

# Respiratory Sinusitis in Raptors - a clinical approach and treatment protocol

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Sinusitis is a well known clinical problem regularly affecting captive birds of different species, but most frequently diagnosed in common breeds such as grey parrots, budgerigars or cockatiels. In raptor species the symptoms are diagnosed most commonly in goshawks and sparrowhawks, but cases in falcons and eagles have also been recorded. In raptor species used for hunting the onset of clinical signs occur early, the owner notices a "noisy breathing" immediately after flight and exercise. Exotic birds usually manifest discharge from the sinuses which stick to the feathers on the back of the bird. In 70% of cases the clinical symptoms manifest only after exercise, which can be a forced flight in a cage or in raptor species where a so called "stress test" is applied.

Avian veterinarians call a forced jump from the glove while a bird is tied on leash "stress test". This forces the bird into heavy breathing and typical symptoms manifest that are necessary for different diagnoses. It is important to exclude tracheal obstruction, aspergillosis or lung edema caused by clostridial toxins. Open beak breathing, a noise from the choanal area or filling up/pumping the supra and infraorbital sinuses - these cases are the easiest to treat and a trans choanal flush with saline solution 2-3 times a week usually unblocks the sinus and the patient recovers. Trans-choanal flushing can be used in awake birds, but Isofluran anesthesia make all procedures easier. The bird is held head down with open beak and 10/20 cc saline is flushed from the nares and collected from the choanal opening in a petri dish. Harvested material can be used for cytology and for further decisions, for example if antibiotics or other disinfectant like F10 should be added in the next flushing solution. These cases have no significant change in biochemical and haematological panel. As preventative measure single dose Vit A is applied.

Application of Vit A is more important in birds of prey, as cases with sinusitis increase as we see more raptors fed on frozen food. Long term freezing decreases the Vit A content in meat. Sinusitis symptoms are also more frequent in ornithophagous species like goshawks, sparrow hawks and peregrine falcons, which require fresh meat daily. In exotic species, long term storage of a commercial diet can also play a significant role.

The most severe cases manifest extensive swelling in the periocular region. Choanal culture swabs were usually positive in resistant *Pseudomonas sp.* or *E.coli*. In raptors fed on pigeon or chicken meat *Mycoplasmal* infection should be excluded. Treatment protocol, except the trans choanal flush, requires also sinus perforation and debridement and flushing of the sinus content. This open-wound, placed on an unfeathered part in the periocular region, heals very fast and needs to be refreshed during regular flushing.

The author presented a comparison of contrast radiography of sinuses with the anatomical structures in the rostral region of birds and discussing the surgical difficulties of the approach to all closed cavities. As a solution, in the most severe blockages cases, a Trans-rostral endoscopy of the infraorbital sinus cavity was effective. This procedure opens the most ventral chamber of the sinus, enabling visualisation as well as application of an appropriate antibiotic. Culture swabs are taken directly from the infected sinus and not from choanal opening with the mixed flora of the beak cavity. Limitations of the TRSE-Trans rostral sinus endoscopy can be the size of instrumentation and the anatomical limitation in some species. The author found good practical application of this procedure in most raptor species.

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