AVIAN NECROPSY PROCEDURES

EXTERNAL EXAMINATION

If mortality is occurring, both live and dead birds typical of the disease problem should be submitted. Restraining a live bird for external examination is done by holding the bird so that the keel is cradled in the palm of the hand with the index finger passing between the legs and the thumb and second finger passing outside the legs. The other hand is used to examine external structures. Prior to performing the necropsy, observe the cadaver for body weight, color, plumage, and dehydration.

For live birds, observe behavior. Note the prominence of the sternum (keel bone) and fullness of the pectoral muscles. The curvature of the keel bone is an important indicator of skeletal normality.

Palpate the crop for fullness and type of feed. Observe the plumage for moult and presence of external parasites.

Check for discharges from orifices of the head (eye, nose, or ear). Observe the skin for thickness, swellings, tumor-like lesions, and excessive keratosis.

Check the head and feet (shanks) for discoloration, thickness, and dehydration.

INTERNAL EXAMINATION

Lay the bird on its back and wet the plumage with disinfectant and/ or detergent with the table wetted down. In small caged birds the wings and legs may be taped to the table or small tacks may be used to pin the legs and wing to a cork necropsy board to prevent movement while removing organs. The use of a dissecting microscope is beneficial in caged bird necropsies. 1. Incise the loose skin between the medial surface of each thigh and the abdomen. Each leg is then grasped firmly in the area of the femur near the coxofemoral joint and rotated forwards, downwards and outwards until the head of the femur is broken free of its acetabular attachment. The cadaver will lie on its back on the table.

Hayvanın cüssesi de dikkate alınarak derinin yüzülmesinde önerilen yöntemler :

I.Yöntem

Bu yöntemde:

1. Bacaklar dorso-laterale doğru çekilip gerilir.

- Her iki yandaki inguinal bölgeyi örten gevşek deri kısmı önden arkaya doğru kesilir.
- Her bir bacak koksa-femoral ekleme yakın femur bölgesinden sıkıca kavranıp öne, arkaya ve dışa doğru döndürülerek femurun başı, asetabular bağlantılarından ayrılıp koksa-femoral eklem çözülür.
- Bacakların derisi medialden kesilir.

2. Ventralde, kloakaya yakın olarak karın duvarını örten deri üzerine transversal bir kesit atılır.

3. Bu transversal kesitten başlayarak karın, göğüs ve boyun derisi median hat boyunca, sternum üzerinden larinkse kadar makas ile kesilir(Şekil 85a).

4. Deri, yapılan bu median ensizyondan sırta ve boyunda dorsale doğru genelde küt bir şekilde yüzülerek ayrılır.

A transverse V-shaped skin incision is made across the posterior abdomen ventral to the keel and above the pubis to join the two previous medial thigh incisions. Reflect the cut edge of the skin anteriorly over the breast and extend over the thoracic inlet to the posterior border of the mandible, thus exposing the breast muscles, keel, crop, esophagus, and trachea for examination. Lobes of thymic tissue are located along each side of the neck and are present as pink-gray lobules offirm lymphoid tissue from the thoracic inlet anteriorly. The vagus nerves lie along each side of the neck and are easily identified because of their normal cross striations.

An incision is made in the pectoral muscles on each side of the keel at the junction of the sternal and vertebral ribs. The cranial end of each incision should intersect the thoracic inlet at the midpoint of the clavicle and coracoid.

Special Procedure

- It is a form of method which is applied in cases where a large number of chicken necropsia should be done rapidly, but not preferred:
- When the animal is in the supine position, the legs are pulled in the lateral and dorsal directions, and the legs are stretched.
- In the meantime, as the coxafemoral joint is separated, the chest skin is torn.
- The torn skin is held by hand and separated from the cloacal to the length and sideways.
- Then, the neck skin is cut apart from the ventral as described above.

Opening the Cavities

I. Procedure (U-shaped)

In this method, the openings are opened with wide U-shaped sections, leading to the front of the ventral posteriorly.

a. First, a transverse section of the ventral muscles at the back of the abdominal wall is made with a transversal section.

b. The second sections made from the ends of this transversal section are continued forwards.

c. After the muscles around the chest are cleaned, the ribs on both sides of the rib cage are cut off from the region that is in the middle of the sternal and vertebral connections.

After the clavicula and coracoid

bones are cut with a costotom and

the humeroscopes are separated,

the ends of the cross-section through

the sides of the rib cage are

combined in the apertura thoracis

cranialis.

II. Procedure (Y-shaped)

In this method, the abdominal and thoracic cavity is opened with sections resembling Y shape.

a. Again, a transversal section is made close to the cloacal behind the abdominal wall.

b. Starting from this section, the abdominal wall is cut to the longitudinal sternum protrusion along the median line.

c. When the end of the sternum is reached, the arms of the section are extended to the front of the sternum.

In this way, the ribs on both sides are cut close to the sternum.

Clavicula and coracoid bones are also cut with the costotomy and the humerous capillary connection is dissected and the ends of the section are combined in the apertura thoracis cranialis.

Removal of Digestive System Organs:

1. a.Removal of stomach and intestines

From the onset of the gastric esophagus, the end of the intestines can be removed from the cloacal and removed completely.

Another way is to separate the stomachs and intestines separately.

In this case, diaper and muscular stomachs, esophageal and duodenum from the beginning of the cut is taken out.

b. Then the large intestine is cut from the cloacal, separated from the thin-large intestine and secum mesenterial connections or taken out together.

2. Removal of pancreas

When the intestines are removed, the prolonged pancreas along the doudenum is also taken out.

Then it is separated from the bowel section.

3. Removal of liver and spleen

The liver and spleen may be removed together after the above procedure.

However, it is more accurate to remove both organs separately or together before removal of the stomach and intestines.

Because the liver body cavities when the opening of the first one of the organs.

4. Removing the Genitale System

A. Removing the Female Genitale System

B. Removing the Male Genitale System

5. Extraction of Bursa Fabricius

B.Fabricius located in the dorsal region of the cloacal is examined in place but it is obligatory to remove it in chickens that have not reached sexual maturity.

B.Fabricius, together with the genital organs and cloacal in females as mentioned above, or in males, is taken out together with the cloacal separately.

6. Removing the Ürinary System and Adrens

Removal of Chest Cavity Organs

In poultry, the heart and lungs can be examined separately, as different from mammals.

In this case the heart is removed first.

Then the opening of the oral cavity, the neck organs to the length of the esophagus and trachea is cut to the lungs are followed.

1.The removal of the brain

The heart cavities can be removed before opening the body cavities and removing the digestive tract, organs, liver and spleen.

However, the re

moval of the heart from the abdominal cavity, such as the mammalian organs, has been adopted.

The heart is examined before removal. For example, whether the pericardium is of normal color and transparency; Transudate in the cavity, exudate is collected.

2. Removal of Lungs

Removal of the body cavity organs by the removal of the lungs ends.

The lungs are removed after the oral cavity is opened and opened from the neck organs to the length of the esophagus, crop and trachea. For this purpose:

a. The tips of the left mouth are inserted into the oral cavity between the upper and lower beaks, and a left-hand scissors is cut long. The oral cavity is exposed.

The same procedure is repeated in the right mouth and the upper beak is completely separated. Or the process of cutting the right mouth of the head is left in the order of separation. In this case, the oral cavity is opened only from the left side.

b. Once the oral cavity is opened and checked, the esophagus is switched to opening the trachea.

IV. Head separation and opening of head spaces

If the right rim is not cut, the upper and lower beak is cut off in the above way and the lower jaw is completely separated.

The head is then separated from the neck by the atlanto-occipital joint, as in other animals. The brain, nose and sinus infraorbitalis are opened.

A. Brain Removal

a. It is cut off from the base. The head muscles in the skin and the dorsal are removed.

b. The cranial space opens with a transversal and two crossed sides, as in mammals **.**

Care is taken to pass the transversal section through the eye cup as far as possible. Scissors, bone scissors or saws are used according to the age of the animals.

c. After the section, the separated calvarium is removed. Duramater is examined. The brain is removed from the cranial nerves, pituitary and bulbus olfaktorius by a curved scissor.

In addition to this, in some cases the cranium and the sagittal section through the middle of the upper beak can be divided into two symmetrical head and the cranium, nose and sinus cavities can be revealed together**.**

B. Opening of Nasal and Sinus Infraorbitalis

a. A cross section is made on the upper beak, passing through the nostrils on both sides.

b. Separated from the transverse section of the upper beak base.

Besides this method:

- The nasal cavity and infraorbital sinuses can be exposed only through the nostrils in the upper beak or through a transversal section in the sagittal or just beak base that passes through the cranium as described above.
- The wall of both sinuses should be cut longitudinally and opened as necessary for microbiological culture, regardless of which method is opened.

4. Opening of Canalis vertabralis and removal of M.spinalis:

There is no special method in poultry.

After the skin is removed and the area is cleaned, each vertebra is excised from the arch vertebral and the vertebral canal is removed and m. spinalis is taken out.

5. Examination of the peripheral nerves:

The brachial plexus and N.ischiadicus from the peripheral nerves should be examined for Marek disease, especially in chickens.

The extrapelvic portion of N. ischiadicus is located between the adductor muscles in the medial portion of both legs and the plexus extends to the lumbosacralis.

This section is revealed by carefully separating the adductor muscles in the medial leg of the leg.

The intrapelvic part of N.ischiadicus is seen in the sacral region, where it is located on the kidneys, after the removal of the kidneys.

NECROPSY PROCEDURES
OF
LABORATORY ANIMALS

- Wild animals play a role in the transmission of various diseases to humans and pets.
- Laboratory animals are often the only model in disease research.
- Some wild animals have economic value.
- Some of them are important as ornamental animals.
- In this regard, necropsy is mandatory for detection of wild and laboratory animal diseases.
- It is almost impossible to determine the clinical course of the disease or to take an anamnesis in the necropsy in animals living free in nature other than those under surveillance (such as laboratory animals, zoo and cage birds).
- Because in nature there is little chance of encountering an animal that has fallen strong in nature and cannot walk and fly.

- The macroscopic finding that is easily identified is not always found.
- Even in the microscopic examination there is no change.
- It is another handicap in the diagnosis that wild animal diseases do not take part in educational programs as much as in domestic animals and cause lack of experience other than those who specialize in this field.

- Similarly, considering the inadequacy of normal anatomic-physiological information of the species, the problem becomes difficult from the beginning. For example, it is normal for some neotropical birds to scatter underneath the skin to find air slots.
- When palpation is detected in cresypitation, it must be separated from the pathological event such as gaseous gangrene.
- The birds of the fish that eat fish like penguins are normally dark red, black color and not a pathological finding.

- In the fille, the pleural space is naturally missing. The lungs adhere directly to the chest wall. Therefore, this normal structure is not recorded as a diffuse pleural adhesion.
- The stork has a tracheal, curved, half-sectioned crane. Not all wild ruminant species have a gallbladder.
- The hearts of some reptiles may have three eyes. The lungs are also located in the thoracic cavity long or double.
- It is important in the selection of necropsy methods such as the collection of attention on such anatomical differences, the definition of lesions and the application of necropsy.

- It is difficult to determine a standard necropsy method for each wild animal species.
- However, except for some species, such as reptiles, and anatomical structures compared to domestic animals, it is not difficult to tamper with the minds with a few changes to the method.
- For example, wild horses, zebra, other monk, rhinoceros, hippopotamus, and elephant necrops are not much different from horses.
- The methods used in cattle, sheep and goat can be applied to camel, antelope, llama and wild sheep and goats according to the size of the animal.
- Lion, tiger, bear, coyote, necropsy cat lion, similar to dogs.
- There is no difference between wild boars and domestic pigs. Wild birds are also opened considering the chicken, turkey, goose ducks, organs are removed.
- Gorilla is similar to human.

NECROPSY PROCEDURES FOR LABORATORY ANIMALS

In necropsy of laboratory animals, there is no single standard method which is suitable for all conditions.

The method or methods vary according to the purpose in necropsy.

In laboratory animals, necropsy is usually performed for two reasons. The first one is to study the pathological findings in experimental studies and the other is to find the cause of death in non-experimental animal deaths.

Tools

For a purpose-oriented postmortal examination, a well-regulated necropsy room, or rather a chamber, is needed.

This room is considered not only for pathological examination, but also for microbiological and other studies.

The necropsy room should be well-lit, easy to clean and clean.

There should be a refrigerator in the room for storing and storing the samples until the necropsy is made.

The necropsy desk can be of different types.

- If possible, there should be gas connection with cold and hot water on the table.
- If the cold water pipe has a rubber pipe extension with a spray apparatus at its end, both the desired material and tools during the dissection and then the medium can be easily cleaned.
- Close to the table, there should be a non-large machine on which instruments, culture media, fixative bottles and disinfectant solutions can be placed.

Necropsy Procedure

There are some basic rules in the necropsy of laboratory animals.

However, these rules can be modified according to the purpose, or the necropsy can choose to be in their own choice, in the scientific order that can provide the correct examination of the lesions.

The cadaver is first examined externally.

Then put on the table in the back position.

For better examination, the anterior limbs should be partially separated from the cadaver.

The hind legs are opened on the inner side of the legs by cutting the muscles at the level of the coca-femoral joint.

- The opening of the body cavities is started.
- For this purpose, the abdominal wall is cut from the sternum to the anal region along the midline, and the abdominal cavity is exposed.
- The chest cavity is opened by cutting the ribs on both sides and removing the sternum and connective tissues.
- Extraction of internal organs is carried out within the framework of the aim.
- Under some circumstances, when examining the mouse and small animals like it, it is better to attach it with a pin on the back feet of the cadaver or paraffin molds used in sample trimming.
- After necropsy, it is safer to use paraffin-coated molds in order to be easily washed and disinfected with a pulverized fire.

Brain Removal

In laboratory animals, the brain is usually examined. For this :

a. Small animals are nailed to the top of the stomach. In larger laboratory animals such as rabbits, the head is fixed with bone forceps.

b. The skin on the skull removal.

c. In small animals such as mice or in young animals, skull bones can be cut with pointed scissors. In cases where the bones are hard, a thin-face saw should be used. The cut bone part of the skull (calvarium) is removed and the brain is removed.

Sometimes the brain comes out with the broken bone. If a sample is to be taken for bacteriological culture, this is done without brain removal.

The brain is taken out of the spinal cord.

f. The best method for aseptic removal of the brain in mice is to first disinfect the feathers on the head and back skin with hot paraffin. When the paraffin cools, this area is flame-flame-free and thus prevent contamination of the hairs.