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Chapter 2: Stabilizing the bird, conducting an initial clinical exam

In 1 collection

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[1]VulPro

1 *Works for me* This protocol is published without a DOI.

VulPro

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ABSTRACT

This protocol outlines steps to stabilize a bird after intake and conduction of an initial clinical exam.

ATTACHMENTS

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GUIDELINES

With experience, it is possible to begin to understand the injury and state of the bird by observing it at a distance. Pay attention to the bird's body posture and motion. How quickly do they react to you approaching? Is its head drooping (a symptom of non-specific weakness and depression, commonly observed with poisonings)? Are the wings symmetrical and held close to the body? Is it holding its head level? Is it placing its full weight on both legs or just one? Are there obvious distortions in the limbs? Can you see blood? Are flies present?
A bird which has just undergone a traumatic event (such as a vehicle collision) will be in shock and therefore in a critical condition. Initial efforts should be focused on stabilization, prior to addressing any specific injuries. A shocked bird should be moved to a warm, quiet and dark location; it will likely require intensive fluid therapy (preferably intravenously) and correction of hypo- or hyperthermia. Where relevant, pain relief and infection control should be addressed promptly.

SAFETY WARNINGS

Most medical treatment needs to be undertaken by a registered vet, vet nurse or para-veterinarian. Procedures such as prescribing medication, injections and some forms of fluid administration should only ever be done by one of the above mentioned, registered individuals.

ABSTRACT

This protocol outlines steps to stabilize a bird after intake and conduction of an initial clinical exam.

Assessing dehydration

1 Observe the bird to assess the state of dehydration.

In the long-necked *Gyps* species, necks are useful in determining the state of dehydration as they have large patches of bare skin which can be used to determine the level of dehydration. Wrinkled skin indicates dehydration, while smooth, plumped skin indicates good hydration. One can assess dehydration by pinching this bare skin. Healthy, hydrated skin should spring back. If the skin remains 'tented', the bird is severely dehydrated.

Additional indicators of dehydration include tacky mucous membranes and thick strands of saliva at the back of the mouth, sunken eyes, and weak pulses.

Any rescued, traumatised or sick bird will typically require fluid therapy. We can safely assume that these birds have been sub-optimally hydrated for some time before admission. The method of rehydration employed will be determined by the experience of the rehabilitator, the facilities and equipment available, and the degree of dehydration and debilitation of the patient.

2 If necessary, rehydrate the vulture as follows:

o **Per Os (PO) fluids:** Oral fluids (via tubing or gavage): Tubing is an invasive procedure. Knowledge, experience and great care should be taken to ensure that fluids are administered into the crop and not down the trachea, as the latter will certainly kill a bird.
o **Subcutaneous (SC) fluids**: a more immediate method of rehydration than tubing, but less immediate than IV. This can be difficult in a conscious patient.
o **Intravenous (IV) fluids**: should only be administered by experienced rehabilitators or vets, but this is the best method to quickly rehydrate a severely dehydrated bird, or one in shock.

Oral fluids (via tubing, or gavage)

3 Tubing is most easily done with two people. One person holds the bird upright while the other opens the beak (with care as the edges of vulture beaks are sharp), placing the tube into the crop and administering the fluids.

Vultures are magnificent at digesting rotting meat together with pathogens (parasites, bacteria, and viruses) that come with it, thereby cleaning the environment. All vultures have a crop, an extendable pouch before the stomach, which holds up to 2 kg of meat (in larger species). The crop provides vultures with a very important physiological advantage in that they can store additional meat to take back to their chicks or for later digestion when food is scarce. The presence or absence of food in the crop and the odour of the breath yields vital information in relation to recent food ingestion. Bad breath is often an indication of a recent meal. In several species, crop filling can be monitored visually and therefore acts as a tool to ascertain how quickly fluid is emptying into the stomach (proventriculus).

4 Even though one person holds the bird and does not let go of the head (from the back of the head), the person who will give the fluids should also hold the bird's head and beak with one hand (from the front of the head / beak).

5 With the other hand, the mouth can be opened and inspected to visualise the glottis (the slit-like opening at the base of the tongue). The glottis marks the start of the trachea.

6 A long tube (0.5-0.75m long) should be placed into the back of the mouth, **taking care to avoid the glottis**. This is best done by following the inner side of the mouth as the tube is passed down the throat. It should easily be pushed down the oesophagus.

7 If the tube feels obstructed, take great care to assess that the tube is being sent down the correct pathway.

In *Gyps* vultures, you will be able to see the tube moving down the neck. In other bird species where the neck is feather-covered, the tube can easily be felt as it is passed down.

8 If you cannot see the tube moving down the neck, remove the tube and try again. The tube should be inserted all the way down the neck into the crop.

Again, **DO NOT** give fluids until you can visually or physically confirm that the tube is placed correctly and is all the way down into the crop. A large *Gyps* vulture or Lappet-faced vulture should receive up to **180 mL** of water, Ringer's lactate solution or other rehydrating solution at one time. You will see the crop expand with the fluids. If the bird is severely dehydrated, the crop will subside quickly and more fluids can be given. Do not give oral fluids to any bird who is not strong enough to hold their head up, otherwise they can regurgitate the fluid and inhale it, resulting in an aspiration, pneumonia, and almost certain death (Fig. 7).

Figure 7: Given fluids orally, securing the head and beak and safely inserting the tube down the bird's beak and into the crop

9 If the bird is severely dehydrated, tubing can be done several times a day, every few hours if necessary.

However, oral fluid therapy is generally only used to rehydrate mildly dehydrated birds, or when veins cannot be cannulated for delivering intravenous fluids. Intravenous fluid therapy provides direct access to the bloodstream and so is the quickest and most effective route for fluid therapy. A severely dehydrated bird will have poor blood supply to many organs, including the digestive tract and the skin. In these instances, fluid delivered to these sites may not be 'collected' and enter the bloodstream. If the bird does not recover or rehydrate sufficiently from tubing, other more effective methods of rehydration should be considered (see below).

Sub-cutaneous fluids

10

Sub-cutaneous (SC) fluids are a more immediate way of delivering fluids than tubing, although it can be difficult and stressful to administer in a conscious patient. SC fluids can be given over several body locations. The most commonly used places are the inguinal folds (the connecting skin on the inside of the thigh, where the torso meets the legs) or on the mantle (between the shoulder blades/where the wings join the shoulder region). SC fluids, unlike tubing, MUST be sterile fluids such as saline or Ringer's lactate solution. For large *Gyps* vultures, up to **120 mL** can be given at one time, but over two or more locations: i.e. **60 mL** in each inguinal fold.

11 To administer SC fluids, place the needle (with preloaded syringe) just under, and parallel to the skin. The needle should be inserted very shallowly.

12 Gently draw back the syringe.

No blood should be seen either in the syringe or coming from the injection site.

13 Slowly inject the fluids so that a bubble starts to form under the skin. If you do not see a bubble forming, you have placed the needed too deep into the tissue and should start again.

Depending on the elasticity of the skin at the injection site, **40 mL** - **70 mL** may be given at each site. The bubble will be large and taut. When the needle is removed, some fluids will escape, but if you gently place pressure on the injection site, this should stop quickly.

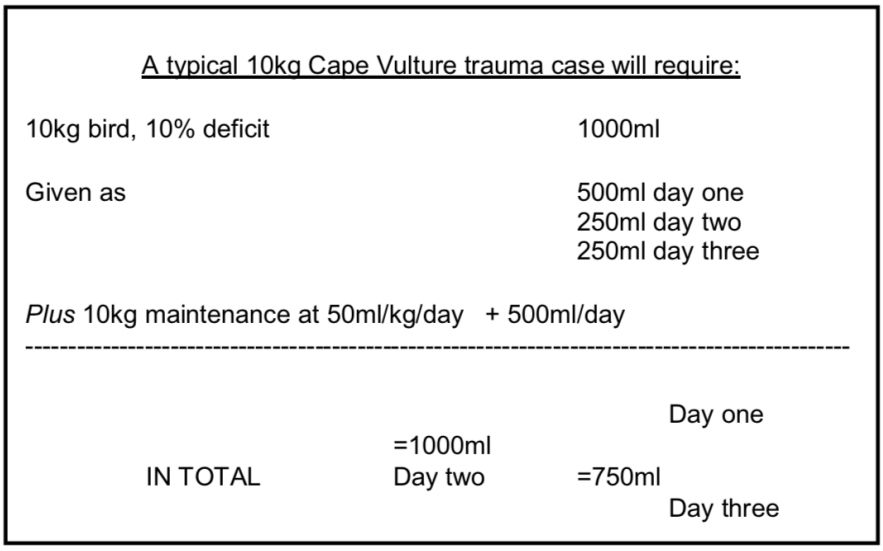
Intravenous fluids

14

Whilst requiring more equipment, experience and expertise, intravenous fluid rehydration (IV) is certainly the most effective and efficient method of fluid replacement and rehydration.

15 Assume that any sick or injured vulture is 10% dehydrated, i.e. there is a 100ml fluid deficit per kg of body weight.

16 Replace this fluid deficit 50% in day one, 25% in day two and 25% in day three. In addition, any bird will require 50ml/kg maintenance fluid each day.



17 Fluids may be given as boluses: use a syringe at a rate of 10ml/kg (standard large *Gyps* is taken as 10 kg so **100 mL** gradually over **00:05:00**) at admission, repeat after **02:00:00** , then repeat every **03:00:00** over the first 24 hours after admission.

18 Alternatively (and ideally), administer fluids intravenously, via a 'giving set'. For a 10kg bird, using a standard (20ml) giving set, the drip rate should be one every 3.5 seconds for the first four hours. Reduce to one drip every 5 seconds thereafter, until the end of day three after admission.

Some may criticise catheter placement in the inner lower leg (medial tarsal vein), as this site tends to be soiled. However, after appropriate cleaning and disinfection, it remains the ideal site from which to administer IV fluid as it is can be easily placed in a conscious bird and accessing this site is far less stressful to the bird than alternative sites. Once the catheter is placed, it may be secured with adhesive tape. In contrast, the superficial ulnar vein (on the underneath of the elbow) is a challenging and stressful site in a conscious bird and catheters typically require suturing to remain in place. This is not advised in a conscious bird.

Very sick vultures tolerate catheters well. This is often assisted by restraining them to a limited enclosure. Once they are attempting to remove the catheter, fluid may instead be provided by the oral route.

Full Clinical Examination (once the shock has been addressed)

19 Perform an in-depth clinical examination once the bird is stable and is no longer in shock. Handling of a bird whilst in shock can result in heart complications and fatalities, therefore handling MUST be kept to a minimum until the bird is more stable. In conducting a head to toe exam, typically one or two major issues will be identified.

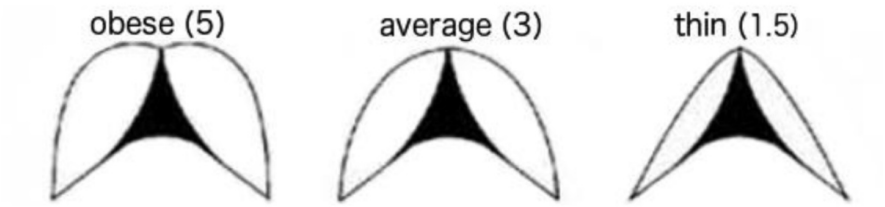
20 Assess the following:

- Is the beak chipped? Are eyes open, alert? Does the nictitating membrane (third eyelid) react to stimulus?
- Dehydration: conduct a pinch test and look for 'tented' skin on neck
  - o If tented skin stays up for 5 seconds or less, assume 10% dehydrated
  - o If tented skin stays up for >5 seconds, assume 15% dehydrated, increase fluids for a 10kg bird to
    - **1250 mL** day one

- **875 mL** day two
- **875 mL** day three, then reassess

● Crop – has the bird eaten within the last 12-24 hours? How much food is in the crop?

● Assess the bird's condition and weight based on the species' averages. Relying only on weight is inaccurate, for example a bird may be very thin but full of fluid (ascites). Body Condition Scoring (BCS) is essential. Palpate the pectoral muscles, which flank the keel bone (breastbone). Record the body condition score (BCS) on a scale of 1 to 5 based on the amount of muscle tissue present. The keel bone is represented by the black area and the pectoral muscles are white. The images represent a cross section (as though you are looking down on the bird). Healthy birds range from BCS 2.5 to 4. You will struggle to feel the keel bone in an obese bird (BCS 5). Any bird below a BCS 2 is considered thin, very thin or emaciated. A palpably sharp keel bone indicates the bird is emaciated.



● Are the wings symmetrical? If you suspect a broken bone, use both wings to understand what a normal wing should feel like compared to the injured wing. Search for the break or any spots where the bird reacts, indicating that the area is tender. Be gentle! Assess the normal range of motion, moving each joint of each wing (starting at the shoulder and moving downwards) and see if there is any indication of a joint dislocation or a broken bone.

● Does the bird put full weight on both legs? Is it limping? Assess the normal range of motion for each joint of each leg in turn, moving the legs to see if there is any indication of a dislocation in a joint or broken bone.

21 Also assess the following:

● Are there any **open wounds**? Are **maggots** present? If so, they should be removed immediately (see CHAPTER 3).

● **Are bones or tendons exposed**? The answers will advise how quickly you must address the wounds. If there is tendon or bone exposed and the break is relatively new, keeping the area (especially the tendons) moist and disinfected is critical and may mean the difference between saving the wing and amputation. The tendons and bones must not be allowed to dry out as they lose blood supply and become non-viable.

● If there is a compound fracture (i.e. the skin is broken and surrounding tissues will inevitably be infected) or closed fracture (i.e. the skin hasn't been breached), and the wing is dangling, you may need to strap the wing before transport. This will provide comfort and reduce the likelihood that the bird will stand on the wing and cause more damage (see CHAPTER 4).

● Does the bird have external **parasites**: ticks, lice, mites? If excessive, this will give you an idea of how long the bird has been grounded. More parasites = longer time on the ground. If Karbadust® or similar ectoparasite dust is available, it is always a good idea to dust the bird upon arrival. This will help you to handle the bird, as well as for the bird's comfort.