Avian Case Reports

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Introduction

In July 2003, I had an opportunity to spend a month working with Dr Michael Taylor, Service Chief, Avian and Exotic Medicine,Veterinary Teaching Hospital, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada.

The cases presented below were seen during this time. I have chosen them, not because they are unusual or particularly fascinating, but because I found it interesting to observe how such cases are treated in the setting of a teaching hospital, where the learning experience is a fundamental part of the animal's treatment. Each patient is initially welcomed by the Intern who collects history and carries out a clinical examination. The case is then discussed with the Registrar. The Registrar then interviews the client and examines the patient. In some cases the Service Chief may also become involved in the process after discussion with the Registrar. The animal is usually admitted to the hospital for collection of relevant diagnostic samples and often radiology and/or ultrasonography as indicated. All the information is gathered and then discussed in full at Clinical Rounds. This is a wonderful and intellectually stimulating, learning environment.

Case 1. Zack, the Yellow Headed Amazon

History

Zack, Female Yellow-headed Amazon (*Amazona ochrocephala*). Currently she is overweight on a restricted diet. She is 11 years of age and had been donated to Avian and Exotic Medicine Department because of chronic, on-going medical problems.

In September 2002:

- Large hyperinflated cervico-cephalic air sacs
- Crop wound from self–trauma
- Could palpate enlarged liver beyond keelbone

Pathology Tests

- PCR
  - *Chlamydia psittaci* Negative
  - Herpesvirus Positive
- Blood Lead normal
- Full Blood Count
  - Regenerative anaemia from picking at crop wound and consequent blood loss.
  - Heterophilia, no Left Shift

- Bile Acids normal
- Low Total Protein
- Raised LDH

- Liver Biopsy
  - Moderate degree of variation of hepatic nuclear size
  - numerous hepatocytes containing intracytoplasmic pigment.
  - Pigment may be iron
  - Bile duct hyperplasia
  - Diagnosis: Degenerative Hepatopathy, no inflammation. There were no changes consistent with Herpes infection – expect focal necrosis and inclusions.

Serial radiographs over a 5 month period demonstrate gradual resolution of hyperinflation of the cervico-cephalic air sacs.

- September 30 2002
- November 5 2002
- January 13 2003
- February 17 2003

Treatment

Initial treatment was Metacam, Enrofloxacin and Vitamin A injection

Result

In July 2003 Zack is back to normal but now is overweight and on diet. Her Air Sacs are normal.

Discussion

Many of the birds with clinical signs similar to Zack are treated as subcutaneous emphysema where air has escaped from rupture of an air sac membrane. The common treatment for this is that the air sac is incised and the air is allowed to escape. In some cases because of recurring "subcutaneous emphysema" a stent is inserted.

Many of these cases are not subcutaneous emphysema but hyperinflation (or overinflation) of the cervico-cephalic air sacs. The underlying cause is Vitamin A deficiency with secondary infections, causing narrowing of the small, fine connections between the air sacs from inflammation and parakeratosis. Supplementation with injectable Vitamin A reduces the parakeratosis at these narrow connections between the air sacs and re-establishes normal air flow.

Case 2. Rusty,the Red-bellied Parrot

History

Rusty, the 3-year-old, Female, Red-Bellied Parrot (*Poicephalus rufiventris*). Was involved in a traumatic incident with an 8 yr male Umbrella Cockatoo (Cacatua alba) that wished to mate with her. She is the only female in a group of 4 pet parrots. The owner reported that the Umbrella Cockatoo is always sitting next to her. One day, while the owner was absent from the room, Rusty screamed and the owner returned to find the Umbrella Cockatoo was holding her down and pressing with his beak onto her dorsal cervical region. The screaming continued and she was distraught for 15-20 minutes (i.e. longer than just panic so there is a strong suspicion she was in pain) and then was very quiet and depressed. Now 3 weeks after this incident, she had drooping of the left upper eyelid and asymmetry of the feathers of the head and neck.

Initial presentation 17 July 2003

Rusty has lost wt from 150 to 122g over past 5 weeks. Only recently has she been her normal cheery, dominant self - after 3 weeks of depression.

Recently, her owner has noticed drooping of upper L eyelid and ruffling feathers of head and neck adjacent. She does not expand feathers on L side head when relaxed or move them when alert. The feathers on Right Cervical area are normal tight feathering.

All this suggests a neurological deficit. The upper eyelid is innervated by Oculomotor Nerve (Cranial 3), while the lower eyelid is innervated by the Abducens Nerve and the Mandibular branch of the Trigeminal Nerve. This innervation is quite different to mammals. Also some concern re Sympathetic trunk and these changes are like Horner's Syndrome. Rusty was examined by the Neurologist whose opinion is that this is likely to be Horner's Syndrome. In dogs over 50% of cases of Horner's Syndrome have an unknown aetiology, the remainder are associated with trauma, a retrobulbar lesion or otitis media.

In this case, the feather assymmetry may be damage to sympathetic trunk as these feathers are under adrenergic control. This problem may be exacerbated in birds because they have a long, sigmoid cervical area with extra vertebrae compared to mammals that may predispose to damage to sympathetic trunk.

Re-examination on 25 July 2003

Because of the innervation of the eyelids, Horner's syndrome in a bird does not have all the classical signs seen in mammals. In this case we have concern re damage to the root of Sympathetic trunk as it courses up the cervical vertebrae. To test our suspicion we will instil intraocular Phenylephrine drops and expect a response within 10 minutes.

There is no recorded dose for Phenylephrine in birds. Normally it is available as 10% Phenylephrine Drops. We planned to dilute this 1 in 10 with saline and place 2 drops from a small 0.5ml Tuberculin/diabetic syringe. Within 30 seconds of instillation of the Phenylephrine drops into the Left eye, the upper eyelid no longer drooping and had assumed normal round shape again and the bird still had good control of its eyelid. Motor control of eyelid was always intact but the upper eyelid shape is under Sympathetic control so it responded to the treatment. There was still

some dorsal strabismus present. The Phenylephrine was placed in the opposite eye but no effect was seen.

Case 3. Fran, the Lesser Sulphur Crested Cockatoo.

History

Fran, the Lesser Sulphur Crested Cockatoo (*Cacatua sulphurea*). Date of birth April, 1983. Her diet was Pretty Bird pellets always present as a free choice with fruit and vegetables provided for the evening meal.
Wt = 729g.

Initial presentation 06 May 2003

Fran was referred from another veterinary hospital for ascites with egg yolk peritonitis. Blood and coelomic fluid were collected and radiographs taken as a baseline for assessment.

Lab results: 06/05/2003:

Parameter (SI units)	Value	Normal Range	Interpretation
WBC x 10^9/L	21.4	5 - 15	leukocytosis
Hb	141	115 - 160	
HCT	0.42	0.42 - 0.54	
TP	60	31 - 44	H
Heterophils x 10^9/L	14.77	2.3 - 8.6	heterophilia
Bands x 10^9/L	0		
Lymphocytes x 10^9/L	3.64	1.0 - 6.0	
Monocytes x 10^9/L	2.35	0 – 0.1	
Eosinophils x 10^9/L	0	0 – 0.1	
Basophils x 10^9/L	0.64	0 – 0.1	
Polychromasia/100 RBC	3-5	0.45 – 0.57	

Drained 19ml clear fluid from abdomen. TS=2.5, Abdominal fluid = no growth C&S.

Coelomic Fluid:

Cholesterol = 6.57. This is greater than the blood level and supports an active egg yolk peritonitis
Colour = pale yellow, Clarity = cloudy, N.cell = 1.7 x 10^9/L, TP= 40g/L
Low cellularity and excellent preservation, mild haemorrhage, cells mostly macrophages with marked erythrophagia and possibly cytophagia. Material in macrophages could be cellular debris, albumen or a combination of both. No organisms seen. Diagnosis: Modified transudate with recent haemorrhage. A diagnosis of egg yolk peritonitis is still possible.

Radiographs:

Opacity of intramedullary space of Tibiotarsus, femur and ulna. This is consistent with a normal ovulating female that is ready to form and lay eggs. Pelvic bones are widely spread. There is

generalised loss of detail of coelom. Vent is pushed out – suspect mostly from swelling oviduct, with partial prolapse. Abdomen is generally distended.

Initial treatment: Fran was given 0.85cc HCG 1000IU/ml IM, and 2mg Dex IM. It was also recommended that her mate be removed from her sight and hearing. Follow-up Blood work and radiographs were taken 22/07/2003. Initially given Dexamethasone 2mg/kg sid IM 3d, then 1mg/kg sid IM each 2d for 14d.

Revisit 22/07/2003:
Fran Revisit for repeat blood work and radiographs.

Lab results: 22/07/2003

Parameter (SI units)	Value	Normal Range	Interpretation
WBC x 10^9/L	17	5 - 15	leukocytosis
Hb	146	115-160	
HCT	0.45	0.42-0.54	
TP	41	31-44	
Bands x 10^9/L	0.51		
Heterophils x 10^9/L	13.26	2.3-8.6	heterophilia
Lymphocytes x 10^9/L	2.55	1.0-6.0	
Monocytes x 10^9/L	0.51	0 – 0.1	
Eosinophils x 10^9/L	0.17	0 – 0.1	
Basophils x 10^9/L	0	0 – 0.1	
Polychromasia/100 RBC	1-3	0.45 – 0.57	anaemia

Parameter (SI units)	Value	Normal Range	Interpretation
Calcium	3.99	2.00-2.7	H
Phosphorus	2.09	1.3-2.5	
Total Protein	25	25-50	
Albumin	11	3-9	H
Globulin	14	25-38	L
A:G ratio	0.79		
Glucose	14.6	11.0-19.4	
Cholesterol	5.33	2.3-5.0	H
Total Bilirubin	1		
GGT	0		
AST u/L	183	< 300	
CK u/L	250	< 300	
Amylase	827		H
Lipase	19		normal
Uric Acid umol/L	437	210 - 650	normal
LDH	399	225-650	
GLDH	2		
Na mmol/L	140	131-157	
K mmol/L	4.2	2.5 - 4.5	
Cl mmol/L	106		
Na:K	33		

Interpretation Blood Profile: normal CBC but Amylase is increased. Is this from pancreas or renal or an artefact? This begs the question, where was all the peritoneal fluid coming from? It was inflammatory and irritant and not septic, but more serous in nature. It may be a generalised peritonitis that is gradually clearing and may involve the splenic portion of the pancreas. It may be remnant of chronic ongoing low-grade inflammation. Dexamethasone appears to have settled the effusive process.

Radiographs: More normal view of coelomic contents with better clarity of abdominal detail. Some opacity near cranial lobe kidney and loss of intramedullary bone in Tibiotarsus, femur and ulna. Pelvic bones not spread as widely.

Now the male has been returned to Fran and he is chewing her facial feathers, covering her ears, bilaterally. They have no nest box and this is the middle of the breeding season so he is probably frustrated.

Discussion

In this case the medications selected to settle the ovulation problems were HCG + Dexamethasone. No-one knows why this works but there is a strong suspicion that the Dexamethasone is the main influence.

To settle ovulating bird problems it is recommended to not use Leuprolide acetate (trade name is Lupron[â] in USA and Lucrin[â] in Australia) as it may cause cystic changes if administered in the presence of active ovarian follicles. Other authors disagree with this approach. Leuprolide acetate is

a GnRH agonist. It causes a reversible reduction in gonadotropin output, resulting in cessation of egg production and gonadal involution. It may also cause moulting. It is commonly used for persistent egg laying (especially in cockatiels), and behavioural problems such as frequent sexually-induced regurgitation, masturbation in either gender or aggression in males. It can also be used after dystocia or egg-binding to cease ovarian production and avoid complications of more eggs being produced. Leuprolide is likely to only be effective for only a short period in the birds are stimulated by the presence of a nest or their mates, or receive amorous attention from their owners. The standard dose is 750 µg/kg IM for 3 injections at an interval of 14 days between injections. It is an effective treatment in most parrots and passerines. Some authors sugest that Budgerigars (*Melopsittacus undulatus*), Cockatiels (*Nymphicus hollandicus*) and Sun Conures (*Aratinga solstitialis*) may not respond as well to the use of Leuprolide as do other species.

Case 4. Gypsy, the Green Wing Macaw

History

Gypsy, the Green-winged Macaw (*Ara chloroptera*) is a 9 months-old and Female. She belongs to a local Pet Store. She first presented on 5 July 2003 because of poor growth rate and sloppy droppings.

Initial Examination 5 July 2003

She has a prominent keel-bone and is weaker than normal. Her weight was 750g. At this age her weight should be closer to 1.0Kg. Her blood lead and Zinc levels are normal. Fluoroscopic examination revealed signs that are highly suggestive of Proventricular Dilatation Disease (PDD). She exhibited poor motility of gizzard, proventriculus and oesophagus with repeated reflux and poor passage of food through the GIT. The client was offered a poor prognosis but wishes to take home and try to stabilise her. She was placed on Meloxicam at 0.5mg/kg bid. There is a suspicion that the half-life of Meloxicam may not be as long in birds as in dogs and so it may need to be administered twice daily. Karen Rosenthal uses dose 0.5-1.0mg/kg bid for PDD compared to normal dose in birds of 0.3mg/kg sid.

Subsequent Examination 30 July 2003

Her weight today is 850g. Unfortunately she had been fed prior to weighing so there is food in her crop, so weight really is somewhere between 800-850g. She improved well in first week, then lost weight again. Has sloppy droppings today especially the faecal component.

Birds with PDD are prone to GIT problems because of generalised poor gut motility.

Assessment:

Collect faeces for Wet prep and Diff Quik:
Wet Prep look for:
Undigested food particles
bacterial overgrowth
yeasts present
motile protozoa
Diff Quik look for:
Morphology of bacteria and yeasts or protozoa

Gypsy had no bacterial overgrowth but a large number of yeast like organisms, many were budding.

Management Plan:

Increase solids in diet to help gain weight.
Maintain Meloxicam at current dose because it is definitely helping.
Place on oral Nystatin (100,000 IU/ml) give 2.5ml bid (dose = 300,00 IU/KG) birds wt ~ 800g.
If the diarrhoea does not respond to treatment, recommend perform a Culture and Sensitivity to assess any secondary bacterial infections.
Revisit each 2 weeks to assess
Recommend the client consider having a Crop Biopsy to assess the histopathology changes around the nerves and to confirm the diagnosis. Need to ask for serial sections along a nerve as it may not always be apparent on a single section.
Recommend repeat fluoroscopy so we are not just measuring the motility changes at one point in time and also to assess if there is any improvement in the GIT motility.

Multiple Choice Questions

1. A useful means of assessing GIT motility in parrots is:

   A: radiographic examination
   B: fluoroscopic examination
   C: ultrasonic examination
   D: Haematology

2. An effective medication for treatment of ovulation problems in parrots is:

   A: HCG + GnRH
   B: HCG alone
   C: HCG + Dexamethasone
   D: GnRH alone

3. A radiographic sign of ovarian activity is:

   A: intramedullary opacity of long bones
   B: opacity cranial to the kidney
   C: narrowing of the pelvic space
   D: renal opacity

4. An effective treatment for Horner's syndrome in a parrot would be:

   A: Meloxicam
   B: Dexamethasone
   C: Vitamin A supplementation
   D: Phenylephrine

5. An effective treatment for hyperinflation of cervico-cephalic air-sacs in a parrot would be:

   A: Meloxicam
   B: Dexamethasone
   C: Vitamin A supplementation
   D: Phenylephrine

Answers: B, C, A, D, C