European Association of Zoo- and Wildlife Veterinarians (EAZWV) 4th scientific meeting,
joint with the annual meeting of the European Wildlife Disease Association (EWDA)
May 8-12, 2002, Heidelberg, Germany.

SEVERE FEATHER LOSS AND ABNORMALITIES („PINCHING OFF“) IN A JUVENILE FREE-LIVING WHITE-TAILED EAGLE (*HALIAEETUS ALBICILLA*) FROM NORTHERN GERMANY

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Extended abstract

One of 28 free-living white-tailed eagles (*Haliaeetus albicilla*) that hatched in the federal state Schleswig-Holstein (northern Germany) in 2001 suddenly showed a severe symmetrical loss of flight feathers on both wings at the age of 10 weeks. However, loss of body contour feathers was not observed. No obvious preceded incidence could have explained these clinical signs which are described as „pinching off“ (1). The „Pinching off“ syndrome has been observed in several raptors (2), among them two free-living young white-tailed eagles from Schleswig-Holstein (3). However, a scientific explanation for this phenomenon is still missing. Trauma, pathological agents, hormonal disorders or genetic depression are discussed to be involved in the aetiology. In this study we focussed on pathological agents such as parasites and viruses. In the following the clinical signs are documented and preliminary results of several investigations are presented.

Being unable to fly, the white-tailed eagle described in this study was captured at the age of approximately 3 months and brought to the raptor rehabilitation centre at the Wildlife Park Eekholt. A thorough clinical examination including x-ray was performed. Except for the feather loss and abnormalities in both wing- and tail feathers no clinical signs could be diagnosed. However, numerous biting lice of the genus *Colpocephalum* were found especially on the wings. The bird was successfully treated with 0,01% Heptenofos (Ragadan□) solution. A possible correlation between the biting lice and the feather abnormalities was excluded because the clinical signs were still observed after this treatment.

Nearly every second primary feather was missing on both wings. The remaining primaries as well as the secondaries and also the tail feathers showed significant changes in their structure. In most of these feathers not only the calamus and rachis was deformed but also the typical pennaceous character of the vane was missing. Moreover, the feathers were easily bendable and the rachis often showed longitudinal splitting. Lost primaries were permanently replaced by new abnormal feathers, which are also moulted after a while. The abnormal secondaries have not yet been moulted.

Biopsy feather material and blood samples were taken for parasitological and virological investigations.

A small number of quill mites were detected by histological examination of the pulp. Consequently, the bird was treated with 0.2 mg/kg Ivermectin 5 times in two-week intervals, and after a 6 weeks brake, three times with 0.4 mg/kg Ivermectin in weekly intervals. However, this treatment did not

improve the feathering conditions. Therefore, the mites are presumably not the causal agents of the „pinching off“ syndrome.
Blood chemistry showed no abnormalities except for a rise of lactate dehydrogenase (LDH). However, an endoscopic investigation did not give evidence for any pathological process.
Furthermore, no evidence for the presence of viruses like avian polyomavirus (APV) or circovirus was found by preliminary electronmicroscopical examinations. Neither could APV be detected in feather biopsy material or in blood by polymerase chain reaction (PCR). Blood and feather material is currently tested for circovirus using PCR and sequence analysis.
In conclusion, clinical signs of severe feather loss and abnormalities („pinching off“) of yet unknown aetiology in a free-living white-tailed eagle are presented and preliminary results will be discussed.

Zusammenfassung

Ein freilebender Seeadler (*Haliaeetus albicilla)* aus Schleswig-Holstein zeigte im Alter von 10 Wochen plötzlich einen Verlust mehrerer Handschwingen an beiden Flügeln. Dieses klinische Bild wurde in der Vergangenheit mehrfach bei Greifvögeln (2), u. a. bei zwei Seeadlern aus Schleswig-Holstein (3) beobachtet und ist als “Pinching off” Syndrom beschrieben worden (1).
Die klinische Untersuchung des flugunfähigen Seeadlers ergab, abgesehen von den Federverlusten an den Schwingen und am Stoß, keine auffälligen Befunde. Ein starker Befall mit Mallophagen (Gattung *Colpocephalum)* konnte erfolgreich behandelt werden. Eine Korrelation zwischen den Mallophagen und den Federabnormalitäten wird ausgeschlossen.
Die klinische Untersuchung des Federkleides ergab, dass fast jede zweite Handschwinge fehlte, und die noch vorhandenen Schwungfedern, sowie die Stoßfedern auffällig in ihrer Struktur verändert waren.
Histologisch wurde eine geringe Anzahl von Federspulmilben in einem Blutkiel gefunden. Nach einer Therapie mit Ivermectin konnte jedoch keine Verbesserung des Gefiederzustandes festgestellt werden. Ein ursächlicher Zusammenhang zwischen den Federspulmilben und dem klinischen Erscheinungsbild des Seeadlers wird daher nicht angenommen.
Weder das große Blutbild noch eine endoskopische Untersuchung ergaben Hinweise auf ein pathologisches Geschehen. Darüber hinaus konnten elektronenmikroskopisch keine Anzeichen für ein Vorhandensein von Viren, wie aviären Polyomaviren (APV) oder Circoviren, gefunden werden. Auch eine Untersuchung auf APV mittels PCR verlief negativ. Derzeit wird Biopsiematerial und Blut auf Circoviren (PCR) untersucht.
Zusammenfassend werden die klinische Symptome einer ausgeprägten Gefiederstörung von bisher ungeklärter Ätiologie (“Pinching off” Syndrom) bei einem freilebenden Seeadler präsentiert und vorläufige Untersuchungsergebnisse vorgestellt.

Résumé (??)

Key words: *avian polyomavirus, biting lice, circovirus, endoscopy, electronmicroscopy, feather abnormalities, feather loss, Haliaeetus albicilla, PCR, pinching off syndrome, quill mites, white-tailed eagle*

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