Basic Avian Medical Techniques

Debbie Monks

OVERVIEW

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SETUP

To examine birds thoroughly and feel confident, one needs to have appropriate tools. Before starting avian practice, it pays to have the following implements:

Number of hand towels, tea towels and small towels for restraint.
Accessible light switch.
Gram scales.
Microscope +/- counterstain.
Microscope slides and cover slips.
Gram stain.
Minimum pharmacy items (see later).
Crop needles (minimum one for each size range of bird).
Hot box or other heating capacity.
Leg band removing equipment incl small bolt cutters and small haemostats.
Nail clipping equipment .
Insulin syringes both with and without needle.

It also pays to have nurses and receptionists briefed on phone advice and handling techniques. It is very frustrating waiting for a bird to defaecate! See Appendix A: Phone Advice.

HANDLING BIRDS

The key to good handling of birds is preparation. Watch the bird for some moments as it acclimatises to the consultation environment. Scrutinise particularly for any signs of respiratory compromise (tail bobbing, open mouthed breathing, panting) which may impede a full examination. Once you are confident the bird can withstand handling, then gather all of the restraint, diagnostic and medicating equipment you think you may need, ensure the room is bird proof, then proceed.

Most of the techniques mentioned below apply to parrots and smaller passerines (canary or magpie). Danger can be present from unexpected sources when handling unusual species such as:

Raptors – talons are primary concern, then beak
Larger passerines – beak can inflict painful injury
Water/wader birds – stab with beaks. Have been cases of ruptured eyes
Gallinaceous birds (poultry) – can damage with spur
Anseriformes (ducks, geese) – beak and wings (in larger birds)

I prefer to use a light towel, appropriately sized for the size of bird you are handling, and change towels between patients to minimise disease transmission. I fine that gloves reduce sensitivity and I find that a towel usually provides adequate protection.

The temperament of the individual bird will determine which method of capture is best. With aggressive smaller birds, it is often enough to simply introduce the towel into the cage, and then bundle up the bird within. Other birds need to be gently 'squashed' against the side of the cage, until you can get a grip on their heads and restrain their wings (see below). The distraction technique is one I use for large, aviary birds, where one corner of the towel is twitched to attract attack, then my other hand immobilises the head.

One trick that works quite well for me is to pinpoint the bird's position in the cage, then have the lights temporarily turned off. It is then (sometimes!) a simple matter to restrain the bird and remove it from the cage.

Styles include:

The scissor approach – holding the head between index and second finger. By extending your fingers, and using the mandible as a fulcrum, it is possible to roll the beak further away when the bird threatens to bite.

The three-pronged approach – the head is cradled between the thumb, index and second finger.

The death-grip approach – fist placed around neck (best for large birds).

The body grip approach – used for waterfowl and gallinaceous birds. The bird held with back nestled against your chest, and wings held against body with the head free to move. Be careful to keep the bird away from your face when handling waterfowl (such as cormorants etc) in this way as the beak can inflict serious damage to your eyes.

DO NOT COMPROMISE RESPIRATION! Birds breathe via lateral excursions of the chest, so any continued pressure on the body may result in suffocation. When I am holding a bird most of

the restraint is centred around the head, and I use the rest of my hand (or body, depending on the size of the bird), to cradle the wings and body.

I am comfortable restraining most birds single handedly, but may require extra assistance for medical procedures in birds of cockatoo size and upward (eg wing trims, jugular venipuncture).

HISTORY

History taking is a crucial part of the avian examination, as often the physical examination gives insufficient evidence for a diagnosis.

Some find it easier to use history forms, which are filled out by the client in the reception area, while others take a history while the bird is acclimatising to the consultation room. This allows observation of the bird prior to handling.

The AAV also has client history forms that can be purchased from USA. The following is an example of the sort of historical questions requiring answers. The 'cheat sheet' appears in Appendix B.

How old is your bird? .....
How long have you had your bird? .....
From where did you get your bird (friend, pet shop, wild caught)? .....
What sex is your bird? .....
In what sort of cage does your bird live? .....
From what is it made? .....
How long has your bird been in its current cage? .....
Where in the house/yard is the cage? .....
Is it near the kitchen? .....
What toys are in the cage? .....
What other furnishings are in the cage? .....
Does the bird come out of the cage? .....
If so, how often? .....
If so, is it supervised .....
Have there been any additions to the cage within the last fortnight? .....
How often do you clean the cage? .....
How do you clean the cage? .....
What is your bird's regular diet? .....
In what containers are food and water? .....
How often is the food bowl completely emptied? .....
How often is your bird's water changed? .....
Does your bird get table scraps? .....
Does your bird get vegetables? .....
Has your bird eaten anything new/different in the last few days? .....
Are there any other birds in the house? .....
If so, how long have they been there? .....
Does your bird have any access to wild birds? .....
Does your bird get any regular medication eg wormer? .....
If so, when was the last time? .....
How was the medication delivered eg water, beak, food? .....

Does your bird have access to any metal – this includes staples, paper clips, galvanised wire, chicken wire, rust, D-cups, twisty ties, solder, leadlight? .....
Has there been anything sprayed near the bird recently? .....
Has the house been sprayed for cockroaches/spiders or carpet cleaned recently? .....
How did you know your bird was sick? .....
For how long had your bird been showing these signs? .....
What treatments have you tried at home? .....

PHYSICAL EXAMINATION.

Possibly even more so than in small animals, observation prior to physical examination is very important in birds. Many abnormalities can be detected at this time, and the bird can also be triaged prior to handling.

1. Posture
    - Tail position
        - straight
        - bobbing
    - Foot position
        - sitting down
        - on tarsometatarsal joints
        - centre of weight on centre of foot
    - Head position
2. Breathing
    - Tail bobbing
    - Open mouthed breathing
    - Wheezing
3. Feathering
    - Neat and glossy – stress lines, breakages
    - Alopecia
    - Abnormalities
    - Obvious masses

Once the distant examination is complete, the bird should be caught and the physical examination commenced. The following should form the physical examination:

Body condition
Weigh bird (this may often be left until the end of the exam)
Assess fat levels – palpation over keel
Eyes
Symmetry
Discharge
Periocular swelling, alopecia
Nares
Symmetry
Discharge, including dry plugs
Erythema
Oral cavity
Choana – check papillae, erythema, exudate, seeds

Tongue – abscessation, erythema, trauma
Tracheal opening
Palpate crop
Doughiness
Thickening
Palpate abdomen
Doughiness (eg egg peritonitis)
Masses (eg egg in egg binding, tumour)
Check vent
Discharge
Check uropygial gland
Abscesses, enlargement, tumours

Check wings
Fractures
Joints
Flexibility
Feathering
Masses

Check legs
Fractures
Joint swellings
Pododermatitis
Gout
Nail – length and haemorrhage
Gripping strength in feet
Auscultation of chest and abdomen
Check feathers for assessment of general condition

At this point, the general examination is complete. Before releasing the bird, I will often take any further samples (eg a crop wash) or show the owners some of the abnormalities found. The bird is then placed back in its cage and allowed to settle. It is useful to determine the length of time taken for the bird to recover (recovery time). Healthy birds tend to recover faster after handling.

DROPPINGS

The wonders of avian droppings can now be explored. The bird dropping is composed of 3 parts – faeces (usually brown or green), urates (usually white) and urine (usually colourless). Changes in the consistency or colour of any of these components can signal disease.

Diarrhoea is a common owner diagnosis, although 'runny droppings' can indicate polyuria, increased urates or diarrhoea. The difference is significant, as polyuria may lead one to consider diabetes or renal disease, whereas diarrhoea might indicate a primary gastrointestinal problem.

Discoloured faeces may indicate gastroenteritis, malaena (reddish), malabsorption (pasty or pale coloured) or anorexia (slimy and dark).

Thorough faecal examination includes a wet smear and a gram stain.

Discoloured urates (generally lime green or yellow) may indicate an hepatopathy or haemolysis.

Polyuria can indicate be psychogenic (stress, excitement), physiologic (feeding young), dietary (increased fruit and vegetables or water) or pathologic (diabetes, renal disease, heavy metal poisoning etc.)

THERAPEUTIC TECHNIQUES

Cropping

Firstly, ensure that all required equipment is at hand, then adequately restrain the bird. As the bird faces you, introduce an appropriately sized crop needle into the bird's left (your right) commissure, and with an up-and-over movement, direct dorsally and to the bird's right (your left). Once placed, advance the crop needle gently until the tip can be visualised pushing against the crop above the thoracic inlet. Gentle, twirling pressure at all stages is required – NEVER push hard.

I have 3 safety checks before injecting:

> Did I feel the tip of the needle against my left thumb on entry into the oesophagus?
> Can I wiggle the tip of the crop needle and see the movement above thethoracic inlet? (in baby birds that can be visualised)
> In larger birds, can I palpate the trachea and the crop needle as separate structures?

Never proceed if you doubt correct placement – it is just as easy to pull out and start again.

Once the safety checks are passed, inject a small amount of fluid (or medication or feeding mixture), and then continue if no adverse response. If performing a crop wash or crop lavage, then prefill your syringe with some warmed saline and inject a small amount before reaspirating it back into the syringe. The crop needle tip often mechanically carries crop contents or pathogens, so be sure to roll it around on your microscope slide as well as placing a drop for evaluation.

As this is a basic introduction I won't go into any more detail however for those who are interested greater detail on microscopic examination will be covered in the Diagnostics Workshop.

Injections

Intramuscular injections are the easiest and are usually given into the pectoral muscle (in parrots and smaller passerines). To avoid excessive bruising, rotate the site. The needle is placed at an oblique angle to the musculature, and the injection is given without first aspirating (often causes more bruising). In production birds, the injection is often given in the thigh, to reduce downgrading of the carcase.

Subcutaneous injections are usually given in the knee web or the interscapular region. The most common indication for SQ injection is fluid administration. Care must be taken to ensure that fluid

is not placed in the air sacs. A small guage needle must be used, as leakage is a common occurrence. Some practioners place hyaluronidase in the fluids to improve absorption.

Intravenous injections (and sampling) can be done from the jugular, wing vein or medial metatarsal vein. My preference in parrots is the jugular vein, as long as pressure can be supplied for sufficient time post-injection. Even in small birds, the jugular is usually quite visible and 'hittable'! Techniques for restraining vary with the individual bird and handler – these include single restraint with the scissor grip, single restraint with modified 'death grip' etc.

Intraosseous injections are a good way to access the vasculature in birds with inaccessible veins (due to shock, size, risk of haematoma formation etc). Often used as an alternative route of fluid administration, I have found these useful on certain occasions. I prefer to use a stylet, as plain needles become blocked by bone. Sites include the ulna and tibiotarsus. The humerus and femur should NEVER be used as they are pneumatic bones.

Ovocentesis

Ovocentesis is a procedure that can be life saving in cases of egg binding (but only when the owner doesn't want to salvage the egg for incubation!). As a large egg can place pressure on the kidneys, collapse can minimise or prevent the development of renal shock, and often allows the bird to pass the egg afterward.

The egg is palpated via the abdomen, and is held between the fingers with ventral pressure, pushing the egg toward the ventral abdominal surface rather than the dorsal abdomen (and kidneys). A large gauge needle is introduced into the egg, and the egg is punctured, and as much yolk and albumin is withdrawn as quickly as possible. Simultaneous pressure on the egg surface will aid in collapse (but always watch the condition of the hen – terminate the procedure if she is distressed). Usually antibiotics are used to prevent infections secondary to uterine laceration from the egg fragments.

Ultrasound can also be used to identify the position of softer shelled eggs.

Bandaging

There are many different types of bandaging materials - some practitioners prefer the non-adhesive variety while others use the adhesives. My preference is for minimal adhesive to be present on the feathers.

We will demonstrate figure of 8 wing bandaging technique, both on its own and with body wrap.

To begin, I wrap a non-adhesive bandage (eg coflex) cut to appropriate width once around the carpometacarpal joint, and then carry it laterally over the wing to turn over the elbow. The bandage is then carried under the wing, and incorporates the flight feathers in its single loop. It can then be carried back to the carpometacarpal joint, or around the body for more stability. The aim is to have the wing sitting in as normal a position as possible.

A variety of splints (tongue depressors, pieces of wire) can be adapted from small animal practice to assist positioning of broken legs.

APPENDIX A:

PHONE ADVICE

The receptionist/veterinary nurse is the first point of contact in an avian case, and plays an integral role in the initial work up. Bird owners are often unaware of the symptoms of disease, and require confident advice as to the possible severity of their pet's complaint.

Signs of disease include excessive sneezing, being constantly fluffed up, 'sleeping' a lot, falling of the perch, anorexia, decrease dropping output, decreased activity or noise level – basically any deviation from normal. Often, the owner may not be able to pinpoint the exact deviation from normal behaviour, and a preliminary history over the phone may help.

Birds have a 'preservation reflex'. Being social animals, if one member of the flock shows illness, it can bring predator attention to the entire flock. Therefore, a bird will often not show illness until it is moribund. Falling of the perch, being unable to stand and being continuously fluffed up are all signs that the bird may be in end-stage disease. Often, birds will temporarily look much healthier when presented with a new threat (car trip, vet, and owner attention), and owners must be aware that a temporary remission does not equal a cure. Some owners become embarrassed when bringing their 'sick' bird to the vet, as the bird looks much brighter in consultation than at home. A quick explanation of the reason often allays their concerns.

It is usually impossible to ascertain over the phone if the problem is serious or not – the owner is then informed that all sick birds are potentially seriously ill, and the recommendation is to have them assessed. The owner can then assume the decision making (and legal responsibility).

Never underestimate the benefit of simple warmth to a bird. Their body temperature is in excess of 40 oC, and raising ambient temperature to 30 oC can be life saving. As long as preliminary samples are taken, an emergency facility can do a lot in terms of supportive care, including warmth, antibiotics, chelating agents, and fluid therapy. These may make the difference in prolongation of life prior to referral.

Once the decision to have a consultation is made, try to ensure the bird is brought in its normal cage, with unchanged paper. If the normal cage is too large to transport, then a transport cage can be used, and the paper from the normal cage brought also. Having access to the previous 24 hours droppings (or more if hygiene is inadequate) gives important information about duration of disease and food intake. Visualising the normal environment allows assessment of feeding practices, hygiene, toys, possible toxin sources etc. Birds may travel more quietly if the cage is covered during transport, and drafts during travel should be minimised.

The usual small animal emergency advice is applicable – apply pressure to any bleeding areas, wrap fitting animals in a towel to minimise self-induced trauma, vomiting birds should not be restrained. Owner should also be advised not to place undue pressure on the bird's abdomen, as the expansion of abdominal air sacs is critical to respiration. Gentle restraint is preferable at all times. If a large bird is involved, caution the owner to protect himself or herself from injury by using a towel.

Should the owners decide against consultation, the only advice that can be offered involves administration of warmth, quiet and darkness. This may often be achieved at home with a reading lamp, a towel over one end of the cage and a water dish. Over the counter medications can cause

problems, and the owner should be advised against their use. Sulphonamides may precipitate out in renal tubules in dehydrated birds, and tetracyclines can be immunosuppressive. This is in addition to widespread bacterial resistance to these drugs.

APPENDIX B:

AVIAN HISTORY FORM

How old is your bird? .....
How long have you had your bird? .....
From where did you get your bird (friend, pet shop, wild caught)? .....
What sex is your bird? .....

New bird (up to 10 weeks) consider infectious diseases, esp chlamydia. Other important diseases, esp if from pet store, include PBFD in appropriate species, coccidia, trichomonas, other coccidia, ascarids. Is this an old bird with chronic problems? Is this a hen bird with reproductive problems?

In what sort of cage does your bird live? .....
From what is it made? .....
How long has your bird been in its current cage? .....
Where in the house/yard is the cage? .....
Is it near the kitchen? .....
What toys are in the cage? .....
What other furnishings are in the cage? .....
Have there been any additions to the cage within the last fortnight? .....

Is the cage suitable. Can the bird exercise? Is there access to heavy metal (lead and zinc) - especially consider in newly home-built cage, new toys. Kitchen fumes can cause respiratory problems – burnt teflon fumes are toxic, birds have extremely efficient (and therefore susceptible) respiratory system. Could the bird have inhaled a foreign body from a new toy? What is the air quality of this bird's environment? Does this bird get fresh air or sun? Can this bird bathe (essential for feather quality).

Does the bird come out of the cage? .....
If so, how often? .....
If so, is it supervised? .....

With what else could this bird have been in contact? Lead paint fragments from the 1940's window sill, moth balls, owner medication, other pets, toxic plants

How often do you clean the cage? .....
How do you clean the cage? .....

Is poor hygiene a possibility – bacterial and fungal gastroenteritis? Were there previous pathogens in this cage?? Are the perches ever cleaned – foot hygiene.

What is your bird's regular diet? .....
In what containers are food and water? .....
How often is the food bowl completely emptied? .....

How often is your bird's water changed? .....
Does your bird get table scraps? .....
Does your bird get vegetables? .....
Has your bird eaten anything new/different in the last few days? .....

Is this bird malnourished – incl hypovitaminosis A (an all seed diet) causes squamous metaplasia and predisposes to epithelial infection. Does this bird eat just sunflower seeds (UGH!)?

Are there any other birds in the house? .....
If so, how long have they been there? .....
Does your bird have any access to wild birds? .....

Is there any chance of infectious disease?

Does your bird get any regular medication eg wormer? .....
If so, when was the last time? .....
How was the medication delivered eg water, beak, food? .....

Did the owner cause aspiration air sacculitis? Did the owner use levamisole in water on a hot day (overdosage)?

Does your bird have access to any metal – this includes staples, paper clips, galvanised wire, chicken wire, rust, D-cups, twisty ties, solder, leadlight? .....
Has there been anything sprayed near the bird recently? .....
Has the house been sprayed for cockroaches/spiders or carpet cleaned recently? .....

Is there any other toxic cause? Remember: heavy metal poisoning can present differently and can be fatal!!

How did you know your bird was sick? .....
For how long had your bird been showing these signs? .....

How long has the bird REALLY been sick? Is this bird moribund?

What treatments have you tried at home? .....

Has the bird had sulphaD or oxytetracycline (AAGH!)? Both will muddy diagnostics, sulphaD may precipitate out in renal tubules in dehydrated patients, tetracycline can be immunosuppressive.

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