept over an electric pressure alternating bed and the treatment was continued. The condition of the chimp improved by this treatment with evidence of healing of the decubitous ulcers. However, after a period of about one month, the chimps appetite gradually reduced, it became dull and finally died. The fractured thoracics was confirmed in the necropsy.

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[w] See Image 1 on the web at www.zoosprint.org

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A CASE OF UPPER MOTOR NEURON AFFECTION IN A RESCUED CHIMPANZEE (*PAN TROGLODYTES*)

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web supplement

A 22-year old female chimpanzee (*Pan troglodytes*) was rescued from a circus company by the SPCA, Chennai and brought to the Arignar Anna Zoological Park veterinary hospital, Vandalur on 9 January 2003 for health assessment and intensive treatment. The animal was severely anaemic. Past history revealed that the chimp, used for performance in the circus, had fallen while performing and had become paralytic and bedridden since. Preliminary examination revealed that the chimp was severely emaciated, recumbent, with multiple decubitous ulcers involving hip joints, ilium, right tarsal joint and mid thoracic region (Image 1[w]). Ancylosis of stifle and hip joints was also noticed. No medical history could be retrieved from the person accompanying the chimp.

The chimp was transferred to a room for further clinical examination and treatment. Faecal samples were collected and examined for helminthic infestation, and no ova or eggs could

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