

# ABNORMAL ENDOSCOPIC FINDINGS

Aviculturists are often interested not only in the sex and estimated maturity of their bird, but also if there is something wrong with the gonads that might prevent breeding, and if the surrounding organs appear healthy. Abnormal findings are not common but they do occur from time to time.

## MALE BIRDS

It is difficult to accurately assess fertility in male birds by visual inspection alone. Sperm counts are not done in birds. Testicular biopsies are also rarely ever performed. The veterinarian must therefore rely on endoscopic findings to make a judgment if the reproductive tract appears normal.

Color does not normally indicate a problem. Whether or not the gonads are melanistic is unremarkable. Occasionally a bird will have one testicle that is melanistic and one that is white. Sometimes the testes appear pink in color due to increased vascularity. Superficial blood vessels can be large and appear as flat red lines or streaks. This is normal. Rarely testicles can become inflamed and appear pinkish-red in color. There may be a history of recent infertility or other signs of illness.

The size of the gonad increases during the breeding season due to hormonal stimulation. This enlargement should not be mistaken for a cancerous condition. The testicles of some species become so large that only a small portion of them can be seen at one time. If both testicles appear identical in size, then the enlargement is normal. If one testicle is much larger than the other, this may be a significant finding.

Occasionally, small quiescent testicles are misshapen. They may be lobulated or bent, appearing crescent shaped. Sometimes the anterior or posterior pole of the testicle appears significantly larger than the opposite end. It is uncertain if this indicates a pathologic condition. A few of these birds have been monitored over the years and have bred successfully.

Many testicles have tiny "bumps" on their surface; there may be a few of these or many. They resemble vesicles, and histological examination has confirmed some of these to be testicular cysts. It is unknown whether they occur only on the surface of the testicle or within the parenchyma as well. They always appear to be less than a few millimeters in diameter and do not seem to enlarge over time. I do not consider this a pathologic condition. Many birds with such findings have bred successfully.

Occasionally, a client will want the male from a previously proven pair of birds in which only clear eggs have been laid over the past few breeding seasons to be examined endoscopically. In most of these birds the gonads appear normal, but in a few, the testicles have appeared shrunken or withered in size and shape when they should have appeared enlarged. These testicles are assumed to be scarred or fibrotic. Such birds are removed from the breeding flock.

Birds older than 30 years of age are occasionally examined endoscopically. These are almost always larger parrot species. The testes of most of these birds appear normal. However in some birds, the surface of the testes may appear rough and pitted with whitish streaks or deposits scattered throughout. These testes may be fibrotic. Without a testicular biopsy, fertility cannot be accurately assessed. However it is recommended to the client that such a bird would be a poor candidate for breeding.

## **FEMALE BIRDS**

Female birds can produce eggs during most or all of their life expectancy. They do not go through a known menopause. However, many aviculturists have indicated that as female birds age their fertility definitely decreases, even though they still breed and lay eggs. It is unknown how long a female bird can be a viable breeder. The oldest female that I am aware of that produced a fertile egg that hatched was a 43-year old African Grey parrot. Many wild-caught parrots that came to the United States in the 1980's are still used as breeders and we have no idea how old most of these birds were when they were captured.

When the ovary of a bird is examined endoscopically, more than 99% of the time it appears normal. Occasionally however, a mature, proven (yet recently unproductive female) or an unproven female may be examined with the laparoscope and found to have an abnormal appearing ovary. It may be shrunken with no specific shape or form. There may or may not be any normal follicles present. Such a bird is probably not a viable breeder.

Sometimes a known, older female has an ovary that resembles that of a juvenile. It is flattened and smooth with only a few normal follicles present. This might suggest a quiescent ovary that has not been hormonally stimulated for a long time. This might be the case with a solitary older pet that has been isolated from other birds. Such birds are certainly worth setting up to see if they are capable of breeding.

Ovarian cysts are infrequently seen. They appear as a clear vesicle that may be as large as or larger than the rest of the ovary. Usually there is not any other follicular activity present. These birds are poor candidates for breeding.

On several occasions I have performed laparoscopy on a bird of unknown sex in which no gonadal tissue was evident. Other times only a wisp of unidentifiable tissue was present in the area where the gonad should be. Some of these birds were mature. These birds are considered as mules and are not used for breeding. I have never seen an avian hermaphrodite.

## **ABNORMAL FINDINGS OF SURROUNDING STRUCTURES**

The most common lesion seen, that is not associated with the gonads that might affect fertility, is chronic, subclinical air sacculitis with granulomatous plaque formation and adhesions. This finding was more frequently observed in imported birds many years ago than in domestic-born individuals

today. The stress of capture, overcrowding, and shipping caused many birds to develop chronic respiratory disease that affects the air sac system. Such birds can appear perfectly healthy externally and may have been in captivity for many years. Such lesions are synonymous with the scars of a past infection and are not necessarily indicative of an active condition.

Cloudy air sac membranes with or without plaques (yellowish, distinct thickenings) or the presence of small plaques on the surface of other nongonadal structures usually does not affect breeding. However, if the plaques or granulomas are large (greater than 0.5 cm) and are adhered (with the air sac membranes) to the gonads or surrounding structures, then the female's ability to ovulate may be impaired. The oocyst may not be able to enter the infundibulum of the oviduct because the opening is physically disrupted by the presence of such adhesions. Thus fertility and even the ability to lay an egg might be permanently affected. Similar lesions usually do not affect fertility in males.

Whether a bird with air sac pathology is purchased as a breeder or remains with a mate if already set up depends on the magnitude of the lesions. These birds are not normally treated postoperatively unless some disruption of the lesions occurred during the procedure or there was excessive bleeding or trauma to tissues because of the altered anatomy. In such cases, antibiotics and antifungals may be indicated. If there is concern that the air sac lesions might be an active process, then laboratory tests, including blood work, radiographs, and biopsies of abnormal tissue would be indicated.

Granulomatous lesions associated with the liver, spleen, kidney, and intestines have been identified in a few birds (primarily nonsittacine species) that had avian tuberculosis.

Another abnormality that is frequently encountered is enlargement of the spleen. This organ is normally not larger than 1 cm in diameter (in a large psittacine bird) and is red in color. The operator gets a good feel for when the spleen is enlarged after seeing it in many different sizes of birds and comparing it with adjacent organs. If it is noticeably enlarged and is purplish in color, this may indicate a systemic infection or inflammatory process. Psittacosis should always be considered.

The anterior pole of the left kidney is routinely examined and it should be reddish-brown in color. Occasionally, it appears yellowish brown and this may indicate a disease process. Multiple white urate deposits (1 mm diameter) are commonly seen in the kidney, especially in African grey parrots, and this is considered normal. Kidney tumors are rare but occasionally seen. Abnormalities of the kidney might suggest that a biopsy be performed, but this is not without considerable risk of hemorrhage.

Occasionally a filarial worm is seen moving casually over the surface of the intestines or other organs. The presence of a few worms does not cause clinical signs of illness.

Only the lateral aspect of the left lobe of the liver can be seen endoscopically via the left flank approach. To access the liver fully, one must enter the bird ventrally, just caudal to the end of the sternum. The caudal edge of the left lung, proventriculus, and the intestines can all be seen from the left flank approach with manipulation of the endoscope.