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MANAGEMENT AND REHABILITATION OF A SUNDARBAN TIGER WITH A CHRONIC WOUND AND INFECTIVE ARTHRITIS

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ABSTRACT

Sundarban mangrove is natural habitat of a number of endangered and threatened species including the Bengal tiger. A Sundarban tiger aged about 6-7 years was brought from Sundarban with wound and hind quarter weakness. From haematological, biochemical and radiographic examination it was diagnosed that the tiger was suffering from infective arthritis. After prolonged treatment the animal became healthy and finally released in Sundarban again.

Key words: Sundarban tiger, Wound, Infective arthritis.

Introduction

Sundarban in India on the coast of Bay of Bengal is part of the world's largest Active Delta having a network of tidal rivers, channels, creeks, islands, mudflats, coastal dunes with hydrodynamic uncertainties, changing geomorphology and climatic hazards, a vast area of mangrove forest with rich variety of flora and diverse fauna in a unique ecosystem. Sundarban mangrove is natural habitat of a number of endangered and threatened species including the Bengal tiger (Bose, 2004). Wild animal may be presented in a variety of situations that require emergent interventions and management to ensure that animal regains stability and becomes fit for rehabilitation back in its natural habitat or from the place it has come from. Management should be aimed at restoring health and well being before damage becomes irreversible (Nigam and *Perumamthadathil, 2011*). Wound management in feline species is difficult as rate of healing is slower than canine species (Bohling *et al*., 2004). In feline, wound is one of the major etiology for infective arthritis (Denny and Butterworth, 2000).

History

On 26.07.12 at 06.50 pm a Sundarban Tiger (M) was received from Sunderban Tiger Reserve (STR) authority in drowsy state due to chemical immobilisation by intramascular ketamine (800 mg) with a history of hindquarter weakness and debility. The said animal was spotted without any movement for near about 24 hours in Pirkhali-7 area of Sundarban. Then STR authority decided to shift the animal to Alipore Zoo Veterinary Hospital on emergency basis for proper treatment through chemical capturing as mentioned.

Clinical findings and Treatment

All the reflexes of the animal were less with fixed eye ball and one major penetrating wound near left coxofemoral joint with inward tunnel surrounding the joint and three other wounds in right fore limb and right thoracic region with signs of dehydration as noticed during immediate clinical examination after receiving the animal. All the canines of the animal were intact with sharp tip indicates the animal was aged about 6-7 years. Treatment was started immediately with intravenous fluid (Ringers Lactate) 1000 ml, Inj Dexamethasone (4 mg/ml) 4ml to counter residual effect of ketamine. The tiger responded gradually to the treatment on the same night.

Next morning i.e. 27.07.12 intravenous fluid (Normal saline-500 ml) along with injectable Vit B-complex (Inj. Ploybion-2ml) was administered to animal to regain its normal appetite. It was observed that the animal was unable to stand on its hind quarter. Dressing of all the wound was started from that very day with lavaging the wound with normal saline flushing and topical herbal anti-infcetive spray (Exo heal spray). From 28.07.12 onwards injectable Vit$B_1B_6B_{12}$ (Inj. Trineurosol-H) and oral multivitamin with multimineral preparation (Tab Supradyn) were started and continued upto one month. Blood was taken for necessary haematological and biochemical tests and reports revealed higher serum SGPT, BUN which might be due to prolong starvation. Deworming of the animal was followed after faecal sample examination with broad sprectum dewormer (Tab Plozin Plus). On aforesaid medicinal treatment and regular dressing of wounds, the animal regained its hind quarter strength to some extent than earlier and all the wounds had healed up except the non-healing wound

Wild animal disease management in captivity should always be aimed for successful rehabilitation of animal in wild again.

Table 1: Values of different haematological and biochemical parameter of the tiger

Haematological Parameter	Normal Range	Initial value	Value on 15.09.13
Haemoglobin(gm/dl)	7.8-13.8	13.2	10.1
Total leucocytic count (x10^3/µl)	6.2-11.05	8.4	19.8
Neutrophil	57-75	72	83
Platelet Count(10^3/ µl)	120.3-223.6	491	220
BUN(mg/dl)	6.5-48.2	58.2	47.2
Creatinine(mg/dl)	1.6-4.6	1.61	1.63
SGPT(ALT) (IU/L)	21.2-109.0	115.8	48.9
SGOT(AST) (IU/L)	14.4-84	82.1	27.6

with indolent pockets and proud flesh nearby the left coxofemoral joint, thereby affecting movements of the hind quarter.

On 15.09.12 again blood was drawn for necessary tests and report shown that earlier higher serum SGPT, BUN came down were within normal limit but total leucocytic count became higher than normal with neutrophilia, low garde anemia and thrombocytopenia were noted.

On 18-10-12 X-ray of the affected Coxo-femoral joint (medio-lateral view) of the animal was performed under sedation for confirmatory diagnosis of the posterior weakness and etiology of non-healing wound. Though the quality of the x-ray is not fully satisfactory but the impression of the joint reflects marked lower density of head of femur as well as acetabular cavity and marked difference between the density of the periosteal region up to neck and density of the epiphyseal area of the head of femur which denotes slight destruction of subchodral bone. Soft tissue swelling was also visible in x-ray. A radio opaque tract is viewed out to the joint which seems to be invading the joint capsule. Irregular osteo-phytic change was visible in lesser trochentor area. A swab from wound tunnel was taken for bacteriological examination and it revealed the presence of staphylococcus. Qualitative chromatographic immunoassay for feline panleukopenia (Bionote, Korea), feline parvo virus (Bionote, Korea) and canine distemper (Intas animal health,India) was conducted and results were found negative.

The clinical history, observation, laboratory findings and radiographic images revealed that the animal was suffering from infective arthritis of the left hip joint as a consequence of chronic deep seated piercing wound adjacent to the joint. So, a course of higher

Fig. 1: The debilated tiger with few wound and posterior weakness on 27.07.12

Fig. 2: Radiographic examination of the coxofemoral joint

Fig. 3: Negative result of chromatographic immunoassay

Fig. 4: Shifting of obesed tiger with shoulder hygroma after healing of the wound

Fig. 5: Release of the tiger from boat in Sundarban
(Photo credit: Mr. Joydeep Kundu).

Fig. 6: Posture of the tiger just after relaese in wild
(Photo credit: Mr. Joydeep Kundu).

antibiotic i.e. Cetriaxone with tazobactum (Inj. Intacef tazo 2250 mg) along with Vit-B complex (Inj. Conciplex) was started and continued for 15 days. Regular dressing of prevailing wound has been done with normal saline irrigation, povidone-iodine dipped gauze packing in internal tunnel and anti-infective spraying. The wound and hind quarter weakness gradually improved and overall health condition including aggression and agileness enhanced to the desired level. Then the animal was shifted from squeeze cage of to a large enclosure in the zoo-garden for better movement and exercise. The animal also gradually developed obesity and hygroma of shoulder joint due to prolong keeping of the animal in the captivity being less scope of exercise and hard ground surface but there was no behavioural impairment (aggression and food possession, etc.) as we have restricted human imprint as far as possible . So, the animal was handed over to the STR authority to find the better home for the tiger to reduce adverse affect of captivity. Then STR authority decided to release the tiger in wild again and the tiger was released in Sundarban on 29.06.13 in Pirkhali-7 area.

Discussion

Intramuscular administration of Ketamine produces a longer duration of anesthesia than IV administration, but the recovery is usually longer and can be accompanied by more dysphoria. In cat majority ketamine is excreted as unchanged form through urine and in renal compromised cat ketamine is contraindicated (Grimm and Lamont, 2007). Initial higher BUN and SGPT value (Shrivastav et al., 2012) indicates animal was with dehydration and slight liver dysfunction. So, initial administrations of intravenous fluid helps to overcome dehydration as well as improved renal function there by facilitate ketamine excretion. All mammalian species follow the same phases of wound healing but they don't heal in the same way. One study showed that dog's appeared to have higher density of tertiary and higher order of vessels than cats. Breaking strength of a wound in cats is approximately 50% less than that of dogs. Formation of granulation tissue takes longer in cats compared with dogs. Indolent pockets and ulcers are common complication of wound healing in feline. Cats and dogs also appear to use different mechanisms of second intention healing. In cats wounds close mainly by contraction of the wound edges, whereas in dogs wounds close more from central pull, and epithelialization (Kirpensteijn and Haar, 2013). In this case also the wound healing was very eventful as discussed in the literature. Bacterial arthritis may occur as a result of direct infection from penetrating wound. Bacterial infections of joints produce an inflammatory arthropathy. Two clinical syndromes are identified; the classic acute onset case and a more chronic local grade infection syndrome. Haematological examination showed slight higher leucocytic count with neutrophilia (Sajjad *et al.*, 2012), low grade anaemia and thrombocytopenia and isolation of staphylococcus from wound sinus indicates it is a bacterial arthritis (Bennett and Taylor, 1988). Radiography in the early stage will only show soft tissue changes. Periosteal new bone and bony destruction are seen in longer standing cases. Various organisms were isolated but haemolytic Streptococcus and Staphylococcus intermedius were the most common. Antibiotic therapy for several weeks was generally successful providing an early diagnosis was made (Denny and Butterworth, 2000). In this case Qualitative chromatographic immunoassay of feline panleukopenia, feline parvo virus and canine distemper was conducted as those diseases are common in wild felid (Ramanathan et al., 2007). In majority cases of wild animal treatment in captivity cause behavioural impairment or may have acquired infections while in captivity, making them unfit for release in wild. But in this case there was no behavioural impairment (Nigam and Perumamthadathil, 2011) so, the animal was released in wild.

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पुराने घाव तथा संक्रामक गठिया से ग्रसित सुन्दरवन के एक बाघ का प्रबंधन तथा पुनरुस्थापन

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सारांश

सुन्दरवन, बंगाल टाईगर सहित कई संकटापन्न तथा लुप्तप्राय: प्रजातियों के लिए प्राकृतिक वासस्थल है। लगभग 6–7 साल के सुन्दरवन के बाघ को लाया गया जिस पर घाव था और पिछले पैर कमजोर थे। हेमिटोलॉजीकल, जैव रसायन तथा रेडियोग्राफिक परीक्षणों से पता चला कि यह बाघ संक्रमक गठिया से पीड़ित है। लम्बे इलाज के बाद यह बाघ स्वस्थ हो गया और इसे पुन: जंगल में छोड़ दिया गया।

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