

PET BIRDS DISEASES

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Species of Pet Birds

African Grey Parrot



Amazon Parrot



Budgerigars



Photo courtesy TFH Publications

Canaries



Photo courtesy TFH Publications

Cockatiels



Macaws



Zebra finches



Photo courtesy TFH Publications

Goffin's Cockatoo



Fischer's Lovebird



Photo courtesy TFH Publications

Viral Diseases of Pet Birds

Pacheco's Disease

Causative agent:

- Pacheco's disease is a highly infectious and deadly bird illness.
- It is caused by the rapidly spreading Pacheco Disease Virus (PDV) which is a member of the Herpes viruses and especially affects birds in the parrot family.
- Once infected, the bird may or may not develop symptoms, but usually dies within a few days of contracting the disease.
- Also known as Parrot Herpesvirus, causes acute **psittacine viral hepatitis**.
- This family of viruses also includes for example the herpes simplex responsible for cold sores and herpes zoster associated with shingles in humans.
- Three principal strains of Herpes virus are found in birds: one affects hatchability of eggs in budgies; another produces upper respiratory disease in Amazon parrots; the third is responsible for Pacheco disease.
- However within these strains are viruses that cause disease, viruses that lay dormant and viruses that are inert.
- First observed in the 1930's and thought to attack only Psittacines, there is one documented case of a Keel-billed Toucan succumbing to Pacheco's Disease.
- New World (from the Americas) parrots seem to be more susceptible to Pacheco's Disease than Old World parrots (from Australasia and Africa).

Transmission:

- Usually, Pacheco's Disease is transmitted via contact with contaminated food, water, or feces. Less common is airborne transmission.
- The virus can be contracted from an obviously ill bird as well as from carriers, who appear asymptomatic, but can shed the virus in feces as well as through ocular and respiratory secretions.

- At risk populations include imported birds, those housed in aviaries and pet stores in large groups, and those in quarantine stations.
- Feather dust, dander, and contaminated air, food, water and living surfaces also help spread this deadly disease.
- Stress due to losing a mate, breeding, relocation, climate changes and other environmental changes, can trigger the infection, as well.
- It is important to note the Pacheco's disease herpesvirus can survive outside the bird's body for a long time, and thus infect a bird from any contaminated surface.
- Herpes viruses become activated under conditions of stress, fatigue and malnutrition. These conditions may exist for birds in situations of transport, malnutrition, crowding and breeding.

Signs:

- Full blown Pacheco's disease can kill a bird in less than 24 hours from the initial onset of symptoms such as loose and watery droppings, yellow tinged urates and lethargy.
- In milder forms of the disease, the birds can appear tired, regurgitate, lose their appetite and develop loss of balance and co-ordination.
- The incubation period for Pacheco's Disease is 3-14 days. Unfortunately, the most common symptom is sudden death, with diagnosis confirmed at necropsy.
- Other symptoms can include diarrhea with a rapid progression to death within 48 hours.
- One may also see regurgitation, yellow-green urates, and acute central nervous system signs such as tremor, imbalance, or seizures.
- Green colored feces, due to liver damage
- Listlessness

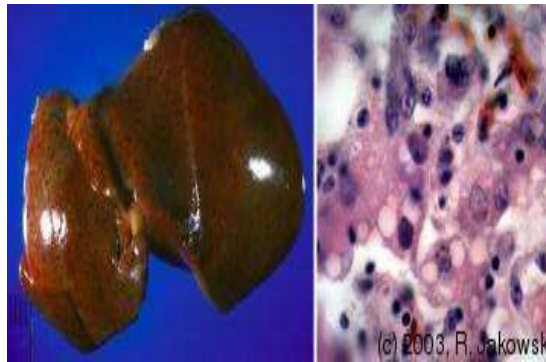


- Diarrhea

- Nasal discharge
- Lack of appetite
- Redness of eyes
- Tremors
- Ruffled feathers
- And while these signs usually appear within three to seven days of infection, not all birds will display symptoms.

Lesions:

- Pacheco's disease damages many of the bird's organs, including the liver, spleen, and kidneys. If the bird does survive an infection, however, the organ damage will remain permanent.
- Enlarged kidneys, liver, and spleen, circumscribed areas of necrosis on the liver, and hemorrhage.
- The skin, spleen, intestines, pancreas, and body cavity may also show hemorrhage.



Diagnosis:

- There is only one practical commercial test available.
- This detects pieces of viral particles in the bird's blood, stool or in swabs from the inside of the bird's mouth. This test is referred to as a PCR test.

- It is extremely sensitive and will pick up tiny amounts of viral particles. What the test does not tell us is whether the virus it picked up is a disease causing strain of virus.
- Many seemingly healthy birds will test positive on this test.
- If this is a single bird dwelling, then there is no problem and in fact the value of testing a such a bird is questionable. If this bird comes from or is to be introduced into a multiple bird household, the only solution is to vaccinate all the birds.



Treatment and Vaccination:

- Pacheco's Disease is generally considered untreatable because of its sudden onset and rapid death.
- There has been some success with the antiviral drug acyclovir followed by supportive treatment including fluid administration, isolation, and tube feeding (gavages).
- The best treatment for Pacheco's Disease is considered to be prevention.
- There is no real cure for this disease and the only help is to support the bird while (and if) the disease passes.
- Vaccines have been available for many years.
- Many people have retained a certain wariness about the vaccine because of serious side effects in certain birds.
- The vaccine has been since modified and the current vaccine being used is safe.

Prevention:

- If your bird does contract Pacheco's disease and survives, stress may trigger the infection to resurface. Therefore, it is important to quarantine any birds suspected of having this virus for one to two months, and ensure it is not spread to any other animals.
- All contaminated surfaces should then be disinfected with an oxidizer, like chlorine bleach. All air filters in the home should also be replaced.
- It is important birds have regular testing.
- Vaccinations are available in two-dose injections and are given to the infected birds in four-week intervals. After which, one booster dose is needed annually. However, the vaccine has been reported to have side effects, and only birds at risk -- like pet store birds -- should be vaccinated.
- Strict observance of good husbandry techniques and quickly isolating suspected cases are the best preventive measures to take. In cases where carriers are suspected, some suggest serologic testing for the virus. However, due to problems of false negatives and the fact that all positive birds do not shed the virus, others do not yet consider this a reliable diagnostic tool.

Psittacine Beak and Feather Disease (PBFD)

- Psittacine Beak and Feather Disease (PBFD) is a contagious, fatal viral disease that affects the beak, feathers, and immune system of birds belonging to the Psittacidae family.
- It was first recognized in 1975 by veterinarians in Australia, where the disease affects wild birds. Although birds showing signs of disease usually die, it is common for birds to be exposed to the virus, develop a mild infection, and recover.

Susceptibility:

- PBFD has been diagnosed in over 40 species of psittacines, mostly in Old World members of the parrot family.
- PBFD is seen more often in cockatoos, but Eclectus parrots, lovebirds, budgies, and African grey parrots are also affected.

- Younger birds are more commonly affected, especially with the acute form of the disease. Most birds diagnosed with PBFD are under 2 years of age.

Causative agent:

- PBFD is caused by a DNA virus that affects the cells of the immune system and those that produce the beak and feathers.
- The virus is a circovirus, which is one of the smallest viruses known to cause disease.
- A similar virus affects doves and other birds.

Transmission:

- PBFD is extremely contagious. Large amounts of the virus, which can become airborne, are found in the droppings, contents of the crop, and the feather dust of infected birds.
- The feather dust is easily dispersed and can contaminate food, water, cages, clothing, and other areas of the environment.
- PBFD is thought to be transmitted by inhalation or ingestion of the virus.
- It has been suggested that the virus may be transmitted in utero from the female bird to the egg.
- The incubation period (time between exposure to the virus and the development of signs) can be as short as 3-4 weeks, or up to several years, depending upon the amount of virus transmitted, the age of the bird, the stage of feather development, and the health of the bird's immune system.

Signs:

- There are both acute and chronic forms of the disease.

Peracute/Acute Form:

- The peracute and acute forms most commonly occur in very young birds, and may begin with signs unrelated to the beak or feathers. Affected birds are often depressed and regurgitate due to crop stasis.
- Juveniles losing their down and developing feathers may have lesions on the feathers, including circular bands around the feathers which constrict the feather at its base.
- These feathers are often loose, break easily, may bleed, and are very painful.

- They may develop a diarrhea-causing enteritis or pneumonia, and die without displaying any lesions of the feathers or beak. This is often called the peracute form of the disease.

Chronic Form:

- In the chronic form of PBFD, which is more common in older birds, the powder-down feathers are often the first feathers affected.
- The feathers are fragile and fracture easily, have constricting bands, may hemorrhage, and may be discolored, deformed, or curled.
- As the feather follicles are damaged, the bird will soon be unable to replace feathers, and the primary, secondary, tail, and crest feathers are lost.
- Bare skin is exposed, and the normal feather dust is not found on the body or the beak, where it normally accumulates due to preening.
- Feather abnormalities, often termed "dystrophic feathers," may not appear until the first molt after infection, which could be a period up to 6 months.
- The beak may develop irregular sunken areas.
- Brown necrotic areas may be found inside the upper beak, and the beak may elongate, become deformed, and fracture.
- Secondary beak and oral infections often occur.
- In some birds, the nails can also be deformed or slough.
- Mucus in the droppings, or a green tint to the droppings may occur. In some birds, the liver will be affected, and liver failure may be the cause of death.
- Birds with the chronic form of the disease may live for months to years before dying of a secondary infection.
- This long period of illness in which the bird may be featherless, and gradually weakens can be very emotionally difficult for owners.







Photos of "Pikey" - Lutino Ringneck - diagnosed with PBF - visually by vet, no testing)

To the right, Pikey at 6 weeks.
Below Pikey at 6 months.
Sadly, Pikey has since passed on.

Photos courtesy of loving owner, Gayle from Cape Town, South Africa



Diagnosis:

- The review of the medical history, presence of clinical signs, and observations during the physical exam support the diagnosis of PBF.
- Other conditions such as nutritional deficiencies, infection with polyomavirus (causes budgerigar fledgling disease and other diseases of psittacines), hormonal abnormalities, and drug reactions can cause lesions on the feathers similar to PBF.

- Histopathology (microscopic examinations of biopsies) can confirm the diagnosis. Affected cells will have abnormalities in their nuclei, called "basophilic intranuclear inclusion bodies." The diagnosis may also be confirmed by a PCR (polymerase chain reaction) test on whole blood or biopsy samples from the affected bird. The test detects the presence of the virus.
- This test may also be used on swabs of surfaces in the environment to detect contamination.
- False positive and false negative test results can occur. For example, infected airborne cells could contaminate a sample and cause a false positive result.
- Healthy birds with a positive test result should be retested after 90 days. If they still have positive test results, they should be considered carriers of the virus.
- If the retest is negative, the bird may have eliminated the virus, and become immune.
- False negative results may occur if too much anticoagulant is present in the sample, an extremely high number of viral particles are present and interfere with the test, or there are an insufficient number of infected white blood cells in the sample.

Treatment:

- There is no specific treatment for PBFD.
- Supportive care including good nutrition, supplementary heat (incubator), beak trimming, and treatment of secondary infections can be offered.
- The disease, however, is progressive, and very few birds recover.
- Euthanasia may need to be considered for birds with severe and/or painful signs.
- Birds who die a natural death usually succumb to a secondary bacterial, fungal, or viral infection despite treatment, since their immune systems have been critically suppressed. Most birds die within 6 months to 2 years of developing the disease.

Prevention and control:

- Birds should be purchased from suppliers with disease-free birds.
- New birds coming into facilities should be quarantined and tested. Repeat testing in 3-4 weeks to allow for the incubation period is recommended.

- Infected birds should be isolated and removed from breeding programs. Juvenile birds should be housed separately from adults.
- Bird owners need to understand that if they handle other peoples' birds, it may be possible for them to bring the virus into their home and infect their birds. Good hygiene and sanitation should be used.
- There is no known disinfectant that kills this virus.
- In Australia, a killed vaccine has been developed which can protect unexposed birds; it can cause more severe disease in birds already showing signs of PBFD. Birds should be vaccinated as young as possible, as soon as 14 days of age. The vaccine should be boosted after one month, and breeding birds should be vaccinated one month prior to breeding.

Papillomatosis Disease

- Papillomatosis refers to pink, proliferative, vascular wart-like or cauliflower-like growths of epithelium.
- Papillomas may occur singularly or in clusters. Although they may occur in the oral cavity, crop, esophagus, proventriculus, ventriculus, cloaca, respiratory tract and conjunctiva, the most common locations are the oral cavity and cloaca.
- Thought to be of viral etiology and infectious, spread is probably through preening and other close contact between birds.

Incidence and Transmission:

- The highest incidence of papillomatosis occurs in central and South American psittacines - especially greenwing macaws (cloacal), blue and gold macaws (oral), as well as in amazons, conures and hawk headed parrots (cloacal).

Signs:

- The signs exhibited depend upon where the papillomas occur.
- Oral lesions may cause wheezing, difficulty swallowing and open mouth breathing.

- Papillomas in the glottis may cause suffocation if they obstruct the airway.
- Papillomas in the gastro-intestinal tract may cause vomiting, loss of appetite and wasting.
- Infertility may occur due to mechanical obstruction or ascending infection. Although birds may live for years with papillomatosis, the long term prognosis is guarded.
- A waxing and waning course often occurs, with signs subsiding for a while.
- Over time, however, the lesions progress. Papillomatosis has been associated with bile duct and pancreatic duct in amazon parrots.

Cloacal papillomas:

- May be initially mistaken for a prolapse. They may be seen protruding from the vent when the bird becomes stressed or during elimination.
- Straining, blood in the droppings, passing gas and an abnormal odor to the droppings occur.
- The lesions often spread throughout the cloaca and may become so extensive they cannot be retracted back up into the vent.





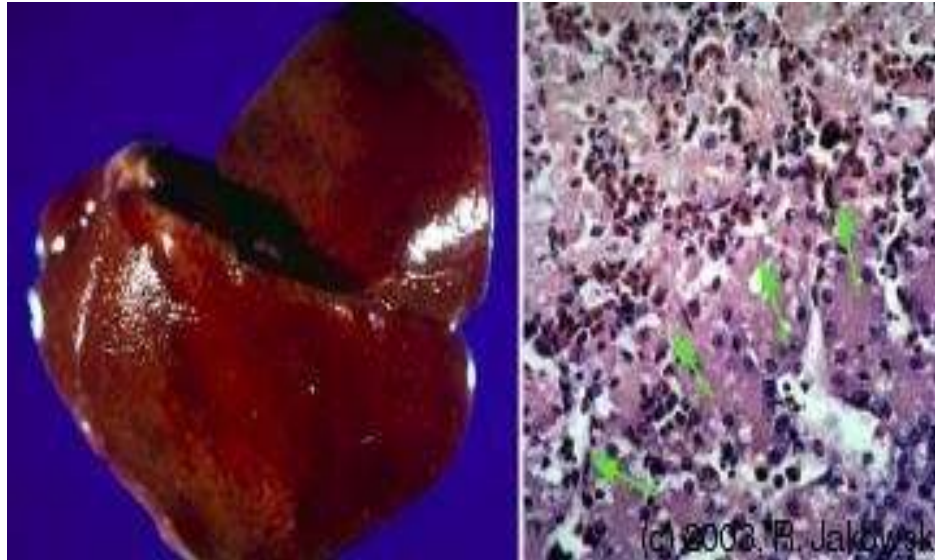
Diagnosis and Control:

- Diagnosis is by physical examination, contrast radiographs and fluoroscopy.
- This disease can mimic other diseases such as foreign bodies, bacterial and fungal infections, lead poisoning and PDD.
- A number of treatment modalities have been tried which include surgical resection, cryosurgery, chemical cautery, autogenous vaccination, and laser.
- Laser surgery seems to offer the best results.
- Papillomatosis is unable to be cured. Palliation can be done to make affected birds more comfortable, but it is often a progressive, debilitating disease.
- All new birds of susceptible species should be thoroughly examined to identify those with oral or cloacal papillomas.
- Infected birds should not be housed with non-infected birds.

Polyomavirus

- Polyomavirus mainly affects young birds prior to weaning. Adults are rarely affected and can display non-specific transitory symptoms (sleepiness, lack of appetite, diarrhea).
- In budgerigars the virus can cause different symptoms than in other psittacines.
- Young budgies display abnormal feather growth (formerly called French Moulting).
- The disease is fatal to most young birds however those who survive may (or may not) display permanent damage to their plumage. These birds may become carriers of the virus that they shed through their droppings.
- Young parrots that contract the virus become lethargic, have a hard time digesting their food and most often die. The progression of the disease can be as short as 1 to 3 days.
- A certain number of young birds may survive the disease. Others, can acquire and process the virus without showing serious symptoms, and shed the virus, thus contaminating the environment and spreading infection.

- Except for budgies and cockatiels, who continue to shed the virus throughout their lives, other species are not considered persistent carriers.
- Shedding of the virus will occur during a period of 6 to eighteen months post-infection.



Treatment:

- There is currently no cure once a bird has become infected with the virus, however a preventive vaccine exists.
- Since Polyomavirus does not affect adult birds kept by individuals in a private setting, vaccination is not required.
- On the other hand, this vaccine is highly recommended for birds in breeding facilities and for young babies exposed to other birds.

Proventricular dilatation disease (PDD)

- The parrot's digestive process is characterized by back-and-forth movement of food between the proventriculus, the gizzard and the intestines.
- PDD is caused by a virus (as yet unidentified) that paralyses the gastro-intestinal system, interfering with this movement thus preventing the digestion and absorption of food.
- Food stagnates in the proventriculus and may putrefy or quickly pass through the system without being digested.

Signs:

- The parrot will eat voraciously, feeling hungry despite the amount of food he ingests, as it receives little nutrition.
- Progressive weight loss and a slow decline of health ensue.

Treatment:

- All the details of this disease do not yet known but it is known that it can affect all psittacines, young or adult.
- Until now, only palliative treatments and supportive care have been available.

Avian Pox

- Poxvirus infection is most commonly observed in canaries housed outdoors, young parrots, and recently caught wild birds.
- There are many different types of poxviruses; some affect only particular species of birds, others affect several species.
- For instance, the canary poxvirus only affects canaries and birds that can interbreed with canaries.

Transmission:

- Poxvirus is transmitted by ingesting or inhaling the virus. Mosquitoes can transmit the virus, and outbreaks are more common in birds housed in outside cages or aviaries.

- The virus can also enter the bird's body through a pre-existing wound or open sore.
- Finally, instruments and equipment used in hand feeding baby birds can transmit the virus.
- The incubation period is five to ten days.

Signs:

- Clinical signs can vary, but there are three general forms of the disease. In an outbreak, more than one form of the disease may be seen.

Cutaneous (Dry Pox)

- Affects Raptors and Psittacines.
- Nodules develop on the featherless areas of the bird including the legs, feet, nares, beak, and around the eyes. The nodules develop into pustules that break open and form scabs, and may become secondarily infected with bacteria or fungi.
- If the eye is involved, reddened lids, discharge, inflammation of the cornea, cataracts, and a shrunken eye may occur.
- Some lesions can be very large and may be present up to 6 weeks or more.

Diphtheroid (Wet Pox)

- Affects Passerines, Blue-fronted Amazons, Pionus Parrots.
- Conjunctivitis is often the first sign of the disease. Then, gray to brown lesions develop in the inside of the mouth, on the tongue, and may extend down into the esophagus. The bird may have difficulty eating and drinking. Lesions may form on and around the eyes, sometimes causing severe corneal ulcers and permanent damage to the eye.

Septicemic

- Affects Canaries, Finches
- Signs generally occur suddenly and many body systems can be involved. The bird may show multiple signs of illness including fluffed feathers, loss of appetite, and lethargy. They develop pneumonia, with resulting cyanosis, and many die within 2 to 3 days.



5. House Finch with pox lesion on eye and leg 6. House Finch with pox lesion on eye
Above Photos by a Project FeederWatch participant.



7. House Finch with pox on face



8. Tree Sparrow with a pox lesion on its leg



Wild Turkey with pox lesions

Photographs courtesy of the Wildlife Pathology Unit Staff of the New York State Department of Environmental Conservation



Detail:



Raptor with pox lesions





Diagnosis:

- Diagnosis of a poxvirus infection is often made by microscopic examination of cells acquired by swabbing a lesion, placing the material on a slide and staining it.
- Microscopic examinations of biopsies, and isolating the virus from affected tissues can also be diagnostic.

Treatment:

- There are no medications that will kill the virus, so treatment involves supportive care to help the bird recover.
- Vitamin A may be administered to parrots to improve the health of the skin and lining of the mouth and esophagus.
- Antibiotics and antifungals may be used to prevent or treat any secondary infections.
- Tube feeding may be necessary in some birds that will not eat.
- Scabs around the eyes can be softened with moist compresses.
- Do NOT attempt to remove the scabs.
- Ophthalmic ointments may be used if the eyes are affected.

Control an outbreak:

- Prevent exposure of birds to mosquitoes with the use of screens.

- Use the poxvirus vaccine that is available for the specific species, e.g., pigeons, doves, canaries, or psittacines, to vaccinate healthy birds.
- Isolate affected birds from the others.
- Always feed and handle the healthy birds before taking care of the sick birds.
- Wash hands well after handling sick birds.
- Use separate equipment for the hand feeding of each bird. Clean and disinfect food and water dishes, any instruments or materials used in hand feeding, and any other equipment that would come in contact with oral secretions of birds. Appropriate disinfectants include 1% potassium hydroxide (KOH), 2% sodium hydroxide (NaOH), and 5% phenol.
- Protect birds from wounds, since the poxvirus can enter the body through a break in the skin or open sore.

New Castles Disease

- ND is a zoonotic virus that can affect both birds and people.
- While more commonly seen in wild birds, ND can also affect parrots and other pet bird species.
- ND is transmitted through oral and fecal fluids. Common symptoms of ND in birds include seizures, impaired respiratory function, and abnormal postures associated with neurological problems.
- While ND in parrots is rare, it can occur and has in many instances.
- Often referred to as Avian Distemper or Velogenic Viscerotropic Newcastle Disease, (VVND), ND is one of the most serious of all avian diseases.
- First identified in 1926 in Newcastle-on-Tyne in England, the disease was later found in the United States in 1944. Now, the disease has spread to include world-wide avian populations, affecting birds of all ages.
- It is most prevalent, however, in birds imported from Southeast Asia and Central America.

Causative agent:

- ND is caused by a virus (paramyxovirus, of the Group 1 serotype). Especially aggressive, the first widespread outbreak of ND occurred in US in southern California.
- In 1972, infected birds in an exotic aviary spread the infection to chickens on neighboring farms.
- Before it was over, millions of chickens either died or were euthanized in a successful attempt to control further spread. This outbreak was directly responsible for the USDA's adoption of quarantine systems for imported birds in 1974.
- Since that time, there has not been another outbreak of similar severity.

Transmission:

- With an affinity for red blood cells, the virus spreads rapidly throughout the body.
- The virus is highly contagious and spread in droppings and nasal discharge via direct contact, through the air, or on contaminated items such as bottoms of shoes, food, or infected dishes and cages.
- The virus can also penetrate eggshells that come in contact with infected tissue or food, thereby, infecting the embryo.
- It can survive outside a host for several weeks in a warm and humid environment and indefinitely in frozen material.

Diagnosis:

- The diagnosis is made by isolating the virus from either the feces of live birds or the organs of infected animals available at necropsy.
- Once diagnosis is confirmed, the recommendations on the euthanasia and disposal of infected birds, and the administration of quarantines to prevent spread.

Treatment:

- There is no treatment or vaccine; however, injections of hyper-immune serum have been used to protect exposed birds before they become symptomatic.
- When birds begin showing symptoms, this is ineffective.
- Unfortunately, the prognosis for this disease is poor, with nearly a 100 % mortality rate, once infected.

Prevention:

- Since the quarantine requirements were introduced in 1974, the incidence of ND has been greatly reduced, but it is not yet eradicated worldwide.
- Although hearty and it is able to survive in many environments, the virus is destroyed rapidly by dehydration and exposure to ultraviolet rays (sunlight).
- All birds to be imported must be quarantined in facilities outside the country for 30 days before entering the country.
- All suspected cases of ND must be reported to the authorities.
- Newly acquired birds should be isolated for at least 30 days - 6 weeks is better. Set aside shoes and clothing to be worn only in the quarantine area.
- Certification should be requested from the supplier of your birds that confirms your bird or birds are legally imported or are raised in the health certificate should be requested and you should verify that the bird(s) will be transported in new or thoroughly disinfected cages. The biggest contributor to the spread of ND is the avian smuggling industry
- Allow only essential workers and vehicles on the farm or at least only in the areas immediately adjacent to and including the poultry houses.
- Provide clean clothing and cleansing facilities for employees.
- Clean and disinfect vehicles (including tires and undercarriages) entering and leaving the farm.
- Avoid visiting other poultry operations.
- Do not keep pet birds on the farm.
- Maintain an all-in, all-out philosophy of flock management:
 - Control the movement of all poultry and poultry products from farm to farm.
 - Do not cull mature birds from a flock to be sold in a live market.
 - Clean and disinfect poultry houses between each lot of birds.
- Protect flocks from wild birds trying to nest in poultry houses and do not feed flocks combined with domestic birds.

- Maintain strict controls over the disposal and handling of bird carcasses, litter, and manure.
- Bring diseased birds to an approved laboratory for examination.

Bacterial Diseases of Pet Birds

Psittacosis

Definition:

- The disease in humans is called psittacosis, and the same term is commonly used to refer to the disease in parrots. A more exact term for the avian disease is "**Avian Chlamydiosis**."
- It is sometimes also called **parrot fever**.

Causative agent:

- Psittacosis is caused by an organism called *Chlamydophila psittaci*, formerly known as *Chlamydia psittaci*. This organism has characteristics of both bacteria and viruses.
- *C. psittaci* can infect other mammals as well.

Transmission:

- The disease can be transmitted via nasal discharge as well as feces, either by inhalation or ingestion.
- *C. psittaci* is resistant to drying so can survive for a long time in the environment and readily becomes airborne in dust particles.
- Shedding of *C. psittaci* by infected birds (including asymptomatic birds) increases in times of stress (shipping, overcrowding, environmental stress, presence of other diseases, breeding, etc.).

Signs:

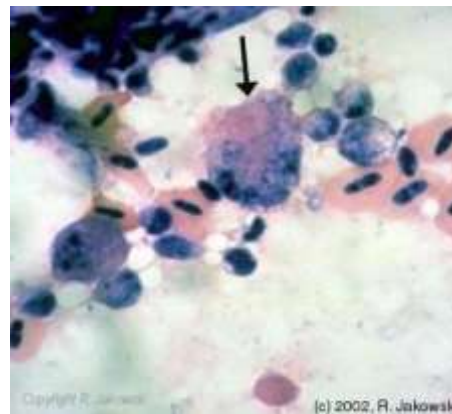
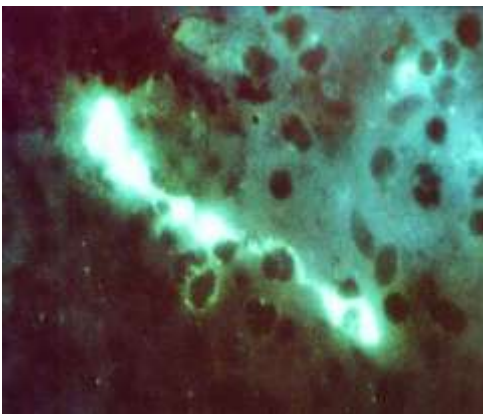
- Discharge from the eyes or nares.
- Difficulty breathing.

- Diarrhea and lethargy.
- Decreased appetite.
- Weight loss, weakness, and depression.
- The disease can be fatal.
- Birds can be carriers of *C. psittaci* without showing any signs.
- Carriers may subsequently become ill if they become stressed, and they may pass the organism to their offspring which may become ill or die as young birds are more susceptible.



Diagnosis:

- There is no single definitive test for Chlamydiosis, although several screening tests are available to your veterinarian.
- A combination of history, clinical signs, bloodwork, and tests that screen for the presence of *C. psittaci* can be used for diagnosis.



Prevention:

- If possible, purchase birds from sources that pre-screen for Chlamydiosis, and have new birds screened for chlamydiosis by an avian veterinarian.
- If you already have birds at home, quarantine new birds for at least 6 weeks.
- If one of your birds is diagnosed with Chlamydiosis, that bird must be isolated from other birds (preferably in a different building as the disease can be easily transmitted by airborne particles) and any other birds that show signs should be immediately isolated as well.

Treatment:

- The disease is usually treatable, but the success of treatment depends on the overall health of the bird and the presence of other disease, as well as the age and species of the bird.
- Treatment is usually long term (make sure you follow the full course) and should be combined with thorough disinfection of premises.

Precautions If Your Bird has Chlamydiosis:

Since the disease can be passed to people (i.e. is zoonotic), if your pet bird is diagnosed with chlamydiosis, the following precautions should be taken:

- Thoroughly disinfect your premises and all of the bird's belongings.
- Exercise caution in the handling of bird droppings.
- Keep circulation of feathers and dust to a minimum.
- Do not allow elderly, pregnant, sick or very young people to have contact with your bird.
- Reduce stress in the bird's environment.

Signs in Humans:

- In people, signs generally appear 4-15 days after exposure may include sudden onset of fever, chills, headache, malaise, and muscle pain, nonproductive cough, and sometimes breathing difficulty and chest tightness.
- *C. psittaci* infection can result in pneumonia, sometimes severe.

- Rarely, other organs may be involved, and fatal cases have been reported.

Who is At Risk:

- 70% of cases in people result from contact with companion birds.
- Psittacosis may be under diagnosed, but it is not a common disease in humans.
- Psittacosis is usually quite mild and easily treatable with antibiotics, but can be fatal, so if you have symptoms of psittacosis and have had contact with a bird, be sure to tell your physician.
- Immunocompromised people, the elderly, and young children are at increased risk of serious disease and complications.

Avian Tuberculosis

- Tuberculosis is a zoonotic disease that can infect both birds and humans.
- Avian Tuberculosis is airborne, and infections are caused by inhaling organisms shed in fecal matter.
- Avian Tuberculosis can be passed to people, just as people infected with tuberculosis can pass their illness on to birds.

Causative agent:

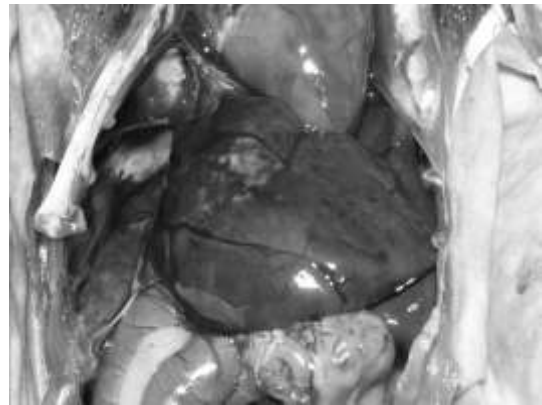
- *Mycobacterium avium* infections in birds are uncommon and are caused by a bacterium that is related to the one that causes tuberculosis.
- These bacteria can infect numerous organs.

Transmission:

- *Mycobacterium avium* can be found in the droppings of infected birds.
- The droppings can contaminate food and water, and the bacteria can then be ingested by noninfected birds.
- *Mycobacterium avium* can also be transmitted by inhaling the bacteria.

Signs:

- Swollen abdomen,
- Weight loss, despite the fact that they have good appetites,
- Diarrhea, watery droppings,
- Impaired breathing,
- Lameness,
- Poor feathers,
- Increase volume of the white urates in a bird's droppings,
- Skin nodules or ulcers



Treatment:

- Treatment with specialized antibiotics is expensive and may need to continue for one year or more.
- Many people, especially those with suppressed immune systems, have been diagnosed with *Mycobacterium avium* infections, but these cases have been linked to contaminated water, exposure from the environment, etc., but not to pet birds. Yet, the potential of zoonotic transmission should be considered, especially in households with a person with a suppressed immune system.
- To prevent this and other infections, people should wear gloves when cleaning cages, wash their hands well after handling their bird, and have their bird examined if she shows any signs of illness.

Clostridial Diseases

- In companion birds such as parrots and parakeets and in poultry, *clostridial* disease is a bacterial infection of the small intestines.
- It can affect multiple body organs, depending on the specific *clostridial* bacteria involved.
- For example, *Clostridium perfringens* typically infects parrots and parakeets, while poultry can be infected by *Clostridium botulinum* (which in turn causes botulism through its toxin production).

Transmission:

- *Clostridial* disease infects a bird by coming into contact with contaminated food and water, spores or bacteria (usually by breathing them), and contaminated surfaces like cages, utensils and nest boxes.
- Birds can also contract the disease through infectious wounds.
- Often, it will be through an injured or traumatized cloaca.
- The cloaca is the body part where urine, feces and urates are stored before being eliminated from the bird's body.
- The veterinarian may also consider reducing dietary protein during periods of stress, exposure or outbreaks of the disease.

Pathogenicity:

- The symptoms are dependent on the type of clostridial bacteria involved but they all produce a toxin.
- Clostridium bacteria produce some of the most potent toxins.
- There are different types of the toxin; types A and C cause the disease in birds, while type B frequently produces the disease in humans.

Signs:

These toxins are responsible for many of the symptoms, including:

- Rapid deterioration of health,

- Loss of appetite, weight loss, listlessness,
- Bloody feces or undigested food.
- Even after the bird is cured of bacterial infection, the toxin will remain in the bird's body and can continue to cause symptoms.

Prevention:

- However, prevention is easier to carry out than treatments.
- *Clostridial* disease in birds can be prevented with few simple precautions.
- This can include creating a stress-free environment by avoiding overcrowding of a bird's living space.
- Birds should have fresh air and good ventilation.
- Make sure feed is properly stored and that it's free of bacterial growth.
- Bacterial spores may be present in corn and grain products as well as manufactured pellets, or extruded food and may develop bacterial growth if conditions are favorable.
- Disinfecting the bird's living environment regularly will help keep pathogenic bacteria levels down.
- Birds should also have a well-balanced, nutritional diet.
- Part of the nutritional diet should include a *Lactobacillus* probiotic or other good microflora.
- Research has shown that some strains of *Lactobacillus* will competitively exclude *Clostridium perfringens* from the GI tract of chickens.
- In a similar manner, companion birds will be protected.

Fungal Diseases of Pet Birds

Aspergillosis

- Aspergillosis is a respiratory disease of birds caused by the fungus *Aspergillus*, which is found almost everywhere in the environment.
- *A. fumigatus* is the most common species of the fungus to cause disease, although *A. flavus*, *A. niger*, and others can also cause problems. *Aspergillus* grows readily in warm and moist environments.
- The microscopic spores of the fungus become airborne, and poor ventilation, poor sanitation, dusty conditions, and close confinement increase the chance the spores will be inhaled.

Predisposing causes:

- Usually, the fungus does not cause disease, however, if a bird does not have a healthy immune system, it can cause illness.
- Predisposing factors include other illnesses, stress, poor nutrition, poor husbandry or unsanitary conditions, another injury to the respiratory system (e.g.; smoke inhalation), and prolonged use of certain medications such as antibiotics or corticosteroids.
- The combination of the number of spores in the environment and the presence of predisposing factors determine which birds are most at risk of disease.
- Aspergillosis appears to be more common in parrots and mynahs than other pet birds.

Signs and Lesions:

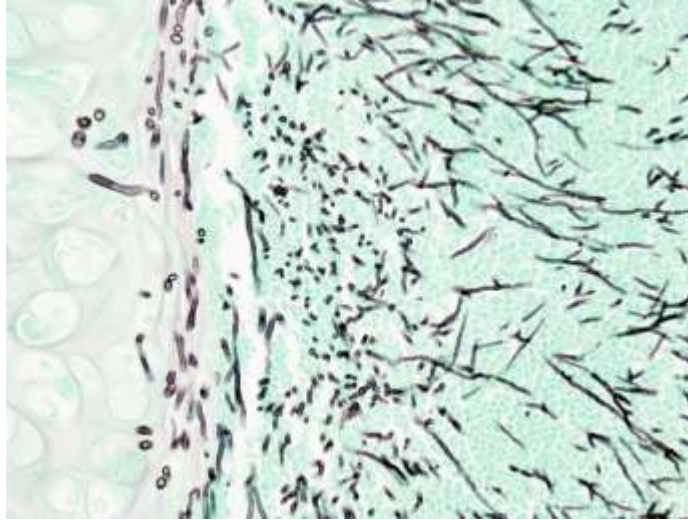
- Respiratory symptoms will be the first to occur but will depend on the location of the greatest areas of colonization.
- Difficulty breathing, rapid breathing and/or exercise intolerance are common.
- If the syrinx (voice box) is involved, a change in voice, reluctance to talk, or a "click" may occur.
- Nares may become plugged or you may see a discharge.
- Eventually, severe respiratory compromise may kill the bird.

- Other signs and symptoms will vary, depending on the other organs involved.
- If any portion of the central nervous system has become involved, the bird may have tremors, an uneven or wobbly gait, seizures, or paralysis.
- With liver involvement, a green discoloration to the urates may be seen, and the veterinarian may feel an enlarged liver.
- Generalized, non-specific symptoms can include loss of appetite leading to weight loss, muscle wasting, gout (painful, inflamed joints due to urate deposits), regurgitation, abnormal feces or diarrhea, excessive urination, depression, and lethargy.
- Spores can penetrate fresh or incubating eggs and will kill the embryos.
- Aspergillosis can follow one of two courses - acute or chronic.
- Birds with acute aspergillosis have severe difficulty breathing, decreased or loss of appetite, frequent drinking and urination, cyanosis (a bluish coloration of mucous membranes and/or skin), and even sudden death.
- The fungus generally affects the trachea, syrinx (voice box), and air sacs.
- The lungs may also be involved.
- Diagnosis is generally made through a post-mortem examination.
- Chronic aspergillosis is much more common, and unfortunately, much more deadly due to its insidious nature.
- The bird may not become symptomatic until the disease has progressed too far for a cure.
- The respiratory system is the primary location of infection. White nodules appear and ultimately erode through the tissue, and large numbers of spores enter the bloodstream.
- The spores then travel throughout the body, infecting multiple organs including kidneys, skin, muscle, gastrointestinal tract, liver, eyes, and brain.



Diagnosis:

- Aspergillosis can be very difficult to diagnose since the signs of disease mimic those of many other illnesses, especially in the chronic form.
- The veterinarian will need a detailed history of the course of the illness, and an accurate description of the diet and husbandry of the bird.
- Radiographs, a complete blood count, and a chemistry panel may help support a diagnosis.
- Endoscopy can be used to view lesions in the syrinx or trachea.
- A sample can be taken for culture and microscopic examination.
- PCR testing for the presence of *Aspergillus*, which can confirm a diagnosis.
- A diagnosis can also be supported by a specific blood test panel to look for aspergillosis.
- Sometimes, however, the test can be falsely negative or falsely positive, so the tests must be interpreted in combination with the other findings.



Treatment:

- Surgery may be performed to remove accessible lesions.
- Antifungal drugs such as itraconazole and amphotericin B may be administered orally, topically, by injection, or nebulizing, depending upon the drug.
- There are several reports that itraconazole may be more toxic to African grey parrots, when compared to other species.
- Therapy needs to be continued for weeks to months and more than one antifungal drug may be used.
- Supportive care such as oxygen, supplemental heat, tube feeding, and treatment of underlying conditions are often needed.
- Unfortunately, the prognosis is always guarded.

Prevention:

- The importance of good husbandry and diet to prevent outbreaks of aspergillosis cannot be overstated.
- Keep your bird in a well-ventilated environment. Clean food and water dishes every day. Replace substrate (material lining the cage bottom) regularly.
- Remove your bird and thoroughly clean cages, toys, perches, etc., at least once a month.

- Pay attention to good nutrition, offering the right combination of fruits, vegetables, pellets, and only a sprinkling of "treats."
- Essentially, you want to do everything you can to alleviate stress in your bird's life and provide a scrupulously clean environment.

Candidiasis

- Candidiasis is an infection with the yeast *Candida albicans*. This is yeast that is normally present in low numbers in the digestive system of birds.
- If the numbers of the yeast increase or there is some damage to the digestive tract, *Candida* can cause problems in the digestive tract and other organs including the beak and respiratory system.
- *Candida* can also infect the skin, feathers, eyes, and reproductive tract, but this is more common in nonpsittacine birds (birds not in the parrot family).

Susceptibility and Predisposing factors:

- Candidiasis is most common in young birds, especially cockatiels. It is also more common in birds with suppressed immune systems.
- Delayed crop emptying.
- Prolonged antibiotic use.
- Poor sanitation.
- Vitamin A deficiency.
- Malnutrition (seed only diets).
- Presence of other infections such as poxvirus or Trichomonas.
- Presence of other health problems such as trauma or smoke inhalation.
- Stress, brought on by the shipping process or by being moved.

Signs and Lesions:

- The signs will vary depending upon the organs involved.

- There may be only one area involved such as the mouth, or the entire digestive tract or other organs can be affected at the same time.
- Infections of the mouth and beak can cause bad breath, and white, raised areas (called plaques) with thick clear or white material in the mouth. Some suggest the inside of the mouth has the appearance of terry cloth.
- Infections of the beak often occur at the commissures (where the upper and lower beaks meet).
- Infections of the crop may cause regurgitation, depression, loss of appetite, a thickening of the crop, delayed crop emptying, and possible crop impaction.
- If the infection occurs lower in the digestive tract, there may be depression, loss of appetite, weight loss, vomiting, and diarrhea.
- Because the absorption of nutrients by the intestines is decreased, malnutrition can often result if the infection becomes chronic.
- In the respiratory tract, *Candida* may cause nasal discharge, a change in the voice, difficulty breathing, rapid breathing, and inability to exercise.

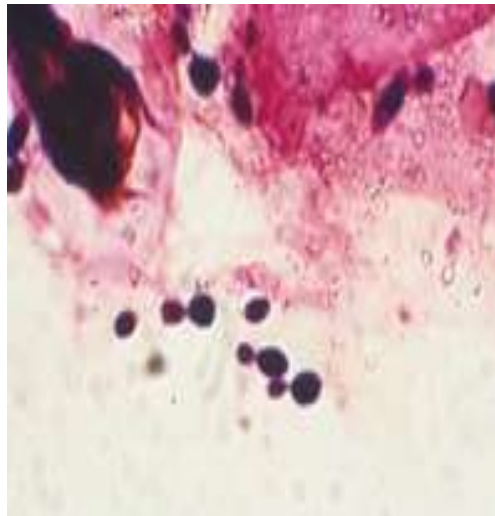
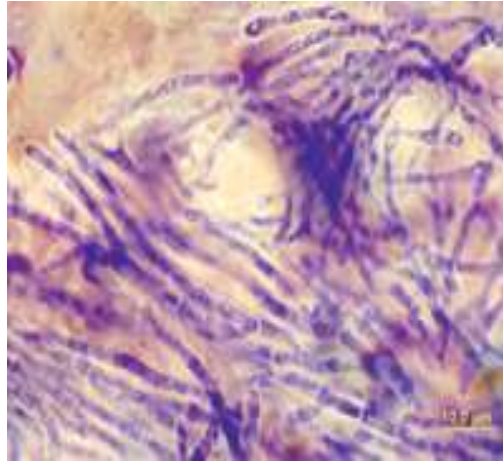


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Diagnosis:

- Since *Candida* is normally present in the digestive tract, simply finding the yeast there does not make the diagnosis of candidiasis.
- Along with a culture of the affected area and the finding of a large number of the organisms, the veterinarian will also take into account the signs, results of a physical examination, history and husbandry of the bird, and presence of other diseases.

- To obtain samples for culture and microscopic examination, the mouth or other accessible area may be swabbed, or, an endoscope may be used to obtain samples from further down in the digestive tract.



Treatment:

- Treatment will include the administration of antifungal medications as well as eliminating any risk factors, such as poor diet, poor sanitation, or the presence of other diseases.
- Antifungal medications commonly include nystatin, flucytosine, ketoconazole, fluconazole, and itraconazole.

- For treatment of oral or skin infections, ointment containing amphotericin B may be applied.

Prevention:

- By providing a clean environment and proper nutrition, reducing or eliminating any causes of stress, and preventing contact with any potentially sick bird, the risk of candidiasis can be greatly decreased.
- For birds on prolonged antibiotics, the veterinarian may advise an antifungal medication.
- If candidiasis occurs in a bird nursery, nystatin may be added to the hand-rearing formulas. Any nursery items should be cleaned and disinfected after use on each bird (do not use any utensil on two birds without disinfecting in-between).
- Any left-over formula that could have been contaminated with secretions from baby birds should be discarded.

Avian Gastric Yeast

- A disease caused by *Macrorhabdus ornithogaster* (*Megabacteria*) causing chronic wasting and death.
- The most susceptible species are Budgies (other psittacines), canaries, finches and ostrich
- Attacks koilin layer in gizzard
- Prognosis guarded
- Treatment with oral amphotericin B



Parasitic Diseases of Pet Birds

External Parasites

Mites Infestation

- The two most common mites are Knemidokoptes and Myialges.
- Most mites inhabit the superficial portion of the skin, leading to thickening and flaking.
- If the cere is involved, the beak becomes malformed.
- Some mites are superficial and can be found by skin scrape, while other mites penetrate deeply and require a biopsy for diagnosis.

Causative agent:

- Knemidokoptes causes a type of mange known as "**scaly face**" and "**scaly leg**". This mite burrows in the nonfeathered areas around the cere, beak, eyes, vent and legs.
- Different species of mites affect different species of birds.
- Knemidokoptes is most frequently found in budgies but has been also reported in other species of birds.

Transmission:

- The scaly leg mites apparently spend their entire life cycle on the bird.
- They burrow into the epithelium (top layer of the skin) and form tunnels.
- The mites are transmitted from bird to bird through prolonged close or direct contact.
- Some experts feel that the mites are transmitted to the unfeathered offspring in the nest, and will cause disease if the bird is genetically susceptible, stressed, or has a suppressed immune system.

Signs:

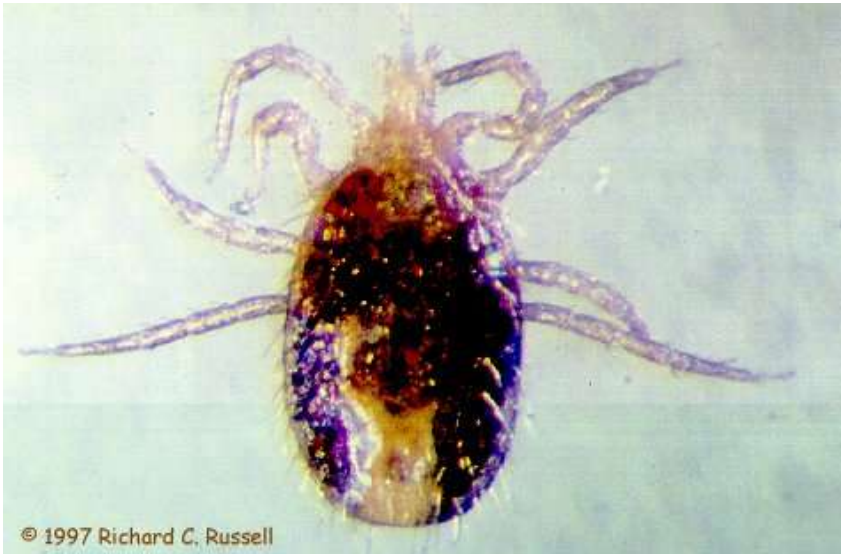
- The lesions develop very slowly, so that an infected bird may appear normal for a long period of time.

- It is thought that these mites are acquired in the nest, with the infection remaining latent for a long period of time.
- Tiny non itching wart like lesions appears at the commissures of the beak or around the cere.
- Advanced infestation spreads to the unfeathered parts of the body.
- The involved beak and skin develop a roughened honeycombed appearance consisting of tiny pits and tunnels.
- The beak becomes distorted as the mites affect the zone of growth. Many birds will require life-long beak trims and shaping.
- Canaries and finches more commonly have their legs and feet affected by these mites. Their legs become scaly and crusty and their claws become overgrown and cracked. Affected birds often become unable to perch.
- Secondary bacterial infection and arthritis may occur.

Diagnosis and Treatment:

- A diagnosis is made by identifying the scaly leg mites or the eggs in a skin scraping taken from the affected area.
- Treatment of choice for birds with scaly leg mite lesions, and all birds that have had contact with them, is ivermectin.
- It may require 2-6 treatments at 10 day intervals to completely eliminate the mites.
- The ivermectin may be applied on the skin behind the neck, given orally, or injected. Moxidectin has also been used topically.
- It is very important to use the proper concentration of both of these drugs.
- Some other treatments are less effective and can be very toxic if they are ingested or get into the eyes.
- In the past, mineral oil has been applied to the lesions, but it is messy and can result in unwanted side effects, including oily feathers and aspiration of the mineral oil.
- In addition, since the mites can be anywhere on the body, just treating the affected area with something like mineral oil will not kill all the mites.

- If open lesions are present, antibiotics may be given to prevent or treat secondary bacterial infections.
- The cage, bowls, toys, and other items should be cleaned and disinfected. Items that cannot easily be disinfected should be removed and replaced.



Arthropods

- Arthropod parasites of birds include mites, lice, and ticks. The infestations can occur on the skin or feathers, although a few may infest the respiratory tract.
- Some of these parasites have their entire life cycle on the bird while others live part of their life in the environment.
- Symptoms include feather chewing, feather loss, poor feather quality, and skin inflammation.
- The parasites can sometimes be seen on the bird with the naked eye.
- Treatment depends on which arthropod is found.



Internal parasites

Nematodes

- Called roundworms, can be found in nearly any body system of the bird. They are most commonly associated with the intestinal tract.
- Roundworms" is also the term commonly used to describe "ascarids," which are intestinal nematodes of the genus "*Ascaris*." An infection with roundworms is termed "ascariasis."
- The infestation occurs when the bird ingests the eggs which have contaminated the food, water, toys, or soil.

- Nematodes can affect almost any body system, including the digestive tract, respiratory tract, heart and blood vessels, brain, eyes, and connective tissue.
- Intestinal roundworms are a common parasite among companion birds, especially cockatiels, budgies, and imported macaws. They are also more common in birds who are kept outdoors with access to the ground.
- Birds with a heavy infestation typically show signs such as unthriftiness, poor growth, or diarrhea. Some types of nematodes invade the respiratory tract causing breathing difficulties.

Life cycle:

- Intestinal roundworms in birds have a direct life cycle.
- A bird will ingest the eggs of the parasite, usually as a result of eating contaminated food or water. The eggs hatch into larvae in the small intestine. There, they mature into adults.
- The worms mate, and the females produce eggs which are passed in the feces.
- The eggs become infective after remaining in the environment for at least 2-3 weeks.
- They can persist in a moist environment for a long time.

Signs:

- Birds with intestinal roundworm infestations may develop diarrhea, anorexia (loss of appetite), and weight loss.
- Some birds may regurgitate or have a decreased amount of feces.
- Young birds may become stunted.
- In severe infestations, the worms can cause a partial or complete obstruction of the intestine, which can ultimately cause the death of the bird.

Diagnosis:

- The adult worms, which are usually 1-1½ inches in length, are rarely seen.
- Usually an intestinal roundworm infestation is diagnosed by identifying the eggs in the stool of the bird.

- A flotation solution is used to separate the eggs from the rest of the stool, and the resulting sample is examined microscopically.
- Diagnosis is made by seeing the worms in the feces, or more commonly, by an examination of fecal material under the microscope.

Treatment:

- Treatment is with piperazine, fenbendazole, ivermectin, or pyrantel pamoate, and is typically repeated in 14 days.
- Some of them should not be used in certain species, for example, fenbendazole should not be used in some of the smaller birds such as canaries and cockatiels.
- Birds with severe infestations often need supportive treatment and nutritional supplementation.
- It is often recommended to repeat the treatment in 10-14 days. In addition to treating the bird, the environment must also be treated or reinfection will occur.
- Cages, food and water bowls, nesting areas, and any toys or other articles possibly contaminated with feces should be washed and dried thoroughly.
- The eggs are resistant to almost all disinfectants; steam cleaning after removing any visible feces will kill the eggs.

Prevention:

- To prevent roundworms, quarantine all new birds, and have a fecal analysis performed. If birds are kept outside, limit their access to the ground and free ranging birds.
- Use good hygiene, regularly cleaning the cage, bowls, nest areas, and other items.
- A dry environment will decrease the survivability of the eggs.

Trematodes and cestodes (flukes and tapeworms)

- Caged companion birds should have very little risk of exposure to flukes and tapeworms. These parasites have an indirect life cycle that requires an intermediate host such as a snail or earthworm.
- The intermediate host eats the parasite egg and then, in turn, the bird eats the intermediate host infesting itself with the parasite.
- Treatment is with praziquantel or epsiprantel. Removing fecal material daily and preventing the bird from ingesting intermediate hosts should help prevent the bird from getting trematodes and cestodes.

Protozoans

- Protozoan parasites are a diverse group that include **coccidia, Giardia, and cryptosporidia**.
- The first two can cause blood-tinged feces and diarrhea.
- The diagnosis is made by examining a very fresh fecal sample. Birds infected with coccidia are usually treated with Amprolium, and those with Giardia infections are treated with metronidazole.
- Cryptosporidia affects the cells of the respiratory and intestinal tracts causing symptoms such as severe diarrhea, nasal discharge, sinusitis, and coughing.
- An effective treatment is currently not available. Again, reducing fecal contamination is necessary to prevent infection with the protozoans.

Nutritional Disorders of Pet Birds

Hypovitaminosis A (Vitamin A deficiency)

Squamous metaplasia

- Squamous metaplasia
 - Amazon parrots
 - African Grey parrots
- Egg production losses
- Affect Respiratory tract, gastrointestinal tract, Urinary tract and Reproductive tract.

Prevention and Treatment:

- Correct diet
- Vitamin A injection
- Surgery if necessary
- Ensure adequate dietary sources of Vitamin

Calcium & phosphorus imbalance (deficiency)

Causes:

Calcium or phosphorous deficiency

Vit D₃ deficiency

Ca:Phos imbalance

1:1 to 2:1 ideal

Nutritional secondary hyperparathyroidism

Egg binding

(Rickets, osteomalacia) Pathological fractures

Unthriftiness

Hypocalcemia of African Grey Parrots



- Diagnosis
 - History
 - Clinical signs
 - Biochemistries
 - Radiology



Treatment:

- Correct nutritional deficiencies
 - commercial diet

- calcium sources - primary deficiency
- Calcium injection

Hypocalcemia

- African Grey syndrome
 - Same etiology
 - Clinical signs
 - no -skeletal mobilization
 - Diagnosis
 - Treatment
- Egg binding

Goiter

- Thyroid hyperplasia
- Iodine deficiency
- Parakeets

Clinical signs:

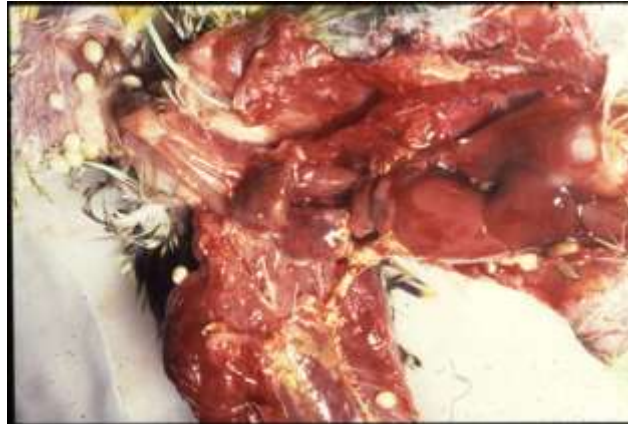
- respiratory noises
- change in vocalization
- crop stasis/delayed emptying

Diagnosis:

- History
- Clinical signs
- Response to treatment

Treatment:

- Iodine supplementation
- Treat secondary issues



Hepatic lipidosis

- Excess fat deposition and storage in liver

Causes

- Nutritional
- Toxicities
- Hereditary

Species - see obesity



Clinical signs:

- General ADR
- Neurological

Diagnosis:

- Physical exam
- Chemistries

Treatment:

Hemochromatosis

- Iron storage disease
- Mynahs, toucans

Etiology:

- Dietary
- Inherited metabolic defect

Treatment:

- Aspirate ascites
- Change diet
- Phlebotomy
- Desferol[®]

Obesity

Etiology:

- Diet
- Exercise

Species:

- Budgies
- Amazon parrots
- Some cockatoo species

Signs:

- SQ fat
- Lipomas
- Exercise intolerance

Treatment:

- Diet
- Exercise
- Thyroid?

Miscellaneous Disorders of Pet Birds

Egg binding

- Egg binding occurs when the egg does not pass through the reproductive system at a normal rate.
- It occurs when there is difficulty in laying an egg because of an obstruction.
- Both are common, and often preventable, problems in pet birds.
- Both can occur in female birds not exposed to a mate, since eggs may be formed and laid without the presence of a male.
- If diagnosed and treated early, the outcome is generally very good. If either condition goes on for too long, complications and death, especially in smaller birds, may result.

Predisposing causes:

- Species: Egg binding is more common in smaller birds such as budgerigars (parakeets, budgies), cockatiels, lovebirds, canaries, and finches.
- Bonding: The risk is higher in single female birds that are strongly bonded to their owner. Birds that show a strong attachment to mirrors or certain toys may also have an increased frequency of egg binding.
- Number of clutches: Birds that produce repeated clutches as a result of poor breeding practices (e.g., eggs or young birds taken away too soon, breeding birds out of season) or excessive egg laying often develop health problems that result in egg binding.
- Age: Young birds laying for the first time, as well as "senior" birds more commonly become egg bound.
- Reproductive health: Hens with previous reproductive problems or those that have a history of laying malformed or soft-shelled eggs are more prone to egg binding.
- Malnutrition: Birds on seed-only diets or those with deficiencies in calcium, vitamin A, protein, vitamin E, or selenium are at higher risk.
- Overall health: Egg binding is more common in birds with other health problems such as obesity or lack of exercise, as well as those under stress from environmental conditions such as improper temperature.

- Egg abnormalities: An overly large or malformed egg, or one that is not positioned correctly, is broken, or joined to other eggs.
- Genetics: Certain lines of birds may be genetically predisposed to egg binding.

Signs:

Signs will vary depending upon the severity of condition and can include:

- Abdominal straining
- Bobbing or wagging of the tail
- Drooping of the wings (canaries)
- Wide stance (Posture)
- Depression
- Loss of appetite
- Lameness or leg paralysis (the egg puts pressure on the nerves going to the legs)
- Distended abdomen
- Droppings stuck to the vent area (the bird cannot raise her tail when passing waste)
- Fluffed feathers
- Weakness
- Difficult breathing (the retained egg puts pressure on the air sacs)
- Sitting on the floor of the cage
- Possible prolapse of part of the reproductive tract (the inner part of the reproductive tract is pushed out so that it is visible as a pink mass protruding from the cloacal opening)
- Occasionally sudden death



Diagnosis:

- The veterinarian will make the diagnosis based on the clinical signs, history, physical examination, and radiography (x-rays) and/or ultrasound.
- If the bird is very stressed or in shock, it will be necessary to stabilize her before proceeding with extensive examinations.

Treatment:

- The treatment will depend on the condition of the bird, severity of the signs, where the egg is located, and the length of time the bird has been egg bound. This condition is more serious in smaller birds (canaries and finches) who may die within a few hours if not treated.
- For a bird that shows a minimum of depression, treatment may include:
- Elevation of the humidity and increasing the environmental temperature to 85-95°F
- Lubrication of the vent
- Injection of calcium, and possibly vitamins A, D, and E, and selenium
- Administration of fluids and dextrose
- Injection of oxytocin or arginine vasotocin, or application of a prostaglandin gel. These medications cause contraction of the reproductive tract and may result in the passing of the egg. They should not be used if an obstruction is present.
- Continued access to food and water

- A more severely affected bird must be treated for shock first, and then stabilized. After stabilization, additional treatment may include:
- Administration of antibiotics and possibly short-acting corticosteroids
- Manual removal of the egg by the veterinarian through applying gentle pressure with the fingers. This may require anesthesia.
- Cleaning and repair of any prolapsed tissues
- Ovocentesis, in which the contents of the retained egg can be removed by passing a needle into the egg visible at the cloaca or through the skin of the abdomen and into the egg (percutaneous ovocentesis) if the egg is not visible. This will make the egg smaller, and easier to pass.
- Abdominal surgery if the egg reproductive tract is ruptured, the egg has developed outside of the reproductive tract (ectopic egg), or there is an obstruction
- Follow-up care with antibiotics, fluids, appropriate environmental temperature and humidity, and nutritional supplementation

Complications:

- If left untreated, egg binding or dystocia can result in shock and death, often within hours for smaller birds such as canaries and finches. In addition, other complications are more likely to occur including:
- The retained egg may place pressure on the kidneys, affecting their function and health.
- If the egg ruptures while still inside of the bird, life-threatening peritonitis (a serious inflammation of the abdominal cavity) can occur.
- Oxytocin, arginine vasotocin, or prostaglandins may cause forceful contractions that could lead to rupture of the reproductive tract and death.
- Constant straining may cause prolapse of the reproductive tract or cloaca. This can result in egg peritonitis, infection, or scarring that could result in further problems with egg binding in the future.

Prevention:

- Providing the correct diet

- Using proper breeding techniques including timing of breeding, breeding at an appropriate age, removing genetically predisposed birds from the breeding program, and providing the correct environmental conditions
- Treating excessive egg laying
- Providing adequate exercise opportunities and preventing obesity
- Administering hormones to stop egg laying. These may include leuprolide or human chorionic gonadotropin
- Performing surgery to remove the reproductive tract (spaying) to permanently stop the egg laying. This is a high-risk procedure in birds because of their very small size, and the delicateness of the reproductive tract.

Gout

- Gout is a common disease among humans, reptiles, and birds.
- Uric acid is one of the end breakdown products of dietary protein in birds and other animals.
- The uric acid is removed from the blood by the kidneys and excreted in the urine.
- Gout can occur if the level of uric acid in the blood exceeds the ability of the kidneys to remove it.
- In articular or synovial gout, the uric acid crystallizes in the joints, ligaments, and tendon sheaths. In visceral gout, uric acid deposits are found in the liver, spleen, pericardial sac (the covering of the heart), kidneys, and air sacs.
- When the uric acid crystallizes in tissues it forms small, white nodules called "tophi."

Types and Causes:

- There are two types of gout.
- In primary gout, the high uric acid level is a result of an abnormal breakdown of protein.
- Primary gout is thought to be hereditary in humans. In secondary gout, the high level is due to the inability of the kidneys to adequately excrete the uric acid. In many cases,

gout is secondary to kidney disease, but it can also be associated with medications, certain chronic diseases, overeating, improper diet (high protein, and possibly high Vitamin D or low Vitamin A), poor blood circulation, inactivity, decreased water intake or chronic dehydration, some infections, and other environmental factors which affect the kidneys' ability to eliminate uric acid.

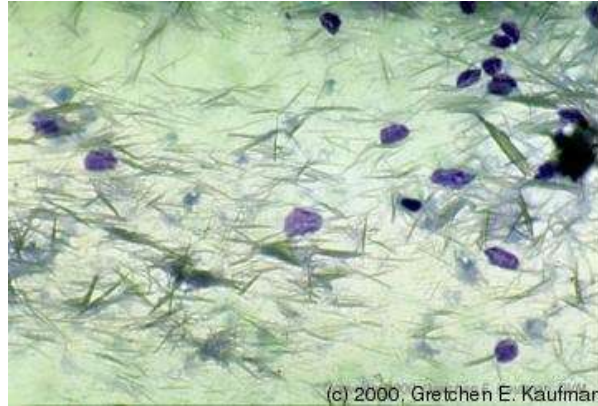
Signs:

- Joints may be enlarged, stiff, and painful, and the bird may continually shift weight from one foot to the other and have a shuffling gait.
- The bird may be unable to perch and so remains on the floor of the cage.
- If the wings are affected, the bird may be unable to fly.
- If other internal organs are involved, there may be a decrease in appetite, lethargy, weight loss, and abnormal droppings.
- The bird may show a change in temperament, or die suddenly.



Diagnosis:

- After examining the bird and obtaining a thorough history of the diet, environment factors, availability of water, and previous health problems and treatments, the veterinarian will suspect gout.
- Radiographs and blood tests for uric acid help to substantiate the diagnosis; the identification of uric acid crystals in joint fluid, biopsies, or tophi confirms it.



Treatment:

- Any underlying dietary or environmental cause will need to be remedied.
- Birds with gout will be placed on a low protein diet. Vitamin A may be given to birds who had received an improper diet.
- Proper hydration is necessary and fluids may need to be administered.
- Medications such as allopurinol or colchicine may be used, but the exact dosage and safety of these drugs in birds have not been determined.
- Most birds will need to be treated for life or the condition will quickly reappear if therapy is discontinued.
- If arthritis from gout is severe, it is possible to surgically remove the uric acid crystals from the joint.
- Often the damage to the joints or organs is irreversible.
- Pain medications such as butorphanol may be given.
- Changes in the bird's cage such as moving the food and water dishes to easily accessible locations and increasing the diameter of the perches may be helpful.
- The prognosis for a bird with gout is generally poor.

Feather Picking

- Feather picking or plucking is a behavioural problem in birds that results in feather, and occasionally skin damage.
- Feathers can be overpreened and chewed, broken or completely removed.
- This condition can occur gradually over months or years, or in some cases, literally overnight.
- Usually the activity will limit itself to certain areas of the body such as the chest or the thighs or the back.
- In a few cases birds will chew feathers on the whole body.
- However, even in the worst cases, the head feathers remain untouched since the bird cannot reach them and the flight feathers and tail feathers are not removed.
- The location of the picking can sometimes give insight into the cause of the problem.

Predisposing causes:

Diet:

- Healthy feather growth requires a balanced diet.
- Without proper nutrition, feathers become dry and lack-luster, may break easily and lack normal ultrastructure.
- In an attempt to restore feathers to normal, the bird will overpreen them and cause further destruction, thus beginning a vicious cycle of preen and damage.

Stress and Environment:

Birds are susceptible to stress. Common stressful situations for birds are:

- * change of homes/owners
- * addition or loss of a cage mate or human family member
- * lack of stimulus/ boredom
- * lack of opportunity for socialization

These stresses can result in displacement behaviour: overpreening and feather damage.

Socialization:

- Most parrots sold are handfed, babies. A bird's first year is of utmost importance in creating a well-balanced independent individual.
- This process can be thwarted by well meaning but overcaring owners.
- The result is a badly adjusted bird who will demonstrate several inappropriate behaviour patterns as the years go by, one of which is feather picking.
- It is crucially important that prospective owners of baby parrots be well informed on how to raise a young bird.

Internal Disease:

- Feather picking can be a reflection of pain or discomfort.
- A bird that plucks his feathers at the base of the neck may have a crop infection.
- A bird who chews his toes may have nerve damage in the leg and may be experiencing a "tingling" sensation. Feather picking can be the first clinical manifestation of systemic chronic disease.

External Growths and Infection:

Skin and feathers and follicles (roots) must be closely examined for evidence of viral, bacterial or fungal infections or cysts which can lead to feather picking.

Parasites:

- Internal or external parasites can cause itching and subsequent feather damage by picking.
- The pet may have been sold to you with these parasites or he may have contracted them from another bird.
- Once infected, a bird cannot rid himself of these unwanted pests on his own.

Physiology and Hormones:

- Reproductive hormone levels in birds fluctuate during the year leading to behavioural changes.
- One of these may be the plucking of feathers on the abdomen in females to prepare for egg laying.

- It is postulated that in a number of these individuals, this behaviour does not subside but intensifies into feather picking because of sexual frustration. Hormone treatments have been used in these cases with varying success.



How to deal?

- The diagnosis of the origins of this symptom begins with a discussion of the birds life and environment, a physical examination, and a complete avian profile to eliminate the possibility of physical disease, " Complete Avian Profile".
- If a disease process is discovered it must be treated medically.
- Environmental and dietary changes must be made where applicable:
 - provide more exercise
 - add, remove or alternate toys
 - transfer to a well balanced or pelleted diet
 - use a wide variety of food colours and sizes to stimulate
 - relocate the bird to a quieter or more active area depending on the case
- If environmental, dietary and physical aspects are in line, the behaviour itself must be addressed.
- This experience, which can be as frustrating as it can be rewarding, often requires changes involving the bird as well as the owner:
 - create or change routines

- establish nurturing dominance
- reinforce positive behaviours
- ignore negative behaviours

Feather Cysts

- Feather cysts appear as oval or elongated swellings involving a single or several feather follicles.
- Although they may occur anywhere, they most commonly are found involving the primary feathers of the wings.
- A feather cyst occurs when a growing feather is unable to protrude through the skin and curls within the follicle. As the feather continues to grow, the mass enlarges and a cheesy exudative material composed of keratin accumulates.
- Although feather cysts may be seen in all species, the highest incidence is in Blue and Gold Macaws and certain breeds of canaries.

Causes:

It is thought these feather cysts may be the result of:

- An inherited predisposition - as in certain species of canaries
- Or acquired as a result of infection or trauma involving the feather follicle.

Treatment:

- Treatment consists of surgically removing the involved feather follicles.
- If the follicle is just incised and the feather with its accumulation of keratin is removed, it will usually recur.

Baldness

- Baldness is an acquired loss of feathers on the head.
- It is commonly seen in canaries.
- A hormonal imbalance and genetics are believed to be responsible.

Brown Hypertrophy

- This condition is commonly seen in budgies.
- The cere (the structure containing the nostrils) hypertrophies, becoming cornified and keratinized.
- It may develop a prominent "hornlike" appearance.
- This condition is most common in female birds and is believed to be associated with breeding in females and estrogen secreting gonadal tumors in males.

Polyfollicles, Polyfolliculitis

- Polyfollicles is the growth of multiple feather shafts from one follicle.
- It may cause no problems or may be associated with chronic inflammation in feathers and skin.
- An itchy polyfolliculitis has been seen in lovebirds and budgies
- The tail and dorsal neck area are the most common areas affected.
- This condition is thought to be caused by a virus.

Signs of Illness

- Early signs of illness in birds are frequently missed by the pet owner.
- As a survival tactic in the wild, a sick bird will attempt to maintain a normal appearance as long as possible, so that by the time any symptoms are obvious, the bird has usually been ill for some time.
- The bird that "dies suddenly" may be the result of failure to observe changes in the appearance or behaviour of the bird prior to that time. For this reason, owners should familiarize themselves with early signs of illness in pet birds so that any therapy and care by their avian veterinarian will have a more favorable outcome.

Earliest Signs of Disease:

- The following symptoms may not require emergency treatment, but because they are abnormal, any bird showing these signs should be checked by your avian veterinarian, if these are not noticed during the regular check-up:
 - * broken, bent, picked or chewed feathers.
 - * unusual or dull feather colours.
 - * stained feathers over nares or around the vent.
 - * crusty material in nostrils.
 - * redness swelling or loss of feathers around eye.
 - * flakiness of skin or beak.
 - * loss of pattern, baldness or sores on bottom of feet.
 - * lameness or shifting of body weight.
 - * overgrowth of beak or nails.
 - * minor changes in talking, biting or eating habits.
 - * low reproduction in breeding birds.
 - * abnormal droppings.

Signs of Serious Illness:

- The following symptoms may indicate a serious health problem and veterinary assistance should be sought at once!
 - * significant changes in number and appearance of the droppings.
 - * decreased or excessive food and water consumption.
 - * change in attitude, personality or behaviour.
 - * fluffed posture.
 - * decreased vocalisation.

- * change in breathing or abnormal sounds.
- * change in weight or general body condition (weight in grams).
- * enlargement or swelling on the body.
- * any bleeding or injury.
- * vomiting or regurgitation (head feathers pasted).
- * discharge from nostrils, eyes or mouth.
- * loss of balance, unable to perch on both legs.

Evaluation of Droppings

- Observation of droppings is one simple method of monitoring your bird's health. Paper towels, newspaper or other smooth surfaces can be used to line the cage bottom so that the number, volume, colour and consistency of the three components of the droppings can be noted daily.
- A bird's normal droppings will vary in appearance depending on its diet.

Normal Droppings:

Feces (food waste material from digestive tract) can differ somewhat in colour and consistency. Diets with a high seed content usually produce homogeneous black or dark green feces. Birds on formulated diets normally exhibit soft, brownish feces.

Urine is normally clear liquid. A diet too high in vegetable and fruit matter may increase the urine component, as will a pelleted diet.

Urates (creamy white waste from the kidney) are often suspended in the liquid urine or appear to wrap around the feces.

Abnormal Droppings:

- The sick bird may exhibit:
 - * decrease in the total number of droppings.
 - * colour change to yellow or green of the urates or urine.
 - * increase in the water content of the feces (diarrhea)
 - * increase of the urine portion (polyuria)
 - * decrease in the feces volume with increased urates (polyurates)
 - * presence of blood.