

Pediatric Psittacine Diseases

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This article addresses disease syndromes of neonatal and juvenile parrots and treatments and prognosis of these diseases.

Medical presentations in neonatal psittacines generally fall into one of the following categories:

- 1) Congenital /developmental
- 2) Husbandry/nutritional
- 3) Infectious
- 4) Parasitic

Overlap of these categorizations occurs; for example, nutritional and husbandry issues may predispose birds to infectious or parasitic disease.

Congenital and/or developmental conditions include:

- 1) Beak abnormalities
 - a. Scissors beak
 - b. Mandibular prognathism
- 2) Constricted toe syndrome
- 3) Choanal atresia
- 4) MBD
- 5) Crypto-ophthalmia (eyelid agenesis)
- 6) Splay leg

These are usually detected on physical examination. Diagnosis of MBD is generally confirmed via radiographs.

Husbandry/nutritional diseases include:

- 1) Slow/sour crop
- 2) MBD
- 3) Gram negative enteritis
- 4) Hepatic lipidosis
- 5) Crop burns

Infectious pediatric diseases include:

- 1) Viral
 - a. Polyomavirus
 - b. Circovirus
- 2) Bacterial
 - a. Enteritis
 - b. Septicemia

Brief descriptions of the etiology, pathogenesis and treatment of pediatric conditions are listed below.

- 1) Beak abnormalities
 - a. Scissors beak
 - b. Mandibular prognathism

Both conditions are seen in young birds. The etiologies are unknown, but developmental problems, including inappropriate incubation temperature and humidity are possibly involved. The differences in the mechanics of parental feeding vs. human hand –feeding may contribute to these conditions.

Mild degrees of either condition detected and treated early may be manually manipulated to approximate normal conformation and function without surgical intervention, More severe degrees of beak deviation and those presented at an older age will require surgical repair., Many methods of repair have been documented, and details will be illustrated in the lecture.

- 2) Constricted toe syndrome

Annular constriction of the distal phalanges occurs in young birds . Multiple digits may be involved. The mechanisms have not been proven. Variations in temperature and humidity and possible septicemia leading to vasculitis have been theorized.

Early/mild cases of constricted toe can be treated by debridement of the annular band and application of a hydroscopic dressing. Small longitudinal incisions on the medial and lateral surfaces of the affected digit and suturing may be necessary to further relieve the pressure. If this condition presents after circulation loss is severe and necrosis is apparent, amputation will be required.

3) Choanal atresia

This condition is prevalent in African Grey parrots. Incomplete communication between the nares, infraorbital sinus and the choana occurs, and causes increased mucous accumulation and possible infection in the sinuses and nares.

Incomplete or absent communication between the infraorbital sinus and the oropharynx must be surgically repaired. Communication is created between the structures, and a means of maintaining the aperture is provided while the area heals. Variations on the technique first described by Don Harris for establishing and maintaining patency of the choana will be illustrated.

4) Metabolic Bone Disease

As in most species, calcium-phosphorous imbalance may cause metabolic bone disease. In young birds, this imbalance may be parental calcium deficiency or calcium deficiency in the neonatal bird's diet. In some species, Vitamin D deficiency is also documented to cause hypocalcemia. Additionally, incubators that house single young birds often do not provide sufficient lateral support in the absence of other chicks to stabilize growing bones.

Treatment will involve correction of calcium deficiency or imbalance, provision of Vitamin D3 (sunlight), coaptation of any pathologic fractures, and correction of bone angulations/deformities as are indicated.

5) Cryptophthalmia (eyelid atresia)

This syndrome is most commonly seen in cockatiels, and is often noted in several members of the same clutch. The eyelids, if present, are generally normal in conformation, but greatly reduced in length, leading to small to non-existent palpebral fissures. The degree of affectation dictates whether attempts at correction are necessary. The condition is usually bilateral.

In birds where the palpebral fissure is sufficient to allow functional vision, no correction is needed or recommended. Extension of the palpebral fissure by conjunctival eversion can be performed with modest success in cases where the palpebral aperture is absent or sufficiently reduced that functional vision is compromised.

6) Splay leg

The term splay leg is a catch-all for deformities of the legs in young birds. Often there are laxities of the ligaments of the stifle, and/or angular deformities of the femur, tibiotarsus and tarsometatarsus. Etiologies are poorly documented, but include nutritional deficiencies (consistent with those of MBD) and insufficient support /substrate in the enclosure.

When this condition is detected and treated early (while the long bones are still growing) the prognosis is excellent, and the treatment is often simply hobbling with non-adhesive material and placement in an enclosure that helps to maintain alignment. Although affectation is often bilateral, it is common for one leg to respond to repositioning more readily than the contralateral leg. Once the first leg is positioned and weight-bearing, the other leg may not respond to the same degree. However, functional use of both legs is usually achievable.

More complicated coaptation and/or surgery (rotational osteotomy) will be required if the bird is older and bone growth is complete. However, this should be approached cautiously. If a bird has one malpositioned leg, but full use of the digits on that foot, it may function well without correction. Surgery has the inherent risk of disturbance of circulation and innervation, and in older birds, the potential for self-mutilation post-operatively.

7) "Sour crop"

Sour crop is the term used for yeast infection of the ingluvia. Although this condition does occur, it is over diagnosed as a primary disease entity. The gastrointestinal tract will slow dramatically with any illness and in unweaned baby birds the most readily visible sign of GI stasis is delayed crop emptying. Yeast, usually *Candida*, will often proliferate in the formula found in the ingluvia. The underlying problem that caused GI stasis is the critical component at which diagnostics and treatment must be aimed. If *Candida* has become a significant pathogen, the crop will often be thickened, and a Gram stain of crop material will demonstrate not only budding yeast but also hyphae that develop when *Candida* invades the tissue.

When yeast is determined to be a primary or significant secondary infection, treatment will consist of; 1) Removal of retained formula from the crop, 2) Lavage of the crop if thickening is pronounced, 3) Oral administration of an antimicrobials active against *Candida* (Nystatin or fluconazole) 4) Correction of husbandry problems (i.e .formula composition, temperature, volume, consistency, hygiene)

Note: Crop burns are discussed in Avian Emergency Presentations

8) Bacterial enteritis/septicemia.

This condition may be caused by poor hygiene or immune suppression in the affected individual. Organisms involved include the Enterobacteriaceae such as *E. coli*, *Yersinia*, *Pseudomonas*, *Proteus*, *Salmonella spp*. These birds may present with systemic illness as well as diarrhea. *Clostridium sp* may cause a foul smelling diarrhea, especially in abnormal cloaca tissue (such as in birds affected with cloacal prolapse or papillomatosis). A gram stain and culture of the stool and a CBC will aid in diagnosis.

Due to blood volume constraints, blood culture is not routinely performed in smaller psittacines. Septicemia in these birds is often treated empirically. Clinical signs of illness, a leucocytosis with a left shift and husbandry issues or compromised immune status conducive to susceptibility to these bacteria warrant treatment with a broad spectrum antibiotic pending the results of further diagnostics.

9) Hepatic Lipidosis

The liver in neonates is typically larger relative to the total body weight than in adult birds, so some degree of hepatomegaly is normal in baby birds. However, the baby bird with hepatic lipidosis presents a fairly classic picture. The baby is generally heavy for its age and exhibiting severe respiratory distress. It is usually still hand feeding. The commercial formula being used is often inappropriate for the species (the most classic example being a macaw formula being fed to a cockatoo), or it may be a commercial formula to which the owners have added peanut butter, macadamia oil, or some other high fat food.

These baby birds must be handled gently and minimally. COOL oxygenation is the best initial treatment, since hyperthermia is common. Their lung and air sac capacities are greatly decreased, and the stress of feeding and breathing at the same time has exceeded their oxygen reserves. Parenteral fluid supplementation, when tolerated, should be administered to keep the bird hydrated and to help detoxify the body, since the liver is generally not functioning adequately. Drastically reducing the quantity of crop food per feeding, adjusting the content of the formula, and adding lactulose are the general nutritional changes required. When possible, CBC and chemistries should be obtained to check for concurrent infection or other disease.

10) Polyomavirus

Polyoma virus can cause high mortality in aviaries and pet stores. Immunologically immature birds are most susceptible. The housing of young birds (prior to weaning) of multiple species from different sources in the same enclosure creates an ideal breeding ground for polyomavirus. The classic presentation is a previously healthy young bird that has been exposed to other birds, and becomes acutely ill. The time from the onset of illness, which may be noted initially as a failure of the crop to empty, to death, may be only hours to a few days. Birds seem most susceptible to fatal illness at the 'pin-feather' stage, although older birds may be affected with milder or sub-clinical disease. Awareness of the disease, proper quarantine and vaccination have decreased the incidence of polyomavirus outbreaks, but the disease is still seen with some frequency.

Most birds with acute illness due to polyomavirus will expire prior to confirmation of the diagnosis. At necropsy, varying degrees of hemorrhage will be apparent in the musculature and on the serosal surfaces of the coelomic organs.

Supportive care is indicated in suspected cases, with quarantine and close attention to hygiene necessary to prevent further spread of disease. Aviaries and pet stores should follow a comprehensive plan involving testing, isolation and vaccination, to avoid and control polyomavirus outbreaks. For help with testing protocols and interpretation of results for Polyoma virus an circovirus, contact the Infectious Disease Laboratory, College of Veterinary Medicine, University of Georgia, 501 DW Brooks Dr., Athens, GA 30602-7390. Phone 706-542-8092

11) Circovirus

Originally known as 'Cockatoo Beak and Feather Disease', this syndrome was seen in most species of cockatoo in the U.S. beginning in the early 1970's. Various etiologies were proposed, but it was almost 15 years before the virus was identified. With the development of a PCR test for circovirus, screening for and the subsequent elimination of

circovirus from many U.S. cockatoo breeding facilities was accomplished. However, the virus is still seen in other species of Old World captive bred psittacines, notably lovebirds, African gray parrots, Eclectus parrots, lorries and budgerigars. Although beak involvement is rarely noted in these species, the common name 'Psittacine Beak and Feather Disease' has been retained.

As with polyomavirus, this is a disease seen primarily in young birds. Unlike Polyoma virus, clinical illness from this disease is generally confined to Old World parrot species. Testing of individual birds, as well as the environment, and preventing exposure of possibly endemically infected species (such as lovebirds) to larger juvenile Old World species, will reduce disease

12) Acaridiasis

In areas where outdoor breeding is common, psittacines may contract parasitic burdens of ascarids (*Ascaridia sp.*) that can be harmful or fatal. Fecal direct smears/floatation may demonstrate parasitic ova, however; negatives fecals will occur in some parasitized birds. In endemic areas, outdoor breeding birds and their offspring should be routinely dewormed for nematodes.

Summary

Neonatal and juvenile psittacines have age and species-specific diseases that will be presented for veterinary care. Knowledge of normal anatomy, husbandry and behavior of these young birds is critical in interpreting clinical signs and formulating a diagnostic and treatment plan.

References/Suggested Reading

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