



ISSN: 2456-2912

VET 2018; 3(3): 62-65

© 2018 VET

www.veterinarypaper.com

Received: 01-03-2018

Accepted: 05-04-2018

Faez Firdaus Abdullah Jesse

a) Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Institute of Tropical Agriculture and Food security, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;

Innocent Damudu Peter

a) Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Faculty of Veterinary Medicine, University of Maiduguri, P.M.B 1069 Maiduguri, Borno Nigeria;

Yusuf Abba

a) Department of Veterinary Pathology and Microbiology, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Faculty of Veterinary Medicine, University of Maiduguri, P.M.B 1069 Maiduguri, Borno Nigeria;

Asinamai Athliamai Bitrus

a) Department of Veterinary Pathology and Microbiology, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Research Unit, Microbial Food Safety and Antimicrobial Resistance, Department of Veterinary Public Health, Faculty of Veterinary Science, Chulalongkorn University, 10330 Pathumwan Bangkok, Thailand.

Idris Umar Hambali

a) Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Faculty of Veterinary Medicine, University of Maiduguri, P.M.B 1069 Maiduguri, Borno Nigeria;

Eric Lim Teik Chung

Department of Animal Science, Faculty of Agriculture, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

Siti Nurin Fakhriani Binti Ghazali

Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;

Mohd Azmi Mohd Lila

Department of Veterinary Pathology and Microbiology, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;

Abd Wahid Haron

Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;

Correspondence

Faez Firdaus Abdullah Jesse

a) Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;
b) Institute of Tropical Agriculture and Food security, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia;

Clinical management of hoof abscess in a Goat

Faez Firdaus Abdullah Jesse, Innocent Damudu Peter, Yusuf Abba, Asinamai Athliamai Bitrus, Idris Umar Hambali, Eric Lim Teik Chung, Siti Nurin Fakhriani Binti Ghazali, Mohd Azmi Mohd Lila and Abd Wahid Haron

Abstract

Lameness in small ruminants is a condition which usually results in poor productivity of the affected animal and subsequent economic losses to the farmer. This case report describes the clinical management of hoof abscess in a 3 year old buck. The buck was presented to the University Veterinary Hospital, Universiti Putra Malaysia with a complaint of a swollen hoof on the right hind limb that has stayed for over a week. Clinical examination findings revealed normal TPR and mucous membrane. The hoof on the right hind limb was found to be overgrown and swollen with pus exuding through inter digital space. The buck displayed signs of pain and discomfort when the affected hoof is palpated and handled during examination. Based on the history and outcome of the clinical examination a presumptive clinical working diagnosis of hoof abscess was made. For clinical management, the swelling was lanced and the pus was evacuated under local anaesthesia. The wound area was flushed with diluted hydrogen peroxide and washed with diluted antiseptic solution to remove the necrotic tissues and debris. After the cleaning procedure, the wound was applied topically with mixture of tincture of Iodine and Negasunt powder®. Then Terramycin® wound spray consist of Oxytetracycline hydrochloride as active ingredients was applied topically to the wound. This procedure was repeated daily for a week. Systemic short acting antibiotic, Penicillin (1ml/10kg IM) and NSAIDs, Flunixin meglumine (2.2mg/kg IM) SID were administered for five days. Upon follow up visit a week post treatment, the affected limb showed advanced recovery with good healing. The farm was advised to have good compliance of herd health program to prevent recurrence of this condition due to poor hoof care and poor pen sanitation.

Keywords: Abscess, clinical management, goat, hoof lameness

1. Introduction

Foot diseases (foot rot and hoof abscess) in small ruminants cause great economic losses throughout the world and are now considered an emerging problem in animal populations. They are painful and are known to cause reduced feed intake, poor weight gain, reduced milk production and lowered reproduction rates [1, 2, 3]. Susceptible animals are unable to mount a protective immunity and prevention of infection among animals also continues to be challenging [1].

Hoof abscess is an acute mostly purulent lameness condition that involves one or more digit of the hoof in animals. *Fusobacterium necrophorum* and *Corynebacterium pyogenes* are the two organism believed to be causative agent under suitable predisposing factors [4]. The disease is characterised by exudation of a thick smelling pus from openings around the axial region of the foot of sheep and goats causing severe pain in the affected limb [5].

Susceptible animals usually gets infected and display classical clinical signs of swollen hoof and or lameness and subsequently become source of infection to herd mates. Upon recovery, they become resistant and over time loose this resistance. The rate at which animals becomes become disease, resistant and loose resistance is determined by environmental challenges from the infecting organism which is also dependent upon environmental contamination from the infected animals [6].

The recommended treatment for foot abscess involves draining of the abscess, cleaning the affected area with a disinfectant and administering antibiotics [4]. The use of systemic antibiotic therapy directed towards anaerobic organisms located deep in the inflamed tissue

and use of inflammatory agents have been reported as an effective way in treating foot diseases in small ruminants. It reduces inflammation and recovery time is quick and achievable within a week. Topical antibiotic sprays disinfects and kill surface bacteria and by so doing reduces the likelihood of contamination among flock-mates [6]. Although vaccination can be employed in the prevention of foot rot, vaccines have been shown to be ineffective under field conditions [6, 7]. This is due to antigenic difference that exist between vaccine strains and field strains [8]. Such a problem can only be resolved through the use of a vaccine having

heterologous strains or through identifying and use of the strain present in a geographical location [1]. Thus, the present case report describes the successful clinical management of a clinical case of hoof abscess in a buck.

2. Case Presentation and Clinical findings

A 3 year old Shami cross buck weighing 50 kg with body score of 3/5 was presented to the University Veterinary Hospital (UVH) UPM with a main complaint of a swollen hoof of right hind limb that have persisted for over a week (Fig 1a, b).



Fig 1: (a, b). Swollen hoof of right hind limb with presence of pus at inter digital space.

Clinical examination findings revealed normal TPR and mucuous membrane. The hoof on the right hind limb was found to be overgrown and swollen with pus exuding through inter digital space. The buck displayed signs of pain and

discomfort when the affected hoof is palpated and handled during examination. Based on the history and outcome of the clinical examination a presumptive clinical working diagnosis of hoof abscess was made.



Fig. 2: Clinical management of hoof abscess: (A) the swelling was lanced and the pus was evacuated under local anaesthesia. (B & C) The wound area was flushed with diluted hydrogen peroxide and washed with diluted antiseptic solution to remove the necrotic tissues and debris.

2.1 Clinical management and follow up treatments

For clinical management, the swelling was lanced and the pus was evacuated under local anaesthesia. Firstly, flunixin meglumine (2.2 mg/kg) was administered intramuscularly as analgesic, anti-pyrexia and anti-inflammatory. Then, Lidocaine spray was applied topically at the wound area as local anaesthesia before procedure. After 10 minutes, the affected area was lanced and the wound area was flushed with

diluted hydrogen peroxide and washed with diluted antiseptic solution to remove the necrotic tissues and debris. After the cleaning procedure, the wound was applied topically with mixture of a tincture of Iodine and Negasunt powder®. Then Terramycin® wound spray consist of Oxytetracycline hydrochloride as active ingredients was applied topically to the wound. This procedure was repeated daily for a week. Systemic short acting antibiotic Penicillin (1ml/10kg IM) and

NSAIDs Flunixin meglumine (2.2mg/kg IM) SID were administered for five days. Upon follow up visit a week post treatment, the affected limb showed advanced recovery with good healing where the goat appeared to be bright, alert and responsive with persistent weight bearing of the right hind limb. Nevertheless, the treated hoof was clean and dry with fresh granulation tissues were observed in-between the interdigital space (Fig. 3).



Fig 3: Hoof of affected limb was clean and dry with fresh granulation tissues were observed in-between the interdigital space after a week of post-treatment.

3. Discussion

Diseases of the hoof are major causes of lameness in small ruminants and this cause significant economic losses wherever these animals are managed^[9]. They are considered as serious disease in animals due to welfare issues, reoccurrence, reduced production and fertility as well as increased incidences of culling^[10]. Common predisposing factors to foot disease is the failure in regular hoof trimming in animals and or baldly hoof trimming. Although regular trimming of hooves in ruminants is recommended and is often necessary, it does not prevent the occurrence of foot diseases in these species. Usually, hoof abscess is seen in the hind feet of overweight animals^[4]. These may have played a role in the development of this diseases in this buck. The buck in this case had a fairly high body weight and the hooves were damaged due to an earlier unknown cause. The pathogenesis of hoof abscess is known to begin when the interdigital skin of the hoof is exposed for a fairly long time to wet faeces harbouring pus forming bacteria. This condition frequently occurs when animals are kept under intensive system of management in dirty, badly maintained permanent pens with muddy floors^[11]. An accidental skin tear will be enough to trigger an infection in such conditions. It is highly likely that this pathogenesis may have occurred in the buck presented in this case report.

Hoof abscess mainly affects soft tissues and the bulbar region of the heel. It is primarily caused by *F. necrophorum* though *Clostridium pyogenes* helps in the development of clinical lesions^[11]. The affected hoof is usually spared from weight bearing and the affected animal is also seen on sternal recumbency^[9]. From clinical examination of hoof abscess and similar hoof diseases, an inflamed and oedematous

interdigital space is always observed and sometimes pus and bloody necrotic exudates can be also be expressed from the affected hoof^[9] and these clinical findings were observed in this case report. Treatment of hoof diseases is directed at eliminating the infection from the infected animal and preventing its spread to flockmates^[11, 12]. Foot bathing, culling of affected animal (s), farm biosecurity, genetic improvement or simply the use of systemic and or topical antibiotics have all been used with variable degrees of success to manage clinical cases of hoof abscess^[11]. Vaccination can be used in sheep and goats against foot diseases, but it is only effective in an already infected animal^[9]. Footbathing has been practiced for several decades as reliable method treating hoof diseases in ruminants^[9]. However, footbaths and their surroundings must be clean at all times in order to guarantee effective treatment. Zinc sulphate, copper sulphate, formalin are commonly used compounds used for making footbaths^[11]. Formalin is known to be irritant unpleasant to handling and also a carcinogen and these properties greatly limit its uses in footbaths. Zinc sulphate is quite expensive and treatment time is longer and also cases of toxicity has been reported with use of copper sulphate for the treatment of animals with hoof diseases^[10, 11]. The use of systemic or topical antibiotics or their combination is the preferred method of treating hoof diseases in animals^[9, 13] and this treatment regime was adopted in this case management and showed good outcome of the case. The administration of parenteral penicillin (200mg/mL) in affected animals have been reported to successfully treat hoof abscess in goats^[3, 10]. Animals that fail to respond after treatment with antibiotics will most likely become chronically infected and should preferably be culled^[9].

4. Conclusion

Conclusively, early intervention and correct clinical management of hoof abscess cases will give good prognosis and outcome with diligent follow up treatment on daily basis. The farm was advised to have good compliance of herd health program to prevent recurrence of this condition due to poor hoof care and poor pen sanitation.

5. Acknowledgement

The authors wish to appreciate the staff of the University Veterinary Hospital, of the Universiti Putra Malaysia for their technical assistance during the handling and management of this case.

6. References

1. Zhou H, Hickford J. Extensive diversity in New Zealand *Dichelobacter nodosus* strains from infected sheep and goats. *Veterinary microbiology*. 2000; 71(1):113-123.
2. Aguiar G, Simões SV, Silva TR., Assis AC, Medeiros J, Garino Jr F *et al*. Foot rot and other foot diseases of goat and sheep in the semiarid region of northeastern Brazil. *Pesquisa Veterinária Brasileira*. 2011; 31(1):879-884.
3. Bitrus AA, Abba Y, Jesse FFA, Yi LM, Teoh R, Sadiq MA *et al*. Clinical management of foot rot in goats: A case report of lameness. *Journal of Advanced Veterinary and Animal Research*. 2017; 4(1):110-116.
4. Egerton J, Yong WK, Riffkin GG. *Footrot and foot abscess of ruminants*, 1989. CRC press.
5. Tan Z, Nagaraja T, Chengappa M. *Fusobacterium necrophorum* infections: virulence factors, pathogenic mechanism and control measures. *Veterinary research communications*. 1996; 20(1):113-140.

6. Green L, George T. Assessment of current knowledge of footrot in sheep with particular reference to *Dichelobacter nodosus* and implications for elimination or control strategies for sheep in Great Britain. *The Veterinary Journal*. 2008; 175(1):173-180.
7. Checkley SL, Janzen ED, Campbell JR, McKinnon JJ. Efficacy of vaccination against *Fusobacterium necrophorum* infection for control of liver abscesses and footrot in feedlot cattle in western Canada. *The Canadian Veterinary Journal*. 2005; 46(1):1002.
8. Skerman T. A comparison of *Bacteroides nodosus* biotypes with particular reference to properties of importance in footrot immunoprophylaxis, *Ovine Footrot*. Report of Workshop at University of Sydney. University of Sydney, Sydney, 1981, 3-7.
9. Winter AC. Treatment and control of hoof disorders in sheep and goats. *Veterinary Clinics: Food Animal Practice*. 2011; 27(1):187-192.
10. Christodouloupoulos G. Foot lameness in dairy goats. *Research in veterinary science*. 2009; 86(1):281-284.
11. Olechnowicz J, Jaśkowski JM. Lameness in small ruminants. *Medycyna Weterynaryjna*, 2011, 67.
12. Hosie B. Footrot and lameness in sheep. *Vet. Rec*. 2004; 154:37-38.
13. Groenevelt M, Anzuino K, Smith S, Lee MR, Grogono-Thomas R. A case report of lameness in two dairy goat herds; a suspected combination of nutritional factors concurrent with treponeme infection. *BMC research notes*. 2015; 8(1):791.