

Psittacine Beak and Feather Disease (PBFD) in Australian Parrots

A SAVEM Information publication

Introduction:

PBFD is caused by a circovirus and is endemic in Australian parrot populations (cockatiels appear not to be affected). The virus causes immunosuppression, feather abnormalities and, especially in cockatoos, beak abnormalities (brittle long beaks which are prone to fracture). PBFD is a common cause of presentation to vet clinics as affected birds are susceptible to secondary infections, predation, trauma and starvation.

Transmission:

Vertical: i.e. chick is infected with the virus before it hatches.

Horizontal: virus can be shed in the faeces, feather dust, blood and crop contents.

Disease

Progression:

The course of the disease (acute or chronic) depends on:

1 **Species of bird.** Birds commonly presented to vet clinics include:

Cockatoos — Sulfur-crested, Corellas, Galahs: Look for loss of powder down; beak lesions may be seen in chronic cases.

Lorikeets — Rainbow, Musk, Scaly-breasted: Usually present as young birds with missing tail feathers and outside primary wing feathers; remaining flight feathers pluck out easily and have calamus abnormalities; can present with weak flight and just have abnormal colouring on the feathers – usually incorrect areas of yellow on the primary feathers – more commonly on the tail. Older lorikeets with a chronic infection may develop feathering colour changes of the contour feathers (body feathers) – this can present as yellow contour feathers or patches of yellow within the green contour feather. These birds are usually weak and have a secondary infection.

Other parrot species affected — Crimson and Eastern Rosellas.

2 **Age of bird when infected:** It is rare for any bird > 2y of age to become infected. Birds develop their antibody diversity in the bursa of Fabricius in the first 3–6 weeks of life. Those infected < 3 weeks will die within weeks of first showing signs. Birds infected after they have developed a functional immune system have a more chronic disease course, i.e. feather abnormalities and some level of immune suppression. These birds can live a long life with good husbandry BUT remain carriers and shedders of PBFD virus.

What you may see:

The virus attacks **growing** feathers causing feather dystrophy. Thus, signs depend on the stage of moult at time of infection.

Signs can include:

- 1 Feather loss: e.g. 100% loss in young chicks as all feathers growing; loss of dander feathers; loss of body feathers; loss of primary feathers; loss of tail feathers
- 2 Abnormal feather colouring, e.g. dirty, off-white feathers; blood in feather shaft; odd-coloured feathers in solid colour areas
- 3 Deformed feathers
- 4 Weak feather attachment
- 5 Calamus abnormalities, e.g. pinching of new feathers/necrosis.



Above: Loss of primary feathers in a Rainbow Lorikeet with PBFD. Photo courtesy of Dr Anne Fowler.



Above: Deformed feathers and lost tail feathers in an Eastern Rosella with PBFD. Photo courtesy of Dr Anne Fowler.

Diagnosis:

- 1 Presence of an unusual infection may be the only symptom.
- 2 Classical feathering abnormalities: e.g. bilateral loss of primary feathers and tail feathers in lorikeets; loss of dander feathers (with feather pinching) where the femur meets the pelvis.
- 3 Pathology tests:

PCR (beware false positive results) on a blood quill feather and blood on filter paper.

Histopathology of a blood quill feather (cost effective but beware false negative results): Presence of basophilic intracytoplasmic or intranuclear inclusion bodies in the feather pulp, feather follicle skin or the bursa of Fabricius.

DDx:

Liver Disease — can cause narrow feathers and feather colour changes.

Poor Nutrition — can cause feathering abnormalities and colour changes.

General Health — chronically sick birds will have poor feathering, e.g. chronically unwell cockatoos will start to lose their powder down and have very stunted down feathers.

Feather picking — but some birds with PFBF *will* feather pick.

Treatment of Wild Birds:

None. Infected birds are persistent carriers and shedders of the virus and should be euthanased.

Control:

Circovirus is very stable under a range of environmental conditions and is likely to persist for some time in the environment.

- 1 **Do not** house an infected bird on the same property as other susceptible birds.
- 2 **Do** change clothing and shower post handling an infected bird before approaching other susceptible birds.
- 3 **Do** disinfect contaminated objects/premises with F10. (NB. No testing has been done to accurately assess efficacy of any disinfectant against circovirus).
- 4 **Do** make every effort to prevent virus entering an aviary of susceptible birds.

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This Treatment Sheet (First Edition September 2010) has been compiled by the AVA SA Wildlife Committee. It is intended to assist veterinarians in the assessment and treatment of PFBF.



Above: Corella with PFBF.

Photo courtesy of Dr Ian Hough



Above: Overgrown beak in Corella.

Photo courtesy of Dr Ian Hough



Above: Loss of body feathers in Corella.

Photo courtesy of Dr Ian Hough



Above: Feather constriction, hallmark of the disease.

Photo courtesy of Dr Shane Raidal.