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Management of pyoderma in a sloth bear

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Abstract

A male sloth bear about 4.5 yrs was brought from Bramhapuri, Chandrapur (Dist.) to Wildlife Research and Training Centre, Gorewada, Nagpur with the history of injury at the abdominal region. On Clinical examination, it was found that the animal had intense pruritus, diffuse alopecia, purulent and foul smelling discharge with slugging of skin at the ventral side of the abdomen. Evaluation of skin scrapping revealed that it was negative for mange parasites and skin impression smear was found to be negative for yeast infection while Gram staining revealed gram positive cocci in clusters indicating staphylococcus infection. Haematological examination was done and it was found that there was neutrophilia along with leukocytosis. Serum Biochemistry (BUN, Cr, Total protein, albumin, Globulin, SGOT, SGPT, ALP) was within normal range. On the basis of clinical, haemato-biochemical and skin scrapping examination, it was confirmed to be a case of pyoderma. The animal was treated with Inj. Amoxicillin and clavunate, Inj. Dipyrone and Inj. Phernaramine maleate given intramuscularly for a period of 7 days. Tab. Bcozyme C forte given perorally for a period of 30 days. Also, dressing of ventral abdomen was done by spraying povidine iodine. The Sloth made uneventful recovery.

Key words: Sloth Bear, Pyoderma, Haemotology, Skin Scrapping

Pyoderma refers to any pyogenic infection of the skin and is most commonly used in reference to bacterial skin infections. It results from impaired local defense mechanisms, which permit secondary bacterial invasion of the skin (Diaz, 2020). Dermatitis and alopecia are frequent findings and have been tied to atopy, mange, and dermatophilosis in several bear species. More commonly, hair loss results from abrasion on artificial rockwork or concrete floors with secondary superficial bacterial dermatitis (Federick *et al.,*2018). Based on the depth of infection in skin layers, it is of two types deep pyoderma and superficial pyoderma. In deep pyoderma infection from distal parts of hair follicle extends beneath and beyond the confines of hair follicles (Paradis *et al.,* 2001). The primary pathogen involved in pyoderma is Staphylococcus spp. however; other gram negative bacteria are also involved (Reddy *et al.,* 2011). The exact cause and pathogenesis of the disease is due to increased susceptibility to Staphylococcus species which mostly proceeds to juvenile cellulitis. The lesions are mostly granular and pustular type, erythematous in appearances with crusts in outline (Kalim *et al.,* 2017). Pyoderma represents a large group of canine skin diseases that are difficult to treat. These are mostly inflammations of secondary nature linked to coagulase-positive Staphylococcus spp. Purulent skin inflammation is not a definitive diagnosis, but only a clinical symptom, which masks the main (primary or secondary) cause of the disease; sometimes several factors can play a role in triggering the disease. A major problem consists in increased pruritus which prevents the skin from healing. Self-mutilation due to the pruritus causes other infective skin changes (Sprucek *et al.,* 2007).

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Case History and Observations

A male sloth bear about 4.5 yrs was brought from Bramhapuri, Chandrapur (Dist.) to Wildlife Research and Training Centre, Gorewada, Nagpur with the history of injury at the abdominal region. On Clinical examination, it was found that the animal had intense pruritus, diffuse alopecia, purulent and foul smelling discharge with sloughing of skin at the ventral side of the abdomen. The animal was ruled out for mange infection by examination of skin scrapping. Skin impression smear was found to be negative for yeast infection. For bacteriological examination, sterile swabs were immersed in sterile normal saline and samples of skin lesions were collected from 2-3 sites. Thin smears on glass slide were made, air dried and Gram-stained. After microscopical examination, gram+ cocci in clusters were identified indicating staphylococcus infection. Haematological examination was done and it was found that there was neutrophilia along with leukocytosis. Serum Biochemistry (BUN, Cr, Total protein, albumin, Globulin, SGOT, SGPT,

Fig 1. Pretreatment photo of sloth bear with diffuse pyoderma.

Fig 2. Recovered skin coat of sloth bear after successful treatment

ALP) was within normal range. On the basis of clinical, haemato-biochemical and skin scrapping examination, skin impression smear and presence of Gram + cocci in the smear, it was confirmed to be a case of pyoderma.

Treatment and Discussion

The animal was treated with Inj. Inj. Amoxicillin and clavunate combination @20mg/kg b.wt Inj. Dipyrone@ 40mg/kg b.wt and Inj. Phernaramine maleate 0.5 mg/kg.b.wt, given intramuscularly for a period of 7 days along with Tab. Bcozyme C forte given perorally for a period of 30 days. Also, dressing of affected area was done by spraying povidine iodine. The Sloth bear made uneventful recovery.

Staphylococcus sp is a normal commensal of animals skin but due to some change of the skin macro and micro environment, it becomes pathognomic and causes pyoderma. An appropriate antibacterial therapy is required in most cases of pyoderma, in association with topical therapy (Kalim *et al.*, 2017).

A recent systematic review found the evidence for efficacy of systemic anti-microbial drugs for treatment of superficial pyoderma to be good for cefovecin, fair for amoxicillin–clavulanate, clindamycin, cefadroxil, trimethoprim–sulphamethoxazole and sulfadimethoxine–ormetoprim and insufficient for cefalexin, cefpodoxime, ibafloxacin, marbofloxacin and lincomycin (Hillier *et al.*, 2014).

Amoxicillin being bactericidal -has activity against penicillin-sensitive gram-positive bacteria as well as some gram-negative bacteria. It targets and kills bacteria by inhibiting the biosynthesis of peptidoglycan layer of the bacterial cell wall and also readly diffuses into most body tissues/ fluids while clavulanate extends the spectrum of activity of amoxicillin to include beta-lactamase producing E. coli, Klebsiella, Proteus, and Staphylococcus species. On the other hand, the higher-generation cephalosporins have broad-spectrum activity against gram-negative bacteria. The third-generation cephalosporins and fluoroquinolones increase the incidence of extended-spectrum β-lactamase—producing bacteria, which are frequently multidrug resistant. Given the risk of widespread multidrug resistance, human and veterinary health organizations have developed consensus statements and guidelines regarding the use of higher-generation cephalosporins and fluoroquinolones. The Swedish Veterinary Association guidelines state that "third- or fourth-generation cephalosporins should only be used in situations where their use is considered of the utmost importance to the animal's welfare and where there is a sound basis to suspect that alternative treatments will not have the desired effect". In addition to this, the American College of Veterinary Internal Medicine consensus statement indicates that "limiting use of classes such as the third-generation cephalosporins and fluoroquinolones is widely accepted and consistent with principles of antimicrobial stewardship (Bloom, 2011)

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