

# the Vet's Corner

by  
Walter Roskopf, Jr., D.V.M.  
and  
Richard W. Woerpel, D.V.M.  
Hawthorne, California

## Egg-binding in Cage and Aviary Birds

Egg-binding, a life threatening condition resulting in the inability of a hen to successfully pass an egg without assistance, is a common problem encountered in avian practice. This condition may occur in all species of birds, but is most often seen in budgerigars, cockatiels, finches, and canaries. The cause of this syndrome is probably multifactorial including oversized or malpositioned eggs, lack of exercise with resulting loss of muscle tone, allowing hens to breed when not in prime breeding condition (nesting too early or too late), excessive egg laying (with a probable drop in blood calcium levels), uterine infections or damage, concurrent disease states, obesity, malnourishment, a sudden drop in environmental temperature, and heredity factors. Interestingly, a large proportion of retained eggs are thin-shelled and soft, the significance of which is unclear.

Egg-binding in clinical practice is most often seen in the individual, unmated pet bird. Sometimes, an older, solitary hen with no history of egg laying will unexpectedly produce a single egg which she cannot pass. An example of our own was a 12 year old mynah

bird named "Arnold" that suddenly and unexpectedly produced an egg that resulted in a fatal case of egg-binding.

Some highly productive hens may become egg-bound secondary to nutrient and caloric exhaustion. One such case we handled involved a cockatiel who suffered egg-binding after laying over 40 eggs in one month!

Dietary factors need to be considered in many cases of egg-binding. Egg production requires an increased need for calories, minerals, vitamins, protein, etc., above and beyond what the hen requires to merely maintain herself. If these nutrients are not readily available, the bird will provide them from her own body, often resulting in nutrient exhaustion. If the overall nutritional state of the hen is poor, she will tire easily and be physically unable to expel the egg. Conversely, excessive caloric intake resulting in obesity may predispose a hen to egg-binding as well.

Calcium is essential for the proper contraction of muscle. Unfortunately, grain eating birds receive an essentially low calcium diet. If blood calcium levels are below normal (often resulting from repeated, unproductive contractions to expel an egg), uterine inertia and egg-binding may result. Uterine rupture may result from excessive contractions with escape of the egg into the abdominal cavity (ectopic eggs).

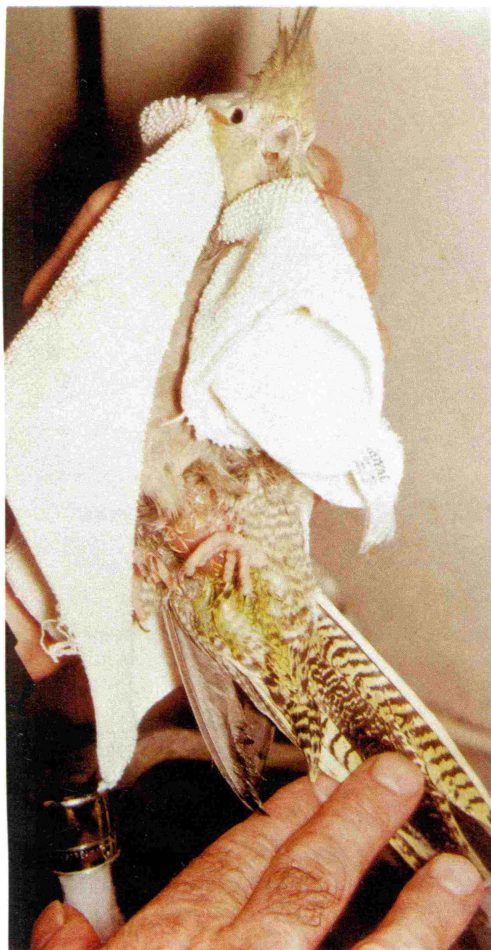


PHOTO 1

Exposing an egg-bound cockatiel to steam generated by running hot water below the bird.

PHOTO 2

Paracentesis procedure to aspirate contents of an ectopic egg in an African Grey parrot.



Collapsed egg passed by an egg-bound Amboina King parrot after its contents were first aspirated by syringe.

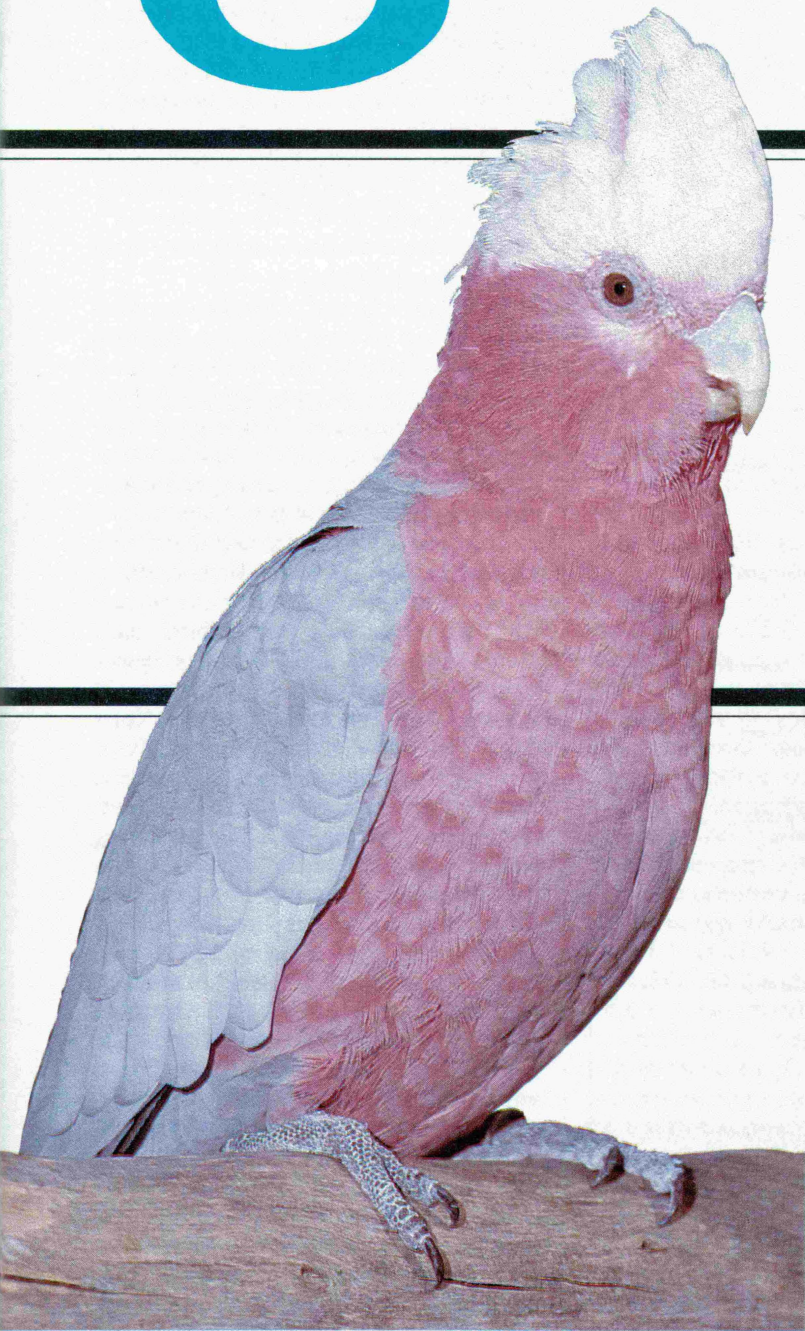
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Recently, the authors encountered two budgies and one African Gray Parrot that presented with symptoms of egg-binding because of ectopic eggs. These eggs cannot be expelled without surgical intervention. Ectopic eggs should always be considered if conservative methods (including manipulation) applied to an egg-bound hen are unsuccessful in delivering the egg.

Concurrent disease may predispose a hen to egg-binding. Reproductive tract infections or systemic disease (parasitic, viral, bacterial, fungal, psittacosis, etc.) may plague the individual caged bird or an entire flock, resulting in an increased incidence of reproductive failure, in part due to the effects of egg-binding. Chronic egg yolk peritonitis<sup>1</sup> is a debilitating condition and may contribute to egg-binding as well.

Hereditary factors have also been incriminated in egg-binding. Budgie flocks with a high incidence of lipomatosis (fatty tumor formation) experience an increased frequency of egg-binding. Other hereditary traits such as small body size may also predispose birds to egg retention problems.

Symptoms of egg-binding are variable, ranging from sudden death to signs of illness persisting for one or two days. The smaller passerine birds tend to manifest very rapid onset of symptoms, followed by an equally rapid demise. The larger caged birds (primarily psittacines) may survive with symptoms for several days. The medical history will often include information regarding recent or present egg laying and/or problems with egg laying in the past. Typical symptoms include a hen perching unsteadily with fluffed feathers and half-closed eyes. The bird may make frequent wagging and straining movements of the tail. She may move to and from her nest. Often, the hen will move to the cage bottom (a very serious sign). Hasholt described egg-bound canaries as possessing hanging wings and tail, producing a swelled appearance over the base of the tail. By contrast, he indicates that budgies often sit on the tail with their legs far apart and the wings and body erect (like penguins)<sup>2</sup>. In many cases, the hen may simply manifest typical symptoms of illness (see February-March issue of *Watchbird*) with no obvious straining or discomfort noted. In severe cases, a hen may be on the cage bottom, resting on her keel bone, unable to move one or both legs. One must consider orthopedic injuries (leg fractures, etc.), egg yolk peritonitis, and other serious diseases in addition to egg-binding.

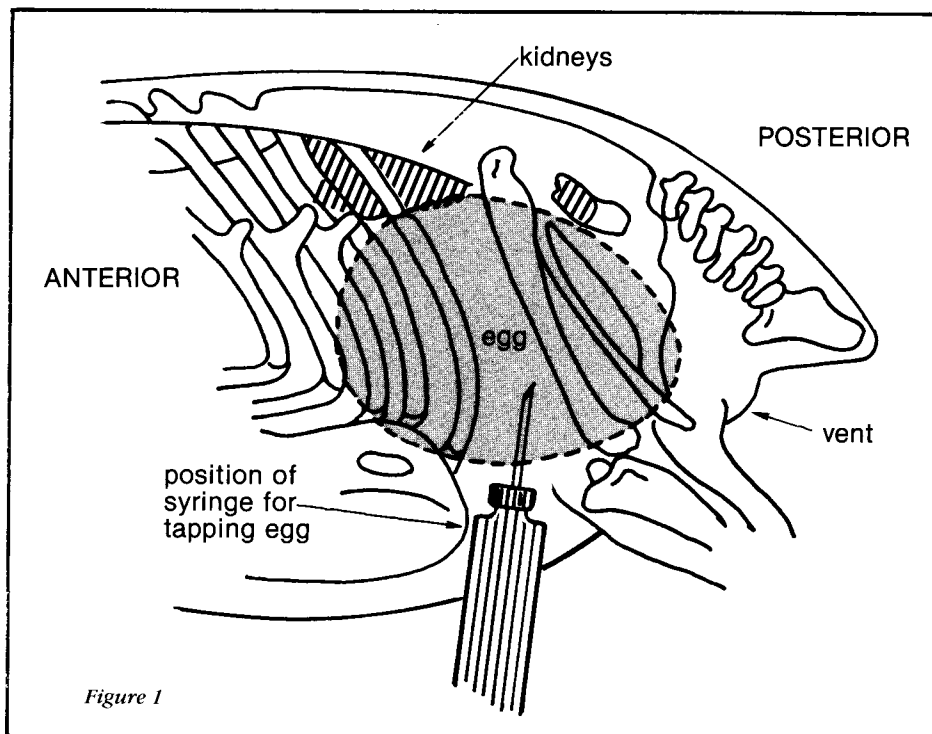


Figure 1

when a hen is noted in this condition.

The diagnosis of egg-binding is usually obtained by physical examination of the patient, although x-rays are sometimes necessary to confirm the clinician's suspicions. Unless the egg is retained high up in the reproductive tract, it is usual to note the swollen abdomen and feel the egg through the abdominal wall. However, if the egg is retained high up, or if the hen is obese or prone to fatty tumors (as is the case of budgerigars), the egg may not be readily palpable and an x-ray may need to be taken to confirm its presence. It should be kept in mind that there are a host of other causes of a protruding or swollen abdomen in caged birds including: tumors, organ enlargement caused by diseases other than cancer, fluid accumulation, peritonitis, etc.

When the egg is caught in the pelvic area (see figure 1) large blood vessels are compressed and severe circulatory disturbance (shock, etc.) may result. Furthermore, the egg in this position may interfere or block the flow or feces and/or urinary excretory products into the cloaca. This can have dire consequences for an animal which must eliminate 40 to 80 times per day. Serious kidney and/or nerve trauma may also result from a retained egg (the next time you eat chicken, note the position of the paired kidneys within the pelvis and the nerves as they come off the spinal cord).

Successful treatment of an egg-bound hen requires a speedy diagnosis first and foremost. The small caged birds cannot

tolerate this condition for longer than one or two days. Consequently, laying hens should be observed periodically. Many cases can be successfully relieved by increasing the environmental temperature to 85° Fahrenheit to 90° Fahrenheit and exposing the bird to moist heat to relax the vent musculature (photo 1). Lubrication of the vent with K-Y Jelly or petroleum jelly may provide additional assistance. Injections of calcium and/or oxytocin (which induces contractions of the uterine musculature) can be employed in cases of uterine inertia to encourage expulsion of a retained egg. Manipulation of an egg to reposition it, if necessary, and expel it is risky and requires considerable skill and experience (photos 4-6). It is best to allow an experienced veterinarian to attempt this procedure. Sometimes the egg shell is collapsed and broken during these attempts. This can have serious consequences if the wall of the reproductive tract is torn by the shell fragments, necessitating surgery to repair it to prevent egg yolk peritonitis. Most often, the hen will expel the egg and the shell fragments on her own within the ensuing 24 hours. This can sometimes be hastened by the administration of injections of calcium and/or oxytocin. It is also possible to manually remove the shell fragments using a forceps and great care.

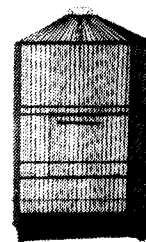
When these more conservative methods fail, the veterinarian is obliged to consider more invasive procedures. Abdominal surgery can be performed (similar to a C-section) to retrieve the

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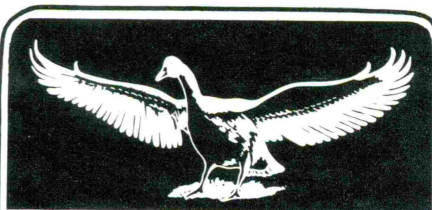
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Photos by authors

PHOTO 4, 5, 6

*Manual expression of an egg to relieve an egg-bound parakeet.*



egg from the reproductive tract. Sometimes surgery to enlarge the cloacal opening (similar to an episiotomy) is sufficient to allow delivery of a retained egg.

A non-surgical technique the authors have pioneered involves aspirating the contents of the egg using a syringe, the needle of which is passed through the abdominal wall (paracentesis) and through the wall of the uterus and into the egg<sup>3</sup> (photo 2). If enough negative pressure is applied with the syringe, the egg can be collapsed. Following this, the bird is allowed to rest undisturbed in a warm environment. Injections of calcium and oxytocin are usually administered at this time. Often the hen will pass the collapsed egg within one or two days (photo 3). A variation of the aforementioned alternative involves introducing a large gauge needle into the leading pole of the retained egg by way of the cloaca and through a dilated opening to the oviduct and aspirating its contents with a syringe. The collapsed shell can then sometimes be removed with a forceps if it is within reach<sup>4</sup>. It

should be remembered, however, that all of the procedures and techniques mentioned to relieve this life-threatening condition are extremely stressful, especially when one considers that the condition of egg-binding itself is excessively stressful and debilitating to the hen. Consequently, all of these methods are performed on an extremely compromised patient and death may be the end result.

Prevention of egg-binding is the most important consideration. If hereditary factors are involved, repeat egg-binders in flocks should be culled unless an individual hen is especially rare or valuable. Breeders must be certain to provide excellent nutrition, proper exercise, exposure to ultraviolet light (sunlight), and make disease prevention a top priority. In general, the healthier the flock and the better the husbandry, the fewer will be the number of egg retention problems.

Regarding the individual caged bird: repeat egg-binders should not be mated and all breeding stimuli should be removed from the hen's immediate environment (nest box, nesting materials, male birds, etc.). Owners should avoid responding to and reinforcing sexual displays and behavior to reduce the likelihood of ovulation<sup>5</sup>. In many budgies and cockatiels and in some larger birds (notably Amazon parrots), periodic injections of progesterone drugs may be necessary to suppress ovulation. These hormone injections can effectively eliminate egg-binding for one to six months, but may result in excessive weight gain and other side effects. The authors and other veterinarians have successfully performed hysterectomies on pet birds, but the procedure is difficult and risky. Harrison has found that hysterectomies on cockatiels are sufficient to achieve lasting ovulation suppression without having to remove the ovary<sup>6</sup>. The results of this work suggest that the uterus or the oviduct has some control over ovarian activity.

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