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CASE REPORT

A Case of Complicated Sole Ulcer and Its Treatment in A Calf

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Summary

In this report, a case of complicated sole ulcer and its treatment in male, aged of 1.5 months, Holstein calf has been subjected. According to radiologic and clinical findings, it was complicated with purulent arthritis in coffin joint, osteophyte formations 1st, 2nd, 3rd phalanx, and tendinitis of profound and superficial tendons. After two months from the beginning of the treatment, calf was able to walk without any lameness and there was no pain symptom on palpation. The aim of this case report was to contribute to the literature data for complicated sole ulcer that can be also seen in cows.

Keywords: *Calf, Sole ulcer, Treatment*

Bir Buzağıda Komplike Taban Ulkusu Olgusu ve Sağaltımı

Özet

Bu gözlemde 1.5 aylık erkek Holstein ırkı bir buzağıda karşılaşılan komplike taban ülseri olgusu ve sağaltımı konu edildi. Radyolojik ve klinik bulgularda olgunun ayak ekleminin purulent yangısı, 1. 2. ve 3. falankslarda osteofitik üremeler, profund ve süperfisiyal tendoların yangısı ile komplike olduğu görüldü. Tedavi başlangıcından 2 ay sonra buzağı topallamadan ayağını kullanabildi ve lezyonlu bölgede ağrı yoktu. Bu olgu sunumunun amacı sığırlarda sıklıkla gözlenen taban ülserlerine ilişkin bilgi birikimine katkı sağlamaktır.

Anahtar sözcükler: *Buzağı, Solea ülseri, Sağaltım*

INTRODUCTION

Sole ulcers are generally observed in highly efficient and heavy-bodied adult dairy cows and it is most common foot-hoof diseases [1-4]. Lack of stall hygiene, nutrition, laminitis, gestation and calving, incorrect hoof trimming, hoof deformities, biomechanical factors, walking on small stony floors, sharp objects, and loss of quality in hoof production are the main causes of sole ulcers [1,4-6]. Sole ulcers are usually located in the region of the sole/bulb junction, nearer the axial margin compared to abaxial one, and seen as lesions with around 1-1.5cm diameter on the lateral claw of hind limbs. They are classified as superficial or complicated (deep) sole ulcers. Because of the insufficiency of immune response and lack of hoof trimming procedure and delayed diagnosis, superficial sole ulcers are developed as complicated sole ulcers. Coffin joint, profound tendon and its sheet, navicular bone and bursa, and coffin bone, a few or all of them are effected during complicated sole ulcers [4,6]. Sole ulcers are the mostly encountered in hoof lesions of lame cows. These cows generally lag behind the herd while they are rushing for feeding and milking parlor; also they usually prefer to lie down. Cows loose bodyweight and their milk yield decreases [2,4,7]. Severe lameness, swelling in the digit (if tendons effected swelling can developed at the level of distal metacarpals or metatarsals), asymmetry between digits are evident in complicated sole ulcers [4]. These incidents cause serious economic losses [2,7]; Therapeutic hoof trimming increases the effectiveness of the treatment. During hoof trimming, pressure on the lesion must be eliminated and necrotic tissues must be removed. Body weight must be transferred to the unaffected claw by means of plastic slippers, wooden or plastic blocks [4,6,8]. Intravenous regional antibiosis can also be effective [6]. Partial resection of profound tendon and navicular bone, arthrodesis of coffin joint, amputation of effected digits; are considered as operative techniques applied for the treatment of complicated sole ulcers [4,6,8].

Sole ulcers are usually reported in high milk yielded cows [4,6,8,9], and it causes lameness. As lameness an important

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problem for adult dairy cows, little attention is paid to lameness in the calves. Infectious arthiritis, congenital joint and/or tendon deformities, genetic diseases of the limbs (mule foot, polydactylism, dactylomegaly, marfans and osteogenesis imperfects), dystocia and calving-related injuries, injection site paresis, and feeding defects can be a causes for lameness in calves. In our knowledge there is no report about lameness caused by sole ulcers in the calves. This complicated sole ulcer case is deemed as useful, since it was encountered on a calf.

CASE HISTORY

A male, aged of 1.5 months, Holstein calf was brought to our clinic due to lameness. According to the anamnesis, the calf's left front leg has been started to lame a month ago and foot gradually swollen. Clinically, left front leg was suffering from lameness at moderate to severe level. In front view, medial phalanx was swollen towards fetlock joint and medial hoof turned too medially. Ulcer was measured 5mm in diameter lesion and purulent discharge was seen on the sole-bulb junction with severe pain in palpation. Forceps, inserted through lesion, was head towards approximately 3-4 cm to coffin joint; there was cavity and forceps touched to the bone tissue *(Fig. 1c)*. Based on these findings, it was considered that coffin joint degradation has been developed. Furthermore, there were signs of pain during palpation of both profound and flexor tendons at level of distal metacarpus. Increased volume of soft tissue of medial digit and osteoarthritis of coffin joint were apparent in radiographs. Significant osteophyte formations were identified on the medial side of first phalanx, both sides of second and third phalanx in radiographs *(Fig. 1b)*. According to radiological and clinical findings, the case was assessed as complicated sole ulcer. It was complicated with purulent arthritis in coffin joint, osteitis in 1st, 2nd, 3rd phalanx with osteophyte formations, and tendinitis of profound and superficial tendons.

The calf was sedated with 0.1mg/kg im Xylazine HCl (Alfazyne®, Egevet). During clinical examination of the foot, suppuration discharge was observed from the lesion. Lesion cavity was irrigated *(Fig. 1d)* via catheter with 10% povidon – iodine solution (Betakon®, Aroma). Irrigation was continued until clean solution came back from the lesion cavity. Then, coffin joint and bone ends forming the joint were curetted and cavity was irrigated again. Crystal penicilline 1.000.000 IU (Penicilin G®, İ.E. Ulugay) was injected in the lesion cavity. Foot was dressed with antiseptic wet compress with 0.1% ethacridine lactate solution (Rivanolum EPG®, Galenik). Amoxicillin - clavulanic acid (Synulox®, Pfizer) was applied and recommended as parenterally (1 ml/20 kg/12 h). The owner was advised to apply wet compress with antiseptic solution for three times a day. For a three-week period, anticeptic wet dressing were replaced one a week and irrigation was applied. At the end of three weeks, purulent discharge was disappeared, and size of

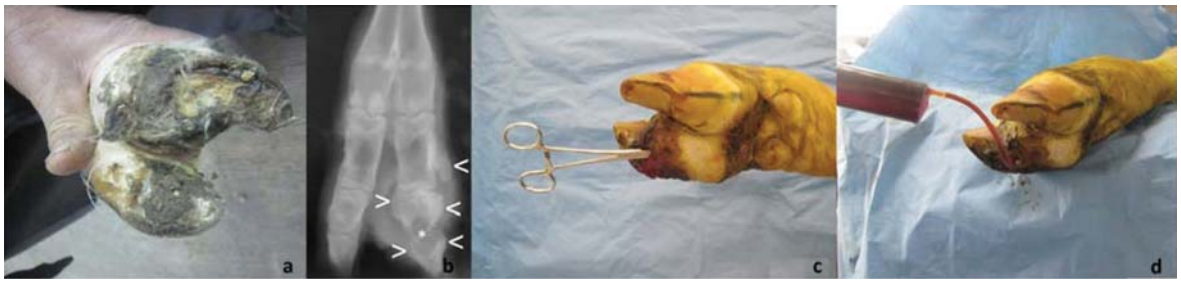

Fig 1. a- First glance of the sole, **b-** X-Ray image of the effected foot (>: osteophyte formations, * osteolysis in the coffin joint), **c-** Forceps, inserted through the lesion, **d-** Irrigation of the lesion cavity

Şekil 1. a- Tabanın ilk görünümü, **b-** Etkilenmiş ayağın radyografik görünümü (>: osteofitik üremeler, * Art. interphalangea distalis'te osteoliz), **c-** Lezyondan içeriye ilerletilen hemostatik pens, **d-** Lezyon boşluğunun irrigasyonu

Fig 2. a- Sixth week of the treatment (<: effected foot), **b** and **c-** After two months views of the case, taken by owner

Şekil 2. a- Tedavinin altıncı haftası (<: etkilenmiş ayak), **b** ve **c-** Olgunun iki ay sonraki görüntüleri, hasta sahibi tarafından çekilerek gönderildi

the lesion decreased; however there was still mild pain. At the end of the sixth week *(Fig. 2a)*, there was slight pain on lesion and no lameness; also swelling was decreased. Foot was dressed again for protection of the lesion region. The calf was brought from another city to our clinics and the owner had difficulties about it. Therefore, it was suggested to owner that, it is required to open the dressing and applying juniper or pine tar to the hoof, by himself. After two months from the beginning of the treatment, calf was able to use its leg without any lameness; and there was no any sign of pain on the lesion area as it is learned from the owner by telephone dialogue. At this period, photos (*Fig. 2b* and *2c*) were taken by the owner and submitted to us.

DISCUSSION

Sole ulcers are generally observed in adult dairy cows due to environmental, nutritional and infectious reasons [1-4]. In this presentation, we considered that a trauma caused by a sharp object can be possible reason of complicated sole ulcer in a 1.5-months-age calf. Beside, sole ulcers are more frequently encountered in the medial hoof than lateral in front limbs [6]; this is similar with this case.

All clinical signs of the reported case were similar with in adult cows. Sole ulcers may be complicated with navicular bursitis, tendinitis, arthritis and/or osteitis [4,6]. In this case, tendinitis determined with palpation and osteoarthritis of the coffin joint was determined on the radiographs. After inserting forceps through to the lesion, a cavity was identified and it had been developed till to the bone tissue; thus, it gave the impression of coffin joint degradation with neighboring tissues.

In this presentation, the case was treated as described for adult dairy cows [4,6,8,9]. However we were not able to apply plastic slipper on unaffected hoof, because slippers did not fit the hoof. It is reported [4] that uncomplicated sole ulcers could be treated in 45 days (6 weeks); and complicated sole ulcers required longer period of time compared to superficial ulcers encountered in dairy cows. In this presented case report, at the end of the sixth week, there was symptom of slight pain on the lesion but no lameness observed. After two months, it was reported by the owner during the telephone inquiry that the calf was completely healed.

As a result, although complicated sole ulcers encountered in adult cows, in our knowledge there is no report lameness cases related to the sole ulcers in the calves. In this report, the treatment of the case was performed in same as cows, which takes part in classical books and in literature. Sharing this case is deemed as useful for treatment of complicated sole ulcer that can also be seen in calves as a cause of lameness.

REFERENCES

1. Belge A, Ormancı S: Van ve yöresinde süt sığırlarında ayak hastalıklarının nedenleri, dağılımı ve sağaltımı üzerine çalışmalar. *J Health Sci Yuzuncu Yıl Univ,* 7 (1-2): 139-145, 2001.

2. Lischer CJ, Ossent P: Bovine sole ulcer: a literature review. *Berl Munch Tierarztl Wochenschr*, 114 (1-2): 13-21, 2001.

3. Şındak N, Keskin O, Selçukbiricik H, Sertkaya H: Şanlıurfa ve yöresinde sığır ayak hastalıklarının prevalansı. *J Health Sci Yuzuncu Yıl Univ,* 14 (1): 14-18, 2003.

4. Akın İ: The relationship between the histological quality of the newly formed hoof tissue and the levels of trace elements in blood serum and hoof tissues during the recovery period of some hoof diseases in dairy cows. *PhD Thesis,* Uludag University, Turkey, 2008.

5. Belge A, Bakır B, Gonenci R, Ormancı S: Subclinical laminitis in dairy cattle: 205 Selected cases. *Turk J Vet Anim Sci,* 29, 9-15, 2005.

6. Bell N: Lameness control in dairy herds part 4-sole ulceration-causes, treatment and control. http://www.nadis.org.uk/bulletins/lameness-control-in-dairy-herds/part-4-sole-ulceration-causes,-treatment-and-control.aspx, *Accessed:* 09.10.2012.

7. Enevoldsen C, Gröhn YT: Sole ulcers in dairy cattle: Association with season, cow characteristics, disease and production. *J Dairy Sci*, 74, 1284-1298, 1991.

8. Baran V: Sığırlarda tırnak bozuklukları ve bunların neden olduğu taban ulkuslarının sağaltımında antibiyotik ve enzim uygulamaları. *Kafkas Univ Vet Fak Derg,* 3 (2): 201-210, 1997.

9. Görgül OS: Cerrahi Hastalıklar. **In,** Alaçam E, Şahal M (Eds): Sığır Hastalıkları. pp. 486-496, Medisan, Ankara, 1997.