CHLAMYDIA INFECTION IN BIRDS

Have you ever had a young Cockatiel, Budgerigar or other species of parrot with a squinty red eye and dirty care? If so, almost certainly the cause was Chlamydophila psittaci.

Nature of the Disease
Chlamydophila psittaci are the organisms that cause the disease called Psittacosis (or sometimes Ornithosis, Chlamydiosis or Chlamydophilosis). Infection can cause a variety of problems and symptoms but usually it is the respiratory system that is affected. Infection is very common. Chlamydophila psittaci are single-celled organisms that are carried within the system of the vast majority of parrots and pigeons virtually all the time. Certain other birds, including chickens, can also be infected.

Most aviaries have one or more resident strains of Chlamydophila. Most birds are passively infected by their parents at a young age but, rather than becoming sick, simply mount an immune response and start to form a natural immunity to the organism. Ongoing low-grade exposure through early life tends to reinforce and strengthen the birds' developing natural immunity. Most parrots and pigeons by the time they are six months of age, and almost all individuals by the time they are 12 months of age, have developed a sufficiently strong natural immunity to protect them from disease. For this reason, disease in birds older than 12 months is uncommon. Stress in the form of bad management practices or a poor aviary environment puts any natural immunity that the birds have developed to the test.

Disease occurs in one of two ways:
1. When birds come under stress and the natural immunity that they have developed is not strong enough to protect them.
Disease will occur most commonly in this situation in young birds. Young birds simply have not lived long enough to form the natural immunity of an older bird. As a result, it takes less stress to trigger a disease outbreak. Overcrowding, low hygiene and a poor aviary environment are all common causes of stress.

2. When birds come in contact with a new harmful Chlamydial strain to which they have no immunity.
Birds develop an immunity to the Chlamydial strains in their aviary. New birds can bring in a new Chlamydial strain, starting a disease outbreak. Similarly, an introduced bird may become unwell because it comes in contact with a resident aviary strain that it might not have encountered before. Birds that have been in a pet shop or market are particularly at risk. Often these birds are young with a low natural immunity. There are many inherent stresses associated with pet shops. Apart from transport and the change of housing, there is usually more noise, a higher degree of interference and higher stocking densities. At the same time, birds from many backgrounds come into intimate contact, offering an increased risk of disease exposure.

Signs to look For
Chlamydophila psittaci, which typically causes an upper respiratory infection, targets the bird's sinuses, membranes around the eyes and lining the eyelids (conjunctiva) and the upper windpipe. Birds have large sinuses compared to mammals. Draw an imaginary line across a bird's head level with its eyes. In most bird species there is no brain between this line and the base of the beak. This area is occupied by sinuses.
Sinuses are bony cavities lined by a membrane similar to that in our nose. Like the membrane in our nose, when infected, the membrane lining the sinus weeps inflammatory fluid. The sinuses are interconnected through narrow ducts and ultimately drain under the cere and down into the slot in the roof of the bird's mouth (choana). Often fluid forms in a sinus quicker than it can drain away, which results in

the sinus filling with fluid. Because the outer walls of a bird's sinus system are soft tissue (unlike bone in mammals), build-up of the fluid causes the sinus to bulge. As the fluid drains from the swollen sinus, some will trickle out through the cere, causing sneezing and matting of the feathers at the beak base. As fluid flows into the choana, it can become blocked, resulting in the bird being unable to breathe through its cere and having to open its beak to breathe in an action that looks like panting.
Usually Chlamydophila psittaci confine themselves to the upper respiratory tract, however, the organism has the potential, particularly in run-down or poorly managed birds, to cause internal disease. The spleen, liver, bowel, lungs, air sacs and genitals can all be affected. These birds become quiet, lose weight, develop green diarrhoea and can have trouble breathing. Once the disease is established, significant numbers of birds will die if treatment is neglected. Older birds whose genitals are affected can display a variety of reproductive problems.

Is It Really Chlamydophilosis?
Often the signs displayed by the birds are very suggestive of the problem. However, a variety of tests and diagnostic methods is available to diagnose the disease. Each method has its own advantages, limitations and inherent costs. Your veterinarian can advise as to which one is appropriate for your situation. In live birds, there is a test that can detect the organism in either droppings, eye and cere discharges, or tissue samples. Another test can detect the presence of either previous or current infections from a blood sample. Birds that die often display visible changes at autopsy that are also very suggestive of the problem (eg a large spleen or liver and inflamed air sacs). If needed, tissue samples can be collected during autopsy and examined under a microscope, where special stains actually enable the organism within the bird's cells to be seen.

How to Manage an Outbreak
The drug of choice to treat Chlamydophilosis is an antibiotic called doxycycline. This is available as an injection, an oral paste, in tablet form and also as a water-soluble powder. In theory, if birds are treated continuously for 30–45 days, it is possible to completely clear Chlamydophila from their system. Because of the inconsistent way that many birds drink, if the aim is to eradicate the organism from an individual, then the only realistic approach is to individually dose each bird daily either orally (with either a tablet or paste or with the antibiotic in solution via a crop needle) or by injection. Most injections last 2–3 days, requiring two to three visits to the veterinarian weekly for approximately six weeks. Although treating to eradicate the organism from a single bird actually appears to be the logical way to go, this is not always so. If the organism is cleared, this means that the bird will have no further ongoing exposure and its natural immunity will quickly wane. If this bird then comes in contact with the organism again (and this is very likely if it comes in contact with another bird), it will be extremely vulnerable to infection.

Because Chlamydophila infection often appears as an eye problem, with the birds presenting with a red squinting discharging eye, some fanciers attempt treatment with antibiotic eye drops. Because the disease is systemic, treating the eye only is of limited value and a much better response can be expected if antibiotics are given orally. Bathing the eye with warm water or saline will, however, remove bacteria and their toxins as well as dried discharges. This will not only make the bird more comfortable but hasten the healing process.

Chlamydophila psittaci do have the potential to infect people. Fortunately, most people are naturally resistant to infection. However, people whose own health is already compromised are more susceptible. Birds are important but people are much more important. Therefore, if a person at risk is involved with a bird's care, often the decision is made to treat to eradicate the organism or dispose of the bird.

A recent study in America conducted over 12 months monitored the health of 18 million bird fanciers.

During this time, 78 people caught the disease. This represents one in approximately 231,000. This is obviously a very low incidence rate so although there is a risk, this risk needs to be kept in perspective.

Often birds are treated until they are well and then treatment is withdrawn. How long they need to be treated depends on the initial severity of infection and their response to treatment but treatment times of 7–14 days are common.

Obviously, when a single pet bird is infected, just that bird is treated. However, what should one do if an outbreak occurs in an aviary? Basically, the answer depends on the number of birds affected, although factors such as whether or not the birds are breeding will also influence the decision. If only a small number of birds are clinically affected, then these are separated and treated, usually only until they are clinically well.

In the meantime, it is important to provide good ongoing care, try to identify and correct any predisposing stresses, and closely monitor all other birds. Chlamydophila psittaci can survive in droppings for about seven days, so a thorough clean of the aviary will decrease its exposure to the birds. It is always a good idea to have a veterinarian check not only the sick birds but also the other birds. This will identify any concurrent disease that may be present, in particular, parasitism. A veterinarian can also review the birds' nutrition and general care.

If a significant number of birds become infected or there is evidence of spreading infection so that a new bird becomes clinically sick every few days, then a flock treatment is usually recommended. Often the fact that birds continue to become unwell is not so much the result of the organism spreading from bird to bird but rather the result of all the birds having been under the same stress and 'breaking down' at the same time. This is why it is so important to review aviary management and environment when faced with a disease outbreak. Any flaw here will need to be identified and corrected. If this does not occur, response to even correct medication will be poor or the condition will quickly recur when medication is withdrawn. Usually, when treating flocks, a single course of medication is given, often of 7–14 days, although occasionally 'pulse' treatments are given, eg three days every 2–3 weeks. This tends to keep the Chlamydophila under control while still allowing the birds some exposure to it. With ongoing good care, this enables the birds' natural immunity to rise with time. Often, after several courses, there is no need for further treatment, medication is withdrawn and the birds remain well.