
NAIL ELONGATION AS A MEDICAL TREATMENT OF CHRONIC PODODERMATITIS IN GREATER ONE-HORNED RHINOCEROS (*Rhinoceros unicornis*)

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Abstract

Chronic pododermatitis is a poorly understood but common medical problem in adult captive *Rhinoceros unicornis*. A survey of European zoos found 100% of breeding males and approximately 50% of adult females affected.¹ Chronic pododermatitis most commonly affects the hind feet, and is described as nonhealing fissures and ulcers between the pad and nail, pad overgrowth, pad bruising, and in severe cases, inappropriate overgrowth of the middle nail with separation of that nail from the pad.² All of these conditions can lead to chronic infections and continued maceration of the affected tissue. Possible factors contributing to this condition most importantly include inappropriate substrate and limited access to water or mud wallow.^{1,3} Diet, massive body weight and genetic predisposition are also suspected as contributing factors.^{1,3}

Management of this condition is based mostly on improvements in husbandry, cultures, antimicrobial therapy, and trimming of the affected tissue or nail.¹ According to observations of wild *R. unicornis*, normal foot conformation consists of nails that are long and slope around the pad, allowing most weight bearing on the nails, while the pad becomes hardened and concave in appearance.¹ This natural conformation must be taken into careful consideration when trimming is utilized as a form of medical therapy.

A developing technique in the medical management of chronic foot disease in *R. unicornis* is nail elongation prosthetics. The goal of nail prosthetics is to mimic the naturally elongated nail of wild rhinoceros. When the nails are short, excessive weight bearing, ulcerations, and bruising of the footpad occurs. Nail prosthetics were first explored in Europe. Subsequently, the Los Angeles Zoo has medically managed a 33-yr-old female *R. unicornis* utilizing Equi-thane™ super fast hoof adhesive (Vetec, Oxnard, CA 93033 USA) to build up all nails on both front and back feet. The National Zoo has utilized a similar product and technique on a male *R. unicornis*, adding metal horseshoes to each nail. Both of these cases were successful at decreasing the trauma and continued infections of the pad, allowing the confirmation to more closely resemble their wild counterparts. The technique is best utilized in cases where there is only damage to the pad, and separation between the pad and central nail has not yet occurred. This developing technique of nail elongation may be a promising option for managing some forms of chronic pododermatitis in *R. unicornis*. However, long term preventative care, appropriate husbandry, combined with medical care is the cornerstone

to improvements in foot care of *R. unicornis*.

LITERATURE CITED

1. Atkinson, M.W., B. Hull, A.R. Gandolf, and E.S. Blumer. 2001. Long-term medical and surgical management of chronic pododermatitis in a greater one-horned rhinoceros, (*Rhinoceros unicornis*): a progress report. Proc. Int. Elephant Rhino Res. Symp. Vienna, Austria, June 7-11:159-163.
2. Von Houwald F. 1997. Investigation of the prevalence and causes of chronic foot problems in greater one-horned rhinoceroses (*Rhinoceros unicornis*). MSc. Project Report, University of London: 50 pp.
3. Von Houwald F., and E.J. Flach. 1998. Prevalence of chronic foot disease in captive greater one-horned rhinoceros (*Rhinoceros unicornis*). Proc. Second Sci. Meeting European Assoc. Zoo Wildl. Vet. 21-24 May 1998, Chester. EAZVW: 323-327.