How I Work up the ADR (Ain't Doin' Right) Bird

Angela M. Lennox, DVM, Dipl. ABVP-Avian Practice

Avian and Exotic Animal Clinic of Indianapolis,
9330 Waldemar Road Indianapolis IN 46268

Reprinted in part from the Proceedings of the North American Veterinary Conference, 2007.

Birds typically hide signs of illness, and many conditions produce very similar clinical pictures. A typical presentation might be: bird is still eating but a little less, is still defecating, but is definitely less active and sometimes sits in the cage fluffed up. The differential list for the above symptom list is frustratingly high: bacterial septicaemia = heavy metal toxicity = proventricular dilatation disease = recent trauma, in terms of clinical presentation.

Thorough History

History must be thorough and include signalment, past medical history, source of the bird, complete diet history including snacks fed by all persons in the household, caging history including whether or not the bird is always supervised, whether or not the bird has recently been boarded or exposed to new birds, and a list of other contact birds, and how long each bird has been in the household. Other critical information includes recent illness and/or deaths of any other birds in the household, and exposure to other household pets.

Pre-Physical Examination

Observe the bird at rest at a distance, and look for visual clues, such as a slight tail bob indicating dyspnoea, or decreased attention to novel surroundings. With experience, avian practitioners begin to develop a "gut feeling" for those birds who are sicker than they are appear, based on the collection of subtle clues. Frequent observation of normal birds in the clinical setting helps to quickly identify birds not completely "in tune" to their surroundings.

Before beginning restraint and physical examination, be mindful of indications the bird should be released at once and the examination postponed. Dr. Teresa Lightfoot developed a helpful guide she calls the "Put It Down" list (note in this case "Put It Down" does not mean "euthanise").

Pronounced dyspnoea, prolonged panting or gasping for air, inability to grasp with feet, weakness, inability to bite, closing the eyes during examination, lack of normal response to stimuli and incoordination, and marked abdominal swelling. Observation of any of the above should lead the practitioner to strongly consider releasing the bird immediately and begin planning emergency stabilization.

Physical Examination

As in any species, physical examination requires a thorough systematic head to tail examination including examination of the oral cavity and auscultation. Include things that you might not have thought of, for example evaluation of mucus membrane color by observing the everted vent, and estimation of general circulation and blood pressure by observing basilic vein turgor. Clues to a traumatic episode may be hidden

under feathers. Pay careful attention to the width of the space between the ventral keel and pelvis (coelomic space). This space is frequently widened in cases of organ enlargement, space occupying mass or fluid accumulation.

Diagnostic Work Up

Determination of when to begin the diagnostic work up in a critically ill patient requires careful observation, experience, and some degree of good fortune.

When patient condition allows, minimum database includes complete blood count (CBC), chemistry panel, and radiographs, which should be preferably performed in house as quickly as the bird is able to safely tolerate sample collection. In many cases, information from these three tests allows the practitioner to develop a moderately large rule out list and begin to focus on a diagnosis.

The CBC: In-house Vs. Send it out

There is no denying the usefulness of competent, professional evaluation of the avian haemogram. The only disadvantage to professional evaluation is the time required to ship the sample and receive results, which can vary from several hours (local courier and laboratory) to several days (mail to more distant laboratory). As time is of the essence, especially in critically ill birds, the author prefers to perform the CBC, or at minimum examination of the blood film and determination of PCV/TSS in house for immediate results. Evaluation of the avian blood film is challenging, but can be accomplished with patience and practice. Begin in well birds by comparing side by side analysis of in-house results with those sent to the reference laboratory, until results are consistent. As the avian haemogram is fragile and the blood film is particularly prone to artifact, the practitioner must ensure that slide preparation is optimal from start to finish, beginning with collection of a high quality blood sample, immediate (within seconds of collection) preparation of the slide, and uniform staining. Deficiency in any of these areas can result in a slide with enough artifact and irregularities to make interpretation difficult to impossible.

In the companion psittacine bird, the most useful information gleaned from the complete blood count is: measurement of haematocrit, determination if existing anaemia is regenerative or non-regenerative, presence of lipaemia in the spun serum sample, white blood cell count or estimation, and evaluation of heterophil morphology. With the exception of the presence of monocytosis, in the author's opinion the differential is often less diagnostically useful.

It should be kept in mind that even in critically ill patients, the WBC can be performed from a single haematocrit tube of blood. Simple evaluation of the smear can be performed with an even smaller volume.

The Chemistry Panel

The same arguments in favor of in-house evaluation of the haemogram stand for the chemistry panel as well. A number of companies manufacture in house chemistry analyzers that produce reliable results with a very small sample volume. The Abaxis VetScan chemistry analyzer (Abaxis, Union City, CA) produces a chemistry panel from approximately 0.13 ml whole blood, which represents a tremendous advantage (for example, acquisition of a chemistry panel in a 20 g bird). In the ADR patient, analytes that typically produce the most useful information include: albumin and globulin, glucose, uric acid, calcium and phosphorus, AST and CK. It should be kept in mind that the chemistry panel does not often correlate well with disease. For example, uric acid is not always elevated in the face of renal disease.

Diagnostic Imaging

In the author's experience, the radiograph provides important diagnostic clues much more frequently than the chemistry panel, and would be preferred if a choice had to be made of one over the other. The most

important information to be gleaned from the radiograph of the ADR bird is detection of organ enlargement or displacement, fractures, heavy metal, and/or evidence of reproductive disease, such as an egg or shell fragments, or hyperostosis of the long bones. As the gastrointestinal tract occupies much of the coelomic cavity, administration of barium (barium series) helps identify the gastrointestinal tract and separates it from other structures, for example helping to distinguish an enlarged proventriculus from an enlarged liver.

Practitioners find ultrasound increasingly useful in avian patients, especially in cases of fluid or mass enlargement, or for investigation of cardiac disease. One of the more impressive uses is for immediate diagnosis of retained eggs or ovarian cysts in birds with evidence of coelomic distention.

Other Cheap and Easy Diagnostic Goodies

- Faecal cytology
- Abnormal findings include presence of red blood cells, inflammatory cells, gram negative bacterial organisms or bacterial spores, protozoa such as giardia, non-staining "ghost" bacteria suggestive of acid fast organism, and, in rare cases, parasite ova.
- Faecal/urine occult blood
- The author has found that commercial fecal occult blood testing kits can be useful for detection of blood originating from the gastrointestinal or urinary tract.
- Measurement of indirect blood pressure
- Lichtenberger (2005) and Bowles et al. (2007) have recently described techniques for the measurement of indirect blood pressure in psittacine birds. In the first two weeks after beginning utilization of this test, the author encountered a bird with CNS related to hypertension. Hypotensive birds require immediate therapy and correction.

Additional testing

Testing available to the avian practitioner is extensive. History, physical examination and basic testing will likely provide clues to the next diagnostic step. Evidence of infectious disease (history, infectious/ inflammatory haemogram, non-regenerative anaemia) might suggest culture and sensitivity or testing for a specific infectious agent such as chlamydophila. Suspicious densities observed on radiograms suggest heavy metal testing.

And Finally…..Consult or Refer

Avian medicine is a rapidly growing field, and no single practitioner can ever expect to be a master of every facet. Practitioners must be willing to confer with other practitioners and specialists, for a consulting fee if necessary. Referring a difficult case to a colleague must not be considered a personal failure. Failure to refer when indicated, however, is.

References

Bowles H, Lichtenberger M and Lennox A (2007). Emergency and critical care of pet birds. *Vet Clin Exot Anim.* **10**: 345-394.

Doneley B, Harrison G and Lightfoot TL (2006). Maximizing information from the physical examination. In Harrison G, Lightfoot T (eds) Clinical Avian Medicine. Spix Publishing, Palm Beach FL, pp. 153-212.

M . Lichtenberger, M (2005). Determination of Indirect Blood Pressure in the Companion Bird . *Sem Avian Exotic Pet Med*. **14**: 149 - 152