Aviagen Turkeys

Technical Bulletin

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Conducting a Turkey Post Mortem Examination in the Field

The objective of post mortem examination in the field (field necropsy) is to provide information that can be combined with flock history and field observations to help to determine the causes of performance problems, clinical signs and mortality.

Field necropsy should be backed up with laboratory diagnostic investigations on tissue samples, serology and live/dead mortality specimens, especially if the field problem persists. The technique of turkey necropsy in the field can vary, but the following can serve as a general guideline.

Case History of the Flock

A key to identifying health problems is understanding the flock history. Accurate records are important and should include the following information:

- Age
- Flock size
- Morbidity (sick birds and mortality numbers)
- Principal clinical signs noted and duration of clinical signs
- Previous flock/farm history
- Last handling of birds
- Management factors:
  - Feeding & water systems
  - Housing
  - Ventilation
  - Litter conditions
  - Vaccination/medication program
- Unusual management changes
- Performance records (egg production and weight gains)
- Breeder flock source
- Feeding regime

Observe Clinical Signs of Disease

Monitor the flock and note any abnormal behavior such as:

Respiratory: Gasping, nasal discharge, snicking, swollen sinuses, mouth breathing, coughing, blood in mouth

Digestive signs: Diarrhea, soiled vent, excessive chirping

Nervous signs: Head and neck held in an abnormal manner, tremors, spasms, paralysis, circling motion

Locomotive signs: Unable to stand or walk, limping, poor gait, inability to use one or both legs, lying on side, swollen foot pads and swollen joints

Observe the Bird in Question

Examine the exterior surface of the bird and note the following:

General condition: Thin, good flesh, trauma, dehydrated

Examine the head: Eyes, sinus, eye lids, oral cavity

Examine the legs, hocks and note mobility: Palpate legs, joints and feet

Examine the skin for external parasites, particularly beneath the vent: Lice and mites

Necropsy Equipment to Have on Hand

- Sharp knife
- Scissors (blunt point)
- Bone shears
- Forceps
- Disposable or rubber gloves
- Vacutainers or plastic tubes for blood collection
- Whirl packs for tissue samples
- 10% buffered formalin solution in a wide-mouth plastic container
- Sterile swabs for bacterial culture
- Disinfectant to clean and disinfect equipment

Post Mortem Examination

There are a number of procedures used. What is important is to make sure that one proceeds with the necropsy in an orderly fashion. This will reduce the chance of overlooking something.

1. Euthanize the bird according to your company's approved welfare standards.

2. Place bird on its back. Incise the loose skin on the inside of each thigh. Grab the leg in one hand and holding the body with the other hand, pull the leg down and outward from the body until the hip joint is disarticulated.

3. Cut the skin across the lower abdomen. Pull the skin over the breast, sternum and crop. Examine the breast muscle and subcutaneous tissue for any abnormal appearances such as blisters, hemorrhage, dehydration (darkening of the muscle), etc.

4. For fresh dead, break down the adhesions between the heart and breast bone prior to lifting up on the keel bone.

5. Using bone shears, cut through the ribs and under the clavicle and coracoid bones (on older birds, two cuts can be made above the shoulder area down through the breast muscle to the shoulder joint). This will assist you when reflecting the keel.

6. Pull the keel forward to allow access to the internal organs. Examine liver, heart, gizzard, intestines and air sacs without touching them.

7. Take bacterial cultures (liver, pericardial sac) or tissue samples and the whole bird for virus isolation and additional investigations.

8. Hold the gizzard and pull, along with the intestines, to the bird's right side.
9. Examine the spleen and air sacs. Take bacterial cultures from spleen and/or air sacs, if necessary.
10. Remove the lungs and examine. Note the consistency and color. Make several transecting cuts over the lung and examine lung tissue.

11. Hold proventriculus, cut esophagus near proventriculus junction and then pull out the entire digestive system including liver, spleen and small intestines and lay small intestines out.
12. Examine liver, kidneys, pancreas, surface of the intestines and gonads.
13. Examine the stifle, hock joints and tendons.
14. Examine leg bones (tibiotarsus) for rigidity by bending and breaking the bone to check for nutritional deficiencies such as rickets in young birds (1-6 weeks). A healthy bone should make a snap when it breaks.
15. Examine the tibia in growing birds by cutting longitudinally on the medial inside surface through the epiphysis (growth plate) to examine for abnormalities such as TD and osteomyelitis.

16. Examine costochondral junctions (ribs) for enlargements (beading).
17. Cut through the left side of the mouth using heavy scissors and continue the incision through the skin and esophagus to the thoracic inlet and pull the skin laterally.

18. Examine oral cavity and organs of the neck region (thymus, thyroids and parathyroids).

19. Make a longitudinal cut through the larynx and trachea. Examine for blood, congestion, etc.
20. Examine esophagus and crop. Note any abnormalities in esophagus and crop such as crop mycosis (candidiasis), trichomoniasis or capillaria worms.
21. Make a lateral incision through the wall of the infraorbital sinus and examine for exudates, etc.
22. To examine the brain remove the skin on the skull. Then remove the skull bone by cutting the bone all the way around the periphery of the cranial cavity with heavy scissors or heavy bone shears. Lift the loosened portion of the bony skull with forceps or scissors.
23. Examine the digestive system by making a longitudinal cut through the proventriculus, gizzards, small intestines, cecum, colon and rectum.
24. Examine the intestines by making a longitudinal cut through the wall of the intestines continuing to cut in order to inspect the bird for worms.

In order to make the best use of information derived from field post mortem examinations, field supervisors/ managers should routinely post the flock mortality to gain experience in detecting the normal from abnormal tissue/ organ conditions.

Poults, 1-7 days of age:

1. Fold both wings over the breast muscle and hold both with one hand. With the other hand, hold the neck and work the thumb down between the crop and breast muscle to the thoracic inlet.
2. Pull the wings and breast muscle back towards the tail with one hand while the other hand holds the neck with the thumb pushing down against the thoracic inlet and cervical vertebrae, separating the breast muscle and wings away from the back bone.
3. Poults can also be opened by cutting the clavicular and coracoid bones (the thoracic inlet, wish bone area) and then through the rib cage and abdominal wall.