

Mycobacteriosis – A Complex Disease

by the World Parrot Trust

Mycobacterium, a genus of the family Mycobacteriaceae, is a group of bacteria which is extremely prevalent in veterinary and human medicine – these pathogens cause problems in everything from cows to humans to monkeys, which make them opportunistic organisms with highly variable hosts. Mycobacteriosis, or tuberculosis caused by infection with *Mycobacterium bovis*, *M. avium* and *M. tuberculosis*, is a major cause of zoonotic disease, that is, disease communicable between humans and animals. *Mycobacterium avium* (of which there are 20 different strains) is a serious pathogen in the poultry industry, and can be found in pet birds.

In parrots, tuberculosis (TB) is mainly caused by *M. avium*, and less frequently *M. intracellulare* and *M. genovense*. These may be transmittable to humans, particularly in those who are immunocompromised (having weak immune systems), or very young or elderly people. *M. avium* is the most common cause of TB in birds, and is found in soil and water. It is an organism that can survive for long periods in the environment and in carrier birds. Transmission of this bacteria occurs through ingestion or inhalation of aerosolized (floating in air) matter – dust from feathers and dried fecal matter.

Three types of disease occur in birds:

Classic Form

- tubercles or granulomas form in the organs – mainly liver, lungs, spleen, intestines, with rare pox-like lesions on outer skin

Paratuberculous Form

- lesions are found in intestinal tract (seen in Amazon parrots, *Pionus spp.* and *Brotogeris spp.*)

Non-tuberculous or Atypical Form

- is difficult to recognize (seen in finches, canaries and small parrots)
- liver enlarged, increased mycobacteria found in cytology and histopathology

In most forms other symptoms seen include emaciation, weakness, wasting, lethargy, lameness and diarrhoea. The paratuberculous form mimics proventricular dilatation disease (PDD), therefore, it is vital to get a correct diagnosis, as PDD does not affect humans. Other signs include increased urination, abdominal distension, and difficulty breathing. Avian TB is sometimes difficult to diagnose in birds due to intermittent fecal shedding and obscure signs; definitive diagnosis comes from isolating the organism from feces or organs at necropsy.

Mycobacteriosis – Avian and Human Tuberculosis

TB in Humans

People can become infected with *M. avium* and *M. tuberculosis* (human TB). In people the symptoms are similar: adults may display respiratory signs, and further diagnosis is by x-ray. In general, however, healthy adults are unlikely to become infected with *M. avium*.

In young children the cervical (neck) lymph nodes may become swollen with infection. Persons with **compromised immune systems** suffer the most – and are at greatest risk. The syndrome can affect:

- bones and joints
- cervical lymph nodes
- bronchi
- eyes
- larynx
- lining of the abdominal cavity (peritoneum)
- lining of the brain and spinal cord (meninges)
- lining of the heart (pericardium)
- reproductive organs
- skin
- small bowel and stomach

Both birds and people infected with TB should be quarantined, not having contact with other people and/or birds as, again, these are communicable from bird to human, human to bird (birds can become infected with *human TB* as well). All birds in contact with an infected bird should be quarantined for two years and tested for the disease at six-to-twelve week intervals. Treatment for everyone and everything concerned is long and difficult – *Mycobacterium* is difficult to eradicate. People with lymph node involvement often need to have them removed. Antibiotics are the treatment of choice otherwise. In all cases tuberculosis is a reportable disease, that is, public health should be involved.

As with all infectious diseases the best prevention is quarantine and testing of new birds and a strict routine of cleanliness and disinfection. Physical barriers between cages can prevent dust drifting from bird to bird. Preventing contact with wild birds is vital; pet birds that are housed outside must be protected with proper shelter from above. Frequent turning of soil under outdoor cages can help to expose the pathogen to the sun and destroy it. And preventing contact with known carriers of the disease will protect humans and birds alike – helping to stop the spread of a devastating, debilitating illness.

Mycobacteriosis – Avian and Human Tuberculosis

This article is provided for information purposes only and should not replace a veterinarian's or doctor's diagnosis. The World Parrot Trust encourages people caring for parrots or family members who are unwell to seek help from a qualified professional.

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