

## The Diagnosis of Disease

It is surprising how often, with fanciers accurately relating what they are seeing that advice can be given. Many times however this is just not possible and testing is necessary in order to give accurate advice. Many fanciers I find are keen to buy drugs but are reluctant to spend money on diagnostic tests. Yet spending money on diagnostic tests often provides the most economical way of solving a problem. Money is not spent on unnecessary expensive drugs, time is not wasted and good birds are not put at risk through delayed or inappropriate treatment. It can be frustrating when a fancier describes very non-specific symptoms such as that his birds are quiet and fluffed and then asks what medication he should try. So many things could cause this symptom. Sometimes incredibly, fanciers with sick birds ring the clinic asking for a particular medication and when asked why, state simply that another fancier whose birds were also sick used it and they got better. It is frustrating when such fanciers decline testing to see if in fact their birds problem is the same. To me this makes no sense. And so how are pigeon diseases diagnosed these days? Respiratory infection is a common problem in racing pigeons. If the birds are sneezing how do you know if it is a respiratory infection or just dust etc? The most common cause of respiratory infection in pigeons is Chlamydia. These days this can be diagnosed very specifically in many ways. A common thing to do is draw a drop of blood or scrap some cells from the bird's eyelid or throat and run what is called a Chlamydia PCR test. This accurately tests for Chlamydia DNA in the bird. Alternatively, another test called a Chlamydia Immunocomb is done. This is done on a drop of blood and tests for Chlamydia antibodies. The antibodies are found in the blood in response to exposure to Chlamydia. This test only takes about 4 hours to do. If these tests are negative and a bacterial or fungal infection is suspected a test called a sinus flush can be done. Here sterile saline is flushed into a nostril. Pigeons do not have a septum dividing their nasal passages (as some other birds such as finches do) and so this saline flushes through the nose and comes out the other nostril in the process washing out any bacteria or fungi present. These can then be cultured and identified. Once a name has been put to the bacteria we then know the whole biology of that bacteria. For example we know what was the likely source of the infection e.g. a bacteria called *Pseudomonas* often comes from water while another called *Camphlobacter* can come from wild birds. Accurately identifying the bacteria means that steps can be taken to avoid repeat exposure so that the problem is less likely to come back after antibiotic treatment. Once cultured, the bacteria can also be tested against a number of antibiotics to see which is the most effective at killing it. This takes away the guess work and means that a short antibiotic course is very likely to be effective. Apart from Chlamydia tests and sinus flushes, swabs for bacterial culture can also be taken from the choana (the slot in the roof of the mouth). This is the bottom opening of the sinuses and sinus fluid drains out through it. A swab collected from here represents pretty well the bacteria in the sinuses themselves. Blood tests for biochemistry and hematology are widely used in avian medicine these days. Blood is usually drawn from the right jugular vein. A simple formula tells us that a bird's blood volume in ml is about 10% of its weight in grams. This means that a 400 gram pigeon has 40mls of blood. About 10% of the blood can be safely drawn at any time. This means we can draw 4mls quite safely from a racing pigeon. The labs these days however are so sophisticated that entire blood profiles can be done on as little as 1/2ml or less of blood. We routinely do complete blood profiles on budgerigars using only a 1/4ml of blood. One interesting fact is that pigeons can make their whole blood volume in 24 hours. This means that if 10% is taken 10 times in one day they will still be ok. Incredible. They can make blood very quickly. A biochemistry/hematology profile tells us things like how the kidneys, liver and pancreas

Etc is working and also blood sugar, cholesterol, and total protein, red and white blood cell Counts and other values. Running a profile is not cheap.

It does however give us a lot of very useful information and is of great Value in figuring out what is wrong with an individual bird of value.

Crop flushing is another common test. Here a plastic tube on the end of a syringe is introduced over the back of the tongue and into the crop. Material is vacuumed out of the Crop and can be examined under the microscope. This is the test that is used to monitor trichomonad (i.e. canker organism) levels. The aspirated material can be examined directly under a microscope or alternatively stained or cultured. In this way bacterial infections, yeast infections and inflammatory cells can be detected.

Droppings are a big part of any fancier's life. Droppings for most fanciers are the most accessible and visible indicators of their bird's health. Tight brown 'nut like' droppings with white urine and preferably a down feather stuck to them usually mean good health. Green watery droppings alert the fancier to a health problem. Examination of the droppings under the microscope takes an experienced veterinarian less than a minute and is an excellent way to check for worms and coccidia. If the droppings are less than 10 minutes old they can also be used to check for Hexamita (a canker like organism in the bowel). Yeast and bacterial populations can also be estimated and if necessary stained and cultured to Evaluate these further. Canker and respiratory infection cannot be diagnosed through the Droppings.

A plethora of further diagnostic tests are available- Circo virus can also be tested for from a drop of blood, dead birds can be autopsied and tissue samples collected for pathology, eggs can be autopsied, endoscopes can be used to examine live birds internally, birds can be x-rayed and samples for bacterial culture can be collected from many sites.

Most fanciers when consulting an avian veterinarian want one of three things done;

1/ Screening of several race birds for common disease

Here we check several representative birds from the race team, which may actually look quite normal, to see if they are carrying any health problem that will compromise Performance. Usually a crop flush aspirate and droppings are examined microscopically and a drop of blood is drawn for a Chlamydia Immunocomb test.

These three simple tests allow us to check for all of the common diseases.

2/ several birds have become unwell with maybe some dying and an accurate diagnosis is needed.

Here the history i.e. the circumstances of the disease outbreak and the symptoms shown by the birds may point us in the right direction. Testing can then be used to confirm suspicions. Often in this situation autopsying a freshly dead bird or culling an unwell bird that we feel is going to die is the quickest and most economical way of reaching an accurate diagnosis. To be diagnostic, tissue samples need to be collected within 4 hours of death. During autopsy tissue samples from all organs are collected and fixed in formulin and any obvious infection is swabbed for culture. All of these samples are then forwarded to an appropriate laboratory for testing. Do make sure your vet forwards these samples to a pathologist with alot of avian experience. This really is the definitive test and it is rare for this to not fully and accurately diagnose the problem.

3/ Individual birds of value that have become sick and need to be diagnosed, treated and made well.

Incredibly we still see fanciers that believe good birds never become sick. What a load of rubbish! It makes no sense to deny these birds treatment. An initial thorough clinical examination often indicates to us which diagnostic tests are likely to give us the most information and are the best use of the fanciers money. Usually with valuable individual birds blood is drawn for biochemistry and hematology and also scanning whole body x-rays are taken. Often this combination of tests will diagnose the problem or at least indicate a more specific test e.g. a liver biopsy that will definitively diagnose the problem. Sometimes with these birds their problem can be fixed with medicine, sometimes the answer is surgery. These days the risks involved in birds with anesthetics and surgery is similar to those in dogs and cats and we routinely repair hernias, remove tumors etc. so these birds can regain their health.

I urge fanciers to develop a good working relationship with an experienced avian vet. Accurate diagnosis and effective treatment can only be an advantage to you and your