

the Vet's Corner

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DISEASES OF THE RESPIRATORY TRACT A Tale Of Three Sites — Part 2

The portal of entry for a breath of air also serves as a doorway into the body for the microorganisms carried on the droplets of moisture in that inspired air. The external nares or nostrils become plugged, sticky or discolored in disease and since these signs may be our only warning, they must be taken seriously. They reflect the body's reaction to fungi and molds like *Aspergillus* or bacteria such as *Pseudomonas*, *Staphylococcus* or *Streptococcus* or even viruses.

Because the cranial sinuses are connected to the eye by the nasolachrymal duct, the eyelids and/or area surrounding the eye may swell and appear inflamed. The roof of the mouth, back of the throat, tongue and base of the tongue are all sites of possible infection and should be examined for inflammation, swelling, departure from normal color and presence of abnormal material. Very often a bird showing respiratory difficulty will, upon closer examination, be seen to have a swollen larynx or tongue. This decreases the diameter of the trachea and restricts the amount of air which can be inspired. Pathology of this oropharynx area can be caused by bacterial or fungal infection, chemical irritation or even allergy. *Staphylococcus*, *Streptococcus* and *E. Coli* bacteria, to name a few, have commonly been cultured from this area along with such molds as *Candida*, *Aspergilla* and *Penicillium*.

The larynx may also become plugged with mucus and foreign material. Normally the trachea secretes this mucus when irritated by the stimulus of foreign objects, i.e., dust, chemical, mites, worms or microorganisms. The internal surface of the trachea is covered with minute hair like structures. These beat in the direction of the larynx, away from the lungs, creating

waves of mucus moving up to the larynx of glottis and hopefully out into the mouth.

This mucus wash along with an explosive cough is nature's way of removing foreign material from the trachea and lungs. Unfortunately, due to the presence of microorganisms and pus, the material may become too thick to be expelled and the result is an accumulation or plug which chokes the bird.

Pneumonia, a term often misunderstood, is by definition an inflammation of the lungs. This very broad understanding includes general irritation, parasitic invasion, microorganism infection, allergic reaction, fluid accumulation, inorganic and organic chemical reaction and many others. Thus almost anything is capable of producing a pneumonia.

The microorganisms previously mentioned plus many more are all able to reproduce in this area rich in the necessities, favorable to their growth, i.e., heat, moisture and nutrient intra and extracellular fluid. The much touted *Aspergillosis* is, to my personal knowledge, quite rare. Once observed, the fuzzy cotton like growth is not to be forgotten. *Candida*, a yeast-like fungus, is far more common and must be differentiated by microscopic examination or culture. Bacteria and the body's defensive white blood cells often mix to form what is generally known as pus. This material often fills the lungs creating an almost solid mass incapable of inhaling air. On a percentage base it may affect one to ninety plus percent of the lung cavity volume. In my experience if more than 10% of the lungs are affected the condition is terminal.

The mere presence of certain microorganisms capable of producing toxins is often fatal. These toxins are absorbed into the blood stream and carried to all parts of the body producing symptoms related to the tissues they affect. For example if a toxin is neurotoxic it destroys and/or alters brain and nerve function and produces tremors, convulsions, coma and death. Other toxins produced by bacteria destroy endothelium, the lining of blood vessels and heart. This may indirectly cause a heart attack or at the very least rupture of the blood vessel with resultant hemorrhage and acute or chronic anemia.

The mesobronchi, air sacs and pneumatic bones, like miniature Astrodomes, are like an arena of open space and planar surfaces in an oxygen rich "controlled climate". Here the branching hyphae of molds spread out in colonies by blankets and the mites multiply undisturbed except perhaps by an inhaled draft of medicated aerosol malathion.

I have attempted to limit this column to foreign invaders causing pathology and will hold such conditions as tumors, benign and cancerous, and allergies, in abeyance for future columns.



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