

DIAGNOSIS AND TREATMENT OF BUMBLEFOOT IN RAPTORS

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LESA THOMPSON MA, BVM&S, DZooMed(Mammalian), MSc, MRCVS discusses the causes, signs and assessment methods to adopt when presented with pododermatitis in birds of prey, followed by various therapy options

RAPTORS include Falconiformes (eagles, falcons, hawks and vultures) and Strigiformes (owls).

Although mostly kept by experienced falconers for such purposes as hunting and pest control, they are sometimes kept by owners interested in having an unusual pet. Problems presented to the veterinarian can be varied.

Unlike mammalian species, birds spend most of their time standing (except when flying, of course) or using their feet to catch prey or feed – thus, foot health is incredibly important. Owners should check their bird's feet on a daily basis for early signs of disease, as delaying treatment until pathology has progressed may mean a cure is not possible.

This article will discuss the common presentation of pododermatitis, also known as bumblefoot.

Aetiology

As with other “exotic” species, often, disease processes are related to husbandry problems. This condition is no exception and, although the aetiology is multifactorial, the most common aetiology

relates to some deficiency in husbandry.

Raptors will either have a bow perch and/or a block to stand on. These can be formed of, or covered with, a multitude of materials, including wood, leather, cork, roughened concrete or artificial turf. The bird may be tethered or housed in an aviary – if tethered, the bird should be flown at least five days in seven. The area surrounding a perch is often covered in pea gravel or sand, which can be cleaned and disinfected. A hard abrasive perch, or one of poor anatomical shape, will excessively wear all or part of the skin on the weight-bearing surface of the foot.

Overgrown talons (sometimes relating to inappropriate perching material) may puncture the skin of the foot. Bruising to the foot due to some form of trauma may predispose the condition. Some cases of pododermatitis may relate to trauma caused during capture of live prey. Poor nutrition – for example, hypovitaminosis A – may affect epithelial integrity and progress to pathology.

Weight gain associated with a lack of exercise will result in extra pressure on the feet. It is worth noting any damage to the contralateral limb may result in the bird putting extra weight on the other foot, and pododermatitis is frequently seen. This may occur even in cases of unilateral pododermatitis, so it is important to closely monitor the contralateral foot in birds with unilateral disease.

Pathology

The normal healthy skin on the plantar foot has a rough surface, with dermal papillae for protection. Toe pads are local skin modifications, with soft tissue cushioning adhered to underlying bone.

The pathological mechanism of pododermatitis appears to be a combination of repeated trauma to the foot; damage to – or reduction of – blood supply, leading to subcutaneous tissue damage; and increased susceptibility to infection (particularly colonisation by pathogenic staphylococci). The host defence system is reduced and a chronic granulomatous inflammatory reaction results.

Several grading systems have been proposed for this condition. Using Remple's (1993) system, in grade one pododermatitis lesions, the dermal papillae are flattened, or proliferated with formation of corns. Infection is seen in grade two, with swelling occurring in grade three lesions. By this stage, the lesions are also hot and painful. Once deep structures are infected, the lesion is considered to be grade four. Grade five is considered end-stage, with loss of function of the foot.

Clinical assessment

With the above aetiologies and pathological processes in mind, a full history should be obtained from the owner. A full clinical examination should be conducted, including an assessment of the bird's body condition and weight. Particular attention should be paid to the contralateral foot as

lesions often become bilateral, even if not initially so.

If infection is suspected, swabs should be taken for culture – if lesions are deep, samples obtained during surgical debridement should be submitted for analysis. When a chronic or severe lesion is seen, the feet should be radiographed to assess for bone involvement.

Treatment

Small deficits in husbandry conditions should be identified as they may slow (or even prevent) healing, or lead to recurrence after treatment. Therefore, after discussion of husbandry methods, it is useful to advise the owner of improvements that may be made – particularly relating to perch design and nutrition. Other treatments depend on severity of the condition. It is suggested continuing to fly birds with early stage pododermatitis is beneficial as it increases blood circulation in the feet, and thereby aids healing.

For early grade lesions, improving husbandry conditions may be sufficient to prevent further deterioration and allow healing, including meticulous cleaning of perches to reduce the risk of infection.

For lesions that have progressed, consider use of topical medication to keep the feet clean and the skin in good condition. The owner should wear disposable gloves when cleaning or applying medication to the feet to reduce the risk of transferring skin commensal bacteria to the lesions.

If infection is present, topical and/or systemic antibiotics should be administered. Ideally, these should be based on culture and sensitivity results. Suggested options include amoxicillin/clavulanic acid or marbofloxacin. Antibiotics should be continued for one week as a minimum.

The contralateral foot often becomes affected due to increased weight bearing, so it should be monitored closely. Consider use of protective bandages on this foot to reduce risk of pododermatitis lesions developing.

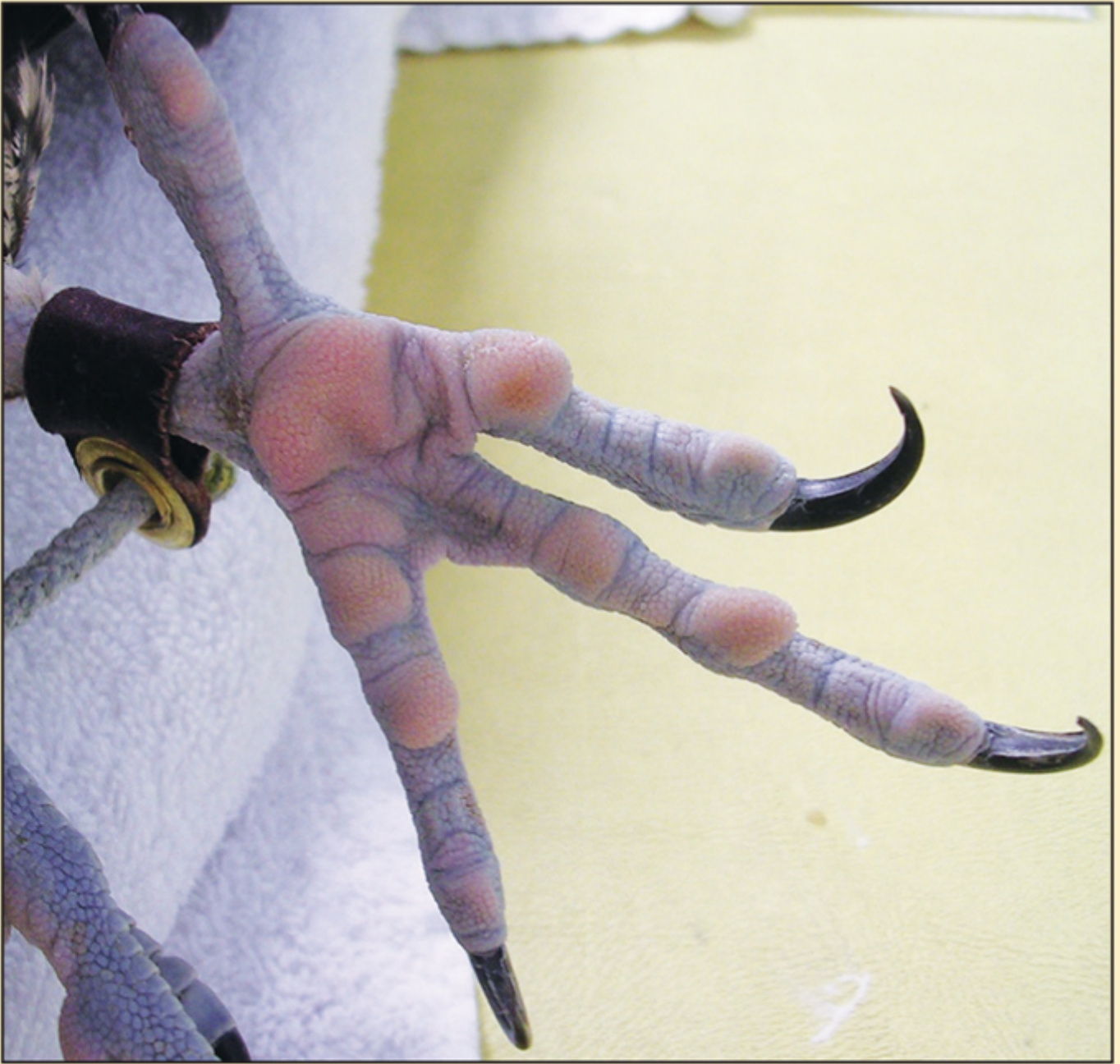
In more severe lesions with deep infection and granulomatous material, surgical debridement is necessary. For these cases, protective dressings after surgery should be used to protect the wounds during healing, with regular bandage changes. Raptors in general do not interfere with such dressings. Be careful not to apply dressings too tightly, further compromising blood supply to the foot. If pain is present, analgesia such as NSAIDs should be given. If there is radiographic evidence of bone involvement, or if the bird cannot perch or grasp food with the foot, the prognosis is very poor and euthanasia should be considered.

Conclusion

Pododermatitis can be a frustrating condition to manage. Owners should be forewarned that

treatment is often prolonged and relapses can occur, so they should remain vigilant.

- Please note drugs in this article are used under the cascade.



A young gyrfalcon hybrid with normal feet.



An eagle with pododermatitis lesion centrally – note the smoothing of the skin with loss of normal papillae.



A Bonelli's eagle on a bow perch.



An eagle with a protective bandage on the foot.

