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MANAGEMENT OF CHORIOPTIC MANGE IN A 7-YEAR-OLD STALLION

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ABSTRACT

A 7-year-old stallion weighing 269 kg was presented to the Large Animal Clinic of Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike. The stallion showed clinical signs including fever, weakness, depression, anorexia and emaciation. Lesions which include vesicles, blisters, small nodules, haemorrhagic crust, oozing sores, thickening of the skin and alopecia were seen on the perineal region, the tail and the right hind limb. *Chorioptesbovis* mites were recovered from skin scrapings. Haematological analysis revealed leucocytosis ($16.0x10^9$/L) and neutrophilia ($10.8\ 0x10^9$/L) compared to the normal range of $4.9 – 10\ x10^9$/L and $2.3 - 8.5x10^9$/L respectively. Treatment with two doses of Ivermectin2 weeks apart at the dose rate of 200µg/kg, Procaine penicillin (22,000 IU/kg) and streptomycin (22 mg/kg) for 7 days and oxytetracycline spray yielded a successful result. It is advisable to present sick animals early in order to support effective healing and recovery. Regular grooming of horses and use of acaricide to control mite infestation are important to prevent this disease.

Key words: Acaricide, *Chorioptesbovis*, Haemorrhagic crust, Mite, Stallion

INTRODUCTION

Chorioptic mange is a parasitic skin disease caused by mite which cause itching and hair loss in horses (Bertrand, 2010). Chorioptic mange is the most common mite infestation of equids posing most significant problem in horses (Kotb and Abdel-Rady, 2013). They are often found on the lower limbs with occasional lesions extending to the abdomen, perineal, axilla and tail (Osman *et al.*, 2006). The mites live on skin surface and are non-burrowing (Pilsworth and Knottenbelt, 2005). Irritation is caused by their movement (Logas *et al.*, 2018). Chorioptic mange is caused by *Chorioptesbovis* (formally *Chorioptesequi*) (Pugh *et al.*, 2013).Life cycle is approximately 2-3 weeks. The eggs hatch and develop to adults in approximately 2-3 weeks (Soulsby, 1986). Transmission is by direct contact between animals but may also occur by fomites (Scott and Miller, 2003; Kaufman, 2016). Mites can live off the host for only a few days, dying of desiccation, but survival could be prolonged in conditions of warmth, darkness, and humidity (Junquera, 2017). Clinical lesions consist of reddening of the skin, papule, crust formation, hair loss, skin thickening and other irregular skin lesions (Pilsworth and Knottenbelt, 2005). As the horse rubs and bites at the skin, sores, crusts, weeping serum, and loss of hair occur (Osman *et al.*, 2006).The intense pruritus and self-trauma also lead to development of secondary bacterial infections and other parasites infestation (Marsella, 2016). The extended skin damage may impair regulation of the body temperature and severe infestations can lead to emaciation and fatalities if not treated (Junquera, 2017). Differential diagnoses for this disease include psoroptic mange, sarcoptic mange, demodectic mange, atopic dermatitis, *Culicoides* hypersensitivity, dermatophilosis and contact allergy (Marsella, 2016). Diagnosis may be confirmed by microscopic examination of scale and debris obtained from

active skin lesions (Pugh *et al*., 2013). Both topical and injectable acaracides such as ivermectin, pour-on moxidectin, sprays with coumaphos or permethrin and topical products containing fipronil have been used to treat horses (Littlewood, 2000). Ivermectin given at 200 µg/kg body weight every 2 weeks for two treatments has been reported to be effective in the cure of choriopticmange (Osman *et al.*, 2006; Kotb and Abdel-Rady, 2013). The itchy pruritus can be controlled using anti-inflammatory drugs, antibiotics may be needed if secondary bacterial infection is present and anti-seborrhoeic shampoos are also helpful to cleanse the skin (Pugh, 2013). The present case reports the natural infestation of *Choroptesbovis* and its therapeutic management with Ivermectin.

CASE REPORT

History and Examination

A 7-year-old horse weighing 269 kg and belonging to Veterinary Teaching Hospital, Michael Okpara University of Agriculture Umudike was presented with a primary complaint of emaciation, weakness, depression, off-feed, pustule-like lesions, vesicles and scabs at the perineal, tail and right hind limb. The horse had been dewormed and vaccinated against tetanus 3 months before presentation. Physical examination showed lesions which include vesicles, blisters, small nodules, haemorrhagic crust, oozing sores, thickening of the skin and alopecia on the perineal region, the tail and the right hind limb (Plates I, II and III). The animal was itching excessively, rubbing its body against the wall, stamping its feet, depressed and weak. Clinical examination revealed pulse rate, 48 beats per second, respiratory rate 30 breaths per minute and temperature 39.5^{o}C. A differential diagnosis of Mange, atopic dermatitis, *Culicoides* hypersensitivity and dermatophilosis was made. 5ml of Blood was taken from jugular vein and sent to clinical pathology laboratory for heamatological analysis while skin scrapping was taken from the skin lesions and sent to parasitology laboratory for parasite identification.

RESULTS

Haematological parameters revealed leaucocytosis with neutrophlia (Table 1). Direct microscopy (10% KOH mount) of the skin scrapping showed multiple living mites which are oval shaped and has a dorso-ventrally flattened body with four pairs of legs which are robust and moderately long (Plate IV).

Diagnosis

Confirmatory diagnosis of chorioptic mange was made based on the clinical signs and identification of the mite from the skin scrapings.

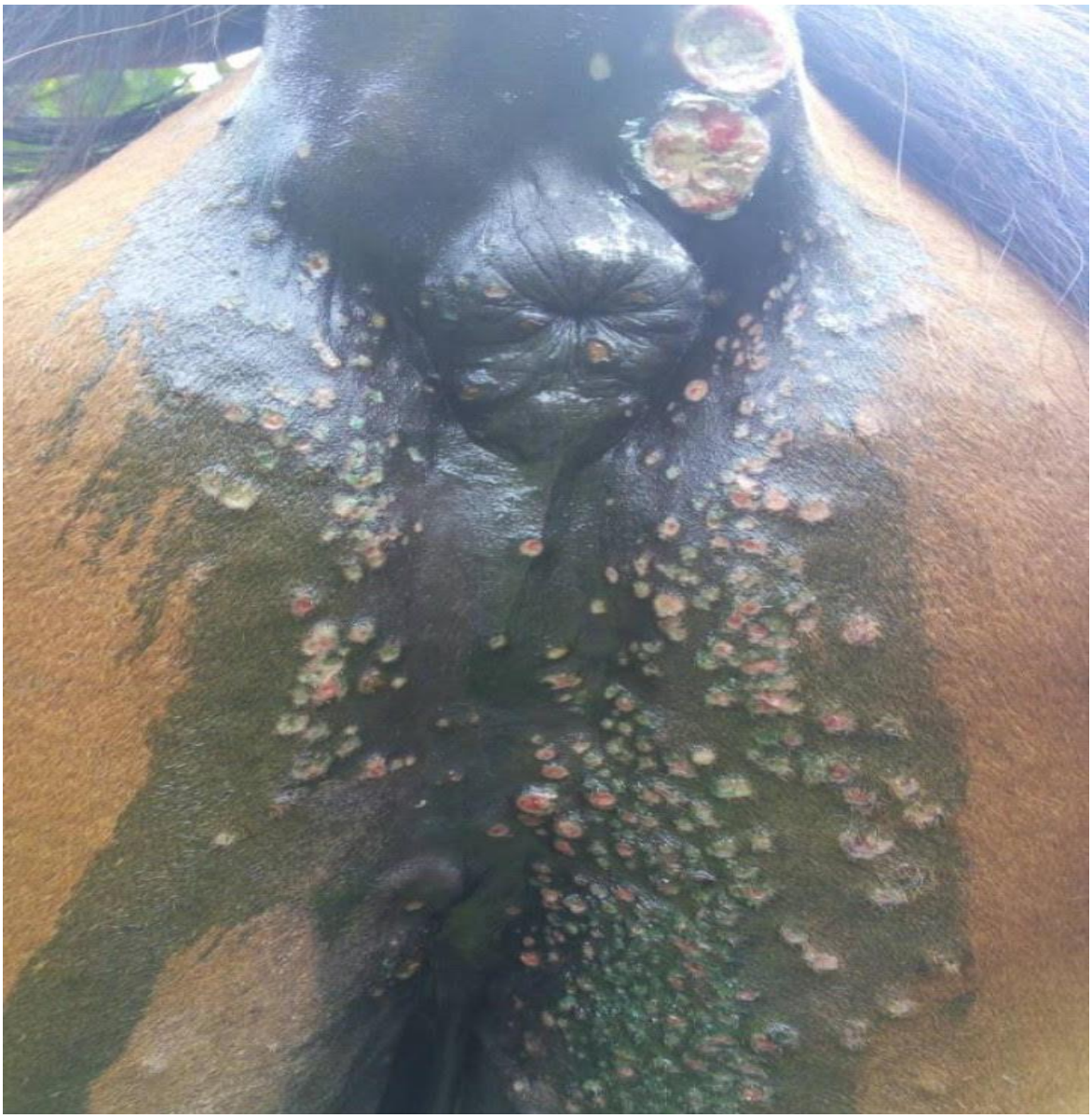


Plate 1: Ulcers, blisters and haemorrhagic crust at perianal area of the stallion infested with *Choriopticbovis*



Plate II: Crusted papules and nodules atright hind limb of the stallion infested with *Choriopticbovis*



Plate III: Haemorrhagic crust and oozing sores on the tail of the stallion infested with *Choriopticbovis*



Plate IV: *Choriopticbovis* viewed under the microscope at X100 Magnification

Table 1: Haemogram of the stallion infested with *Choriopticbovis*

Haemogram	Obtained values	Normal range *
Packed cell volume %	34	31- 48
Haemoglobin concentration (g/dl)	12.6	13 - 17.9
Red blood cell x 10^{12}/L	7.2	9 - 10.7
MCV fl	47	40 - 49
MCH pg	17.5	15 - 18
MCHC g/L	37	35 - 41
White blood cell x 10^9/L	16.0	4.9 - 10
Neutrophil count x 10^9/L	10.8	2.3 - 8.5
Lymphocyte x 10^9/L	3.84	1.5 - 7.7
Monocyte x 10^9/L	0.32	0 - 1.0
Eosinophil x 10^9/L	0.96	0 - 1.0

*Grondin and Dewiit (2010)

Management and Treatment

The hairs in the affected areas were clipped and crustiness was scrubbed with stiff brush. The area was cleaned and disinfected with liquid antiseptic. Topical oxytetracycline spray`containing oxytetracycline HCL 50g and gentian violet 0.7g was applied daily for 7 days. Procaine penicillin (22,000 IU/kg) and streptomycin (22 mg/kg) was administered intramuscularly for 7 days. Two doses of Ivermectin 2 weeks apart were given at the dose rate of 200µg/kg subcutaneously.

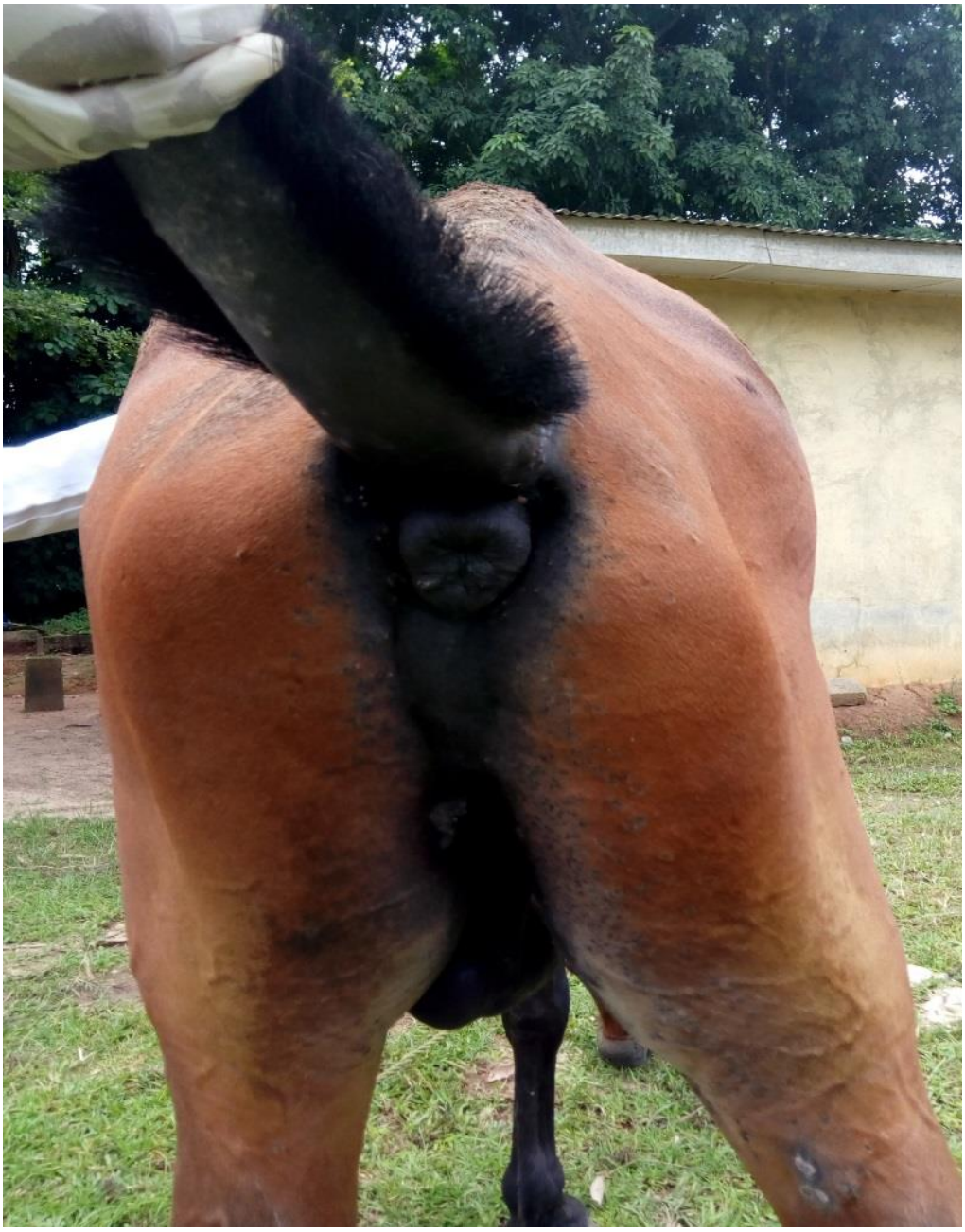


Plate V: Healing at the right hind limb, perineal and tail one week after presentation



Plate VI: Complete healing of the stallion infested with *Choriopticbovis* two weeks after treatment

DISCUSSION

The clinical signs of chorioptic mange observed in this case were same as reported by Osman *et al.* (2006). The extensive crusting, excoriation and alopecia was due to self-inflicted trauma (Marsella, 2016).The immunological response mounted by the host to the mite antigen leads to hypersensitivity reaction creating intensive pruritic dermatitis (Pascoe, 2016). These mites also secrete an extremely irritating toxin causing extreme host reactions and itching leading to skin sloughing off in the infested areas (Kaufman *et al.*, 2016). The animal was anorexic because of pain and depression as a result of the skin wounds. Many equine illnesses are accompanied by refusal to eat (Equinews, 2012). The high temperature observed may be due to skin damage which impaired regulation of the body temperature (Junquera, 2017). Leucocytosis observed was due to body response to the infection and high neutrophil count showed the acute nature of the disease. Neutrophils are host immune defense cells that are among the first to migrate into the skin in response to invading pathogens (Molne *et al*., 2000). The Brushing of the wound with a stiff brush and the shaving of hair on the affected

areas helped to remove crusts, scales, and other skin debris and also aided in getting rid of any hiding mites before applying the antibiotic spray (Littlewood, 2000). The oxytetracycline spray contains gential violet as a marker, it was used to treat local bacterial infections on the skin and the gential violet is a non-irritant antiseptic against fungi and also gives identification of treated area (Kepro, 2018). Penicillin/streptomycin injection was given to treat secondary bacterial infection. Ivermectin was given to treat the mite infection and it was repeated after 14 days. It has been observed that initial treatment with ivermectin takes care of adult mites but repetition of the treatment after 2 weeks when development from several larval and nymphal stages is completed leads to recovery (Junquera, 2017). Kotband Abdel-Rady (2013) reported that ivemectin is effective in treatment of chorioptic mange in horses. The horse started recovering 7 days after presentation (Plate V) and complete healing of the skin wounds was observed 2 weeks after treatment (Plate VI). This was similarly observed by Osman *et al.* (2006).

CONCLUSION

This case reports a successful treatment and management of chorioptic mange in a horse. Regular grooming and use of acaricide will reduce mite infestation in horses.

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