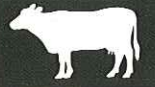


1 NECROPSY EXAMINATION OF CATTLE



1

Position the animal in left lateral recumbency so that the rumen is on the “down” side.



2



Perform an external examination. Look for vesicular lesions on the nostrils, lips, tongue, gums, feet, and claws.



3

Elevate the right forelimb and insert the knife into the axillary region.



4

Cut the soft tissues to free the limb. To prevent the knife from becoming dull, cut from the subcutaneous to the external side to minimize cutting through the hair.



5

Reflect the forelimb dorsally.



6 Elevate the right hind limb and insert the knife into the inguinal region.



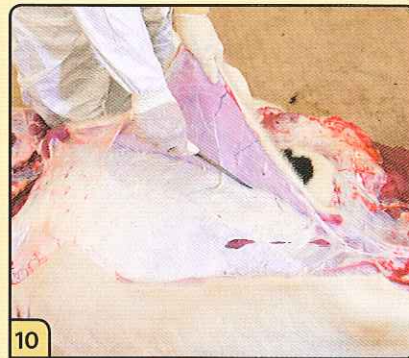
7 Cut through the soft tissues until you expose the head of the femur. Open the coxofemoral joint and transect the ligament of the head of the femur.



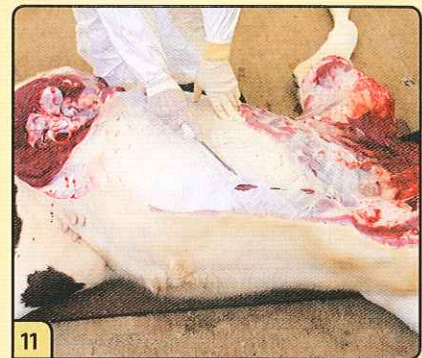
8 Reflect the hind limb dorsally.



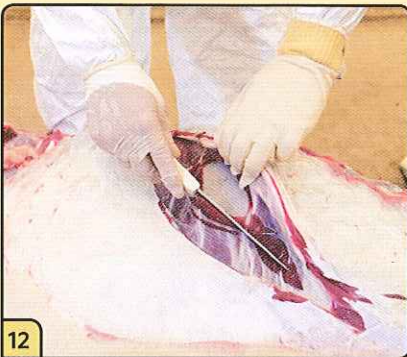
9 Connect the hind limb and forelimb cuts ventrally.



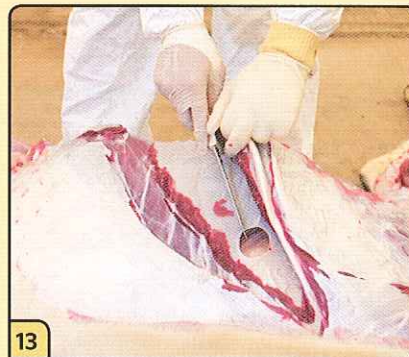
10 Continue to undermine the subcutaneous tissue until the skin flap can be reflected dorsally.



11 Open the abdominal cavity by incising along the caudal edge of the last rib.



12 Cut through the muscle until you expose the peritoneum.



13 Cut through the peritoneal lining, being careful to avoid cutting visceral structures.



14 Check the diaphragm for cranial doming, then incise it and listen for the loss of negative pressure as air penetrates the thoracic cavity. Open the diaphragm and look for effusion and adhesions in the thoracic cavity.



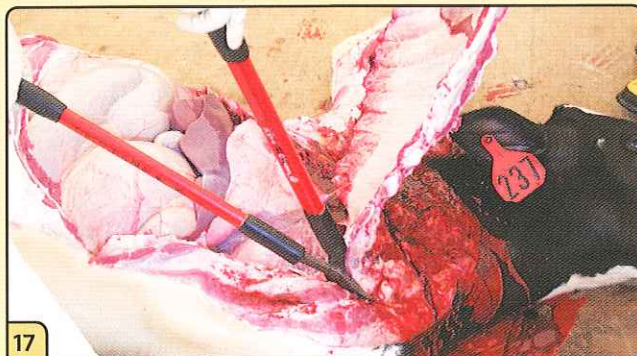
15

The thoracic wall can be removed using a variety of techniques.



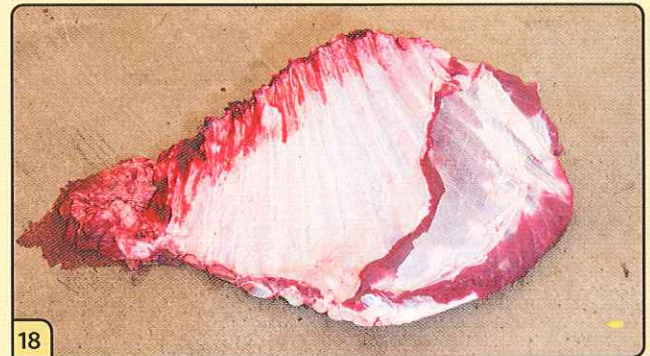
16

Rib cutters can be used to isolate and cut the ribs ventrally at the sternum and dorsally at the vertebrae.



17

Once the ribs are cut, they can be removed *en bloc*. Alternative methods to remove the ribs include the use of a bone saw or ax, or by isolating each rib with a knife, fracturing it, and reflecting it dorsally.



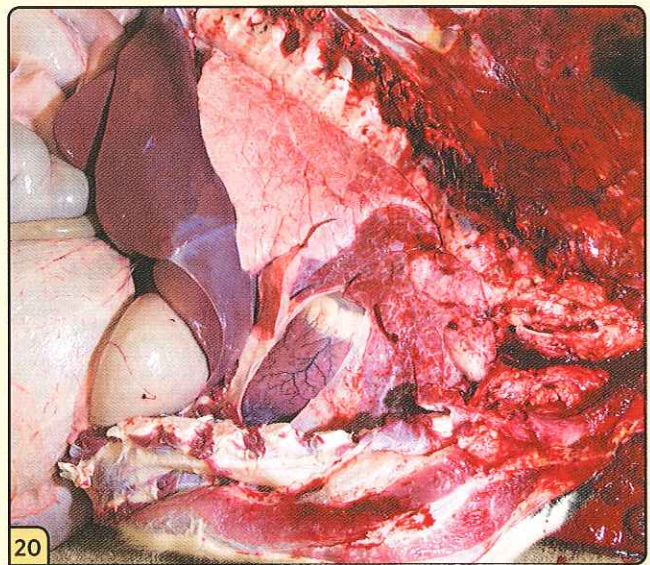
18

The thoracic wall can be set aside and used as a clean work surface on which to prepare tissue samples.



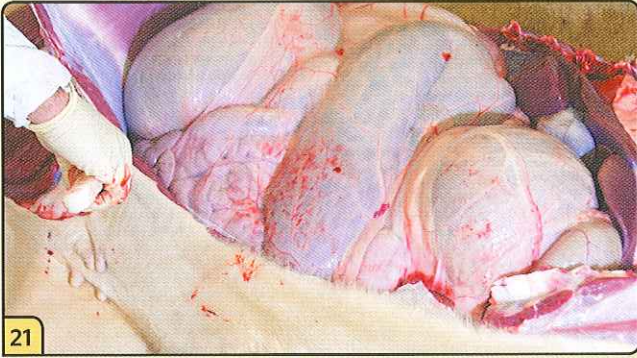
19

Cut the pericardium to expose the heart for inspection.



20

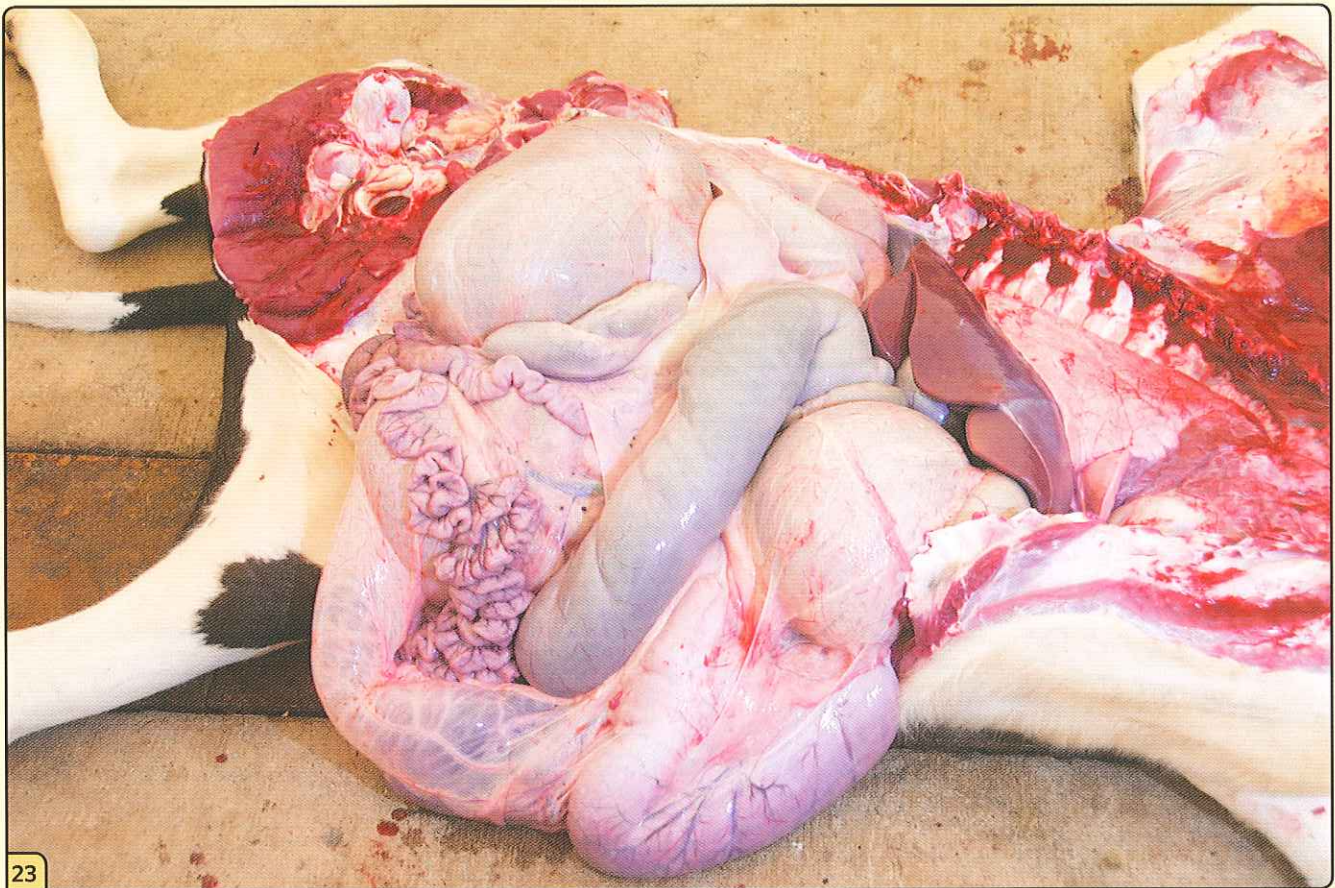
Examine the thoracic viscera *in situ*.



Open the abdominal cavity.



If necessary, tear or cut the omentum to expose the abdominal viscera.



Examine the abdominal viscera *in situ*. Before handling the organs, stop to collect all "clean" tissue samples for microbiology and histopathology. At a minimum, collect samples from lung, liver, spleen, kidney, and lymph nodes, as well as samples of any lesions present.



24

Extend the cut from the axilla up along the ventral neck.



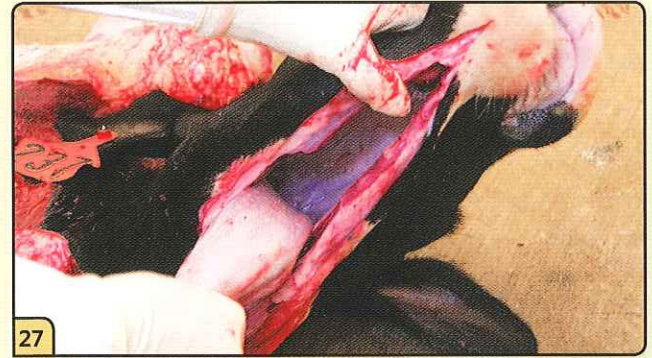
25

Continue the cut between the mandibles.



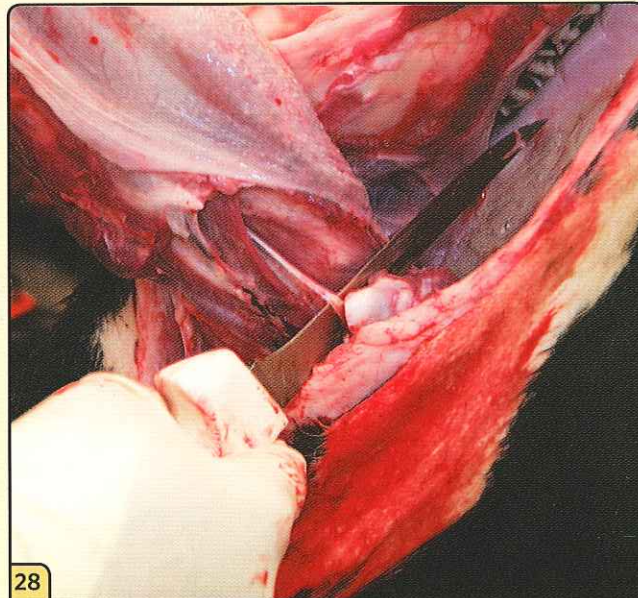
26

To remove the pluck, begin by cutting along the medial aspect of both mandibles to free up the tongue.



27

Pull the tongue ventrally and caudally to expose the oral cavity for inspection.



28

Cut the hyoid bones bilaterally to disarticulate the hyoid apparatus.



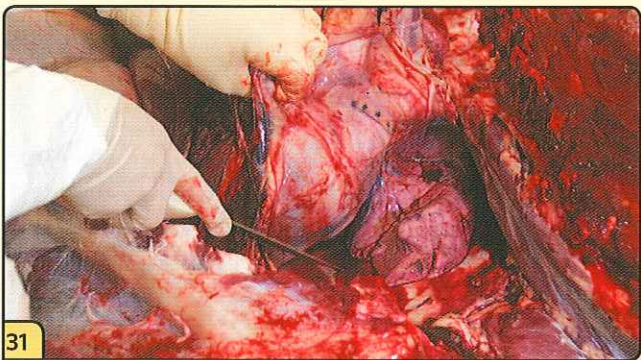
29

Retract the tongue and cut the attachments along the trachea and esophagus.



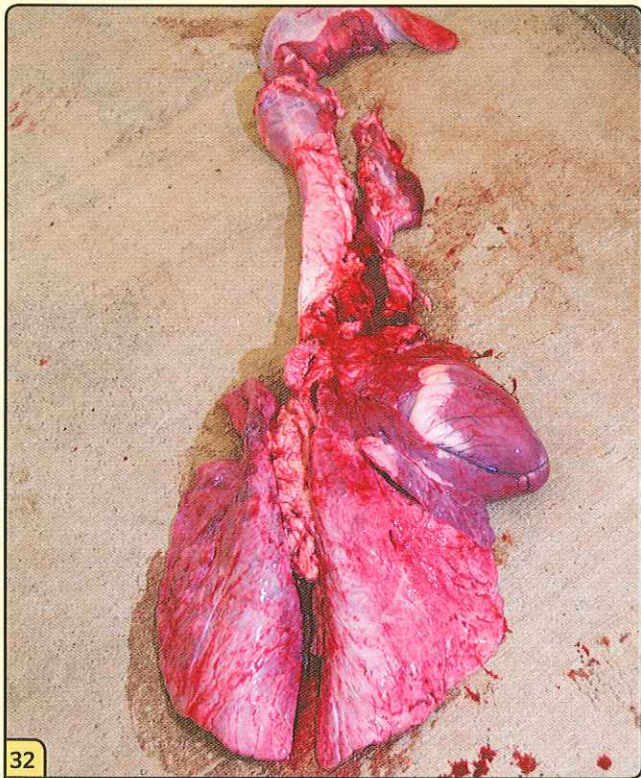
30

Continue to remove the trachea and esophagus, working from the oropharynx down to the level of thoracic inlet.



31

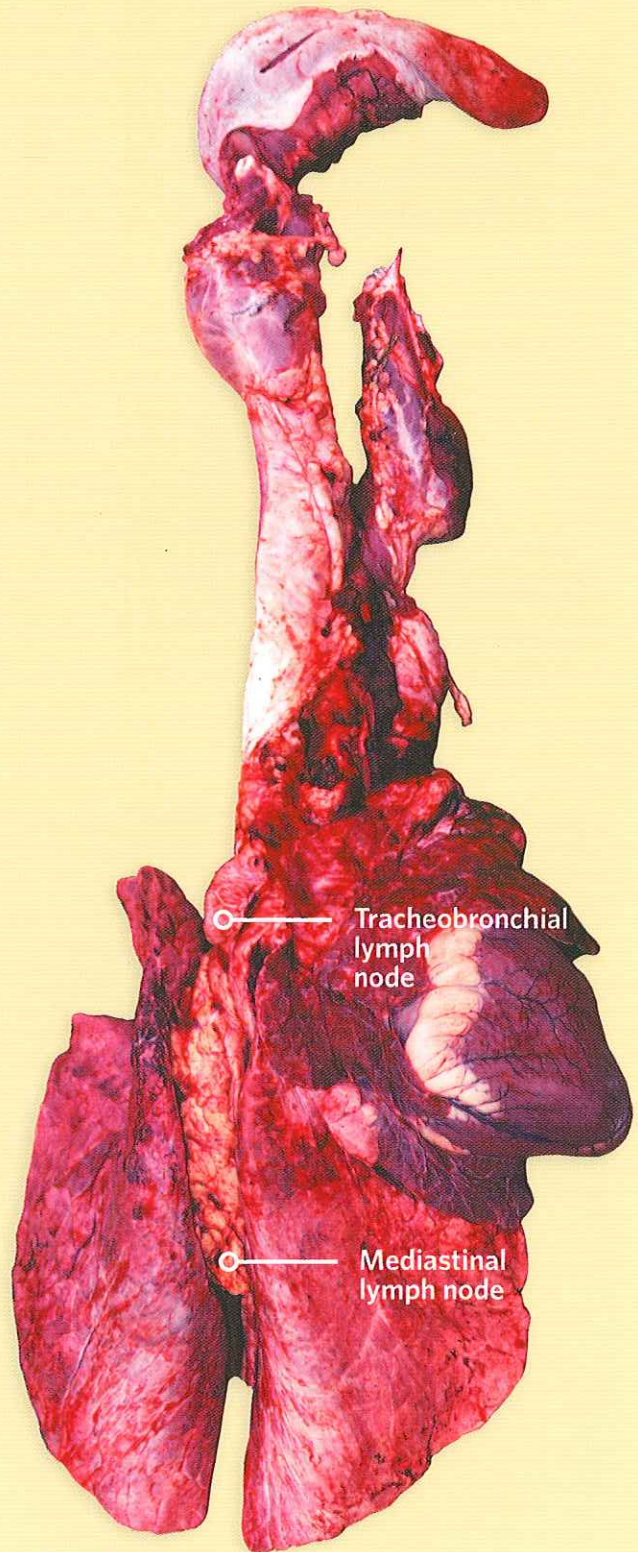
Dissect around the lungs and heart to free up the pluck.

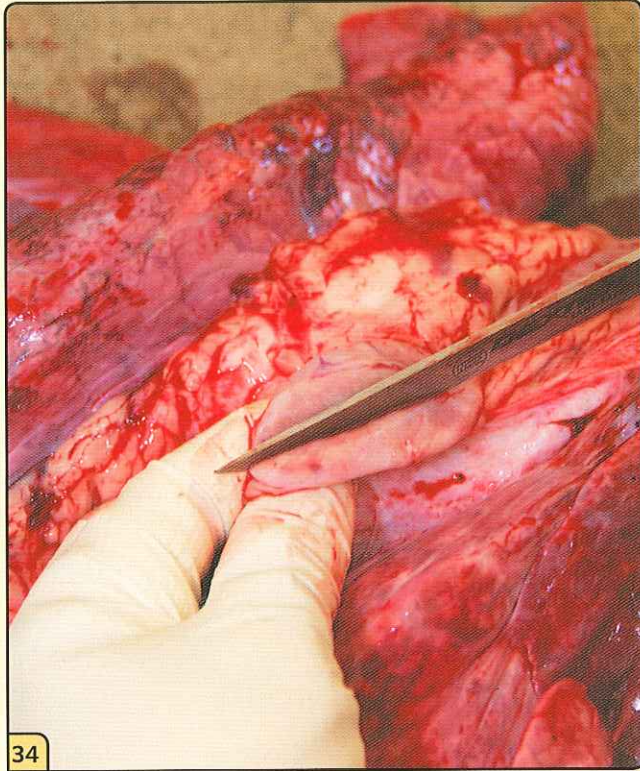


32

Remove the pluck and set it aside for a more detailed examination.

33 Identify the tracheobronchial lymph node, located on the trachea at the first tracheal bifurcation, and the mediastinal lymph node, distributed within the mediastinum.





34

Incise and examine the lymph nodes.



35

Collect sections of the lymph node for microbiology and histopathology.



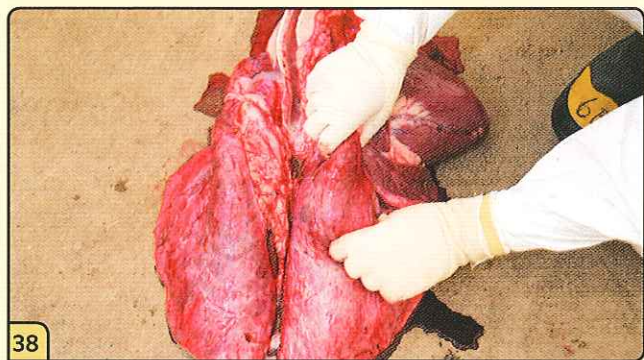
36

Open and examine the esophagus.

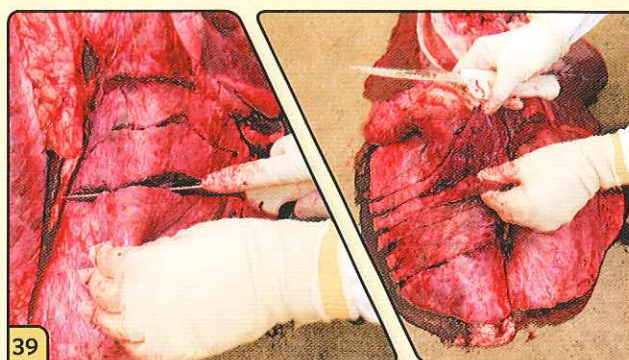


37

Open and examine the trachea.



38 Palpate the entire lung field to assess for any abnormalities.



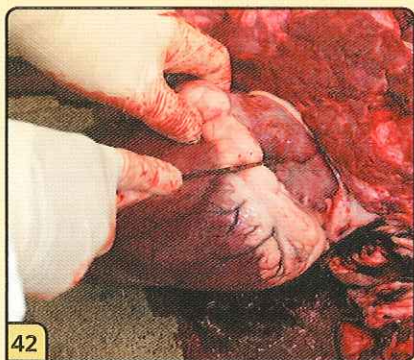
39 Incise the lungs by making a series of "bread loaf" slices across the entire lung field. Palpate and examine each slice, assessing for masses and consolidation.



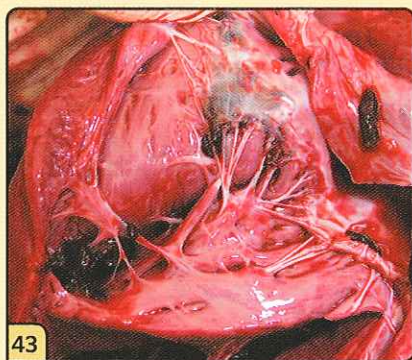
40 Open and evaluate the large airways of the bronchi.



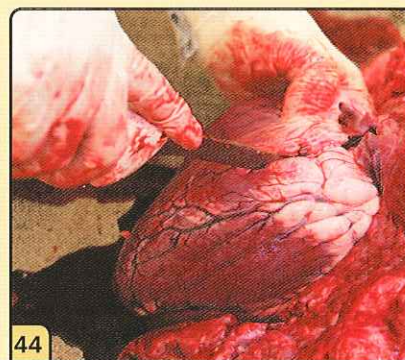
41 Collect a section of lung.



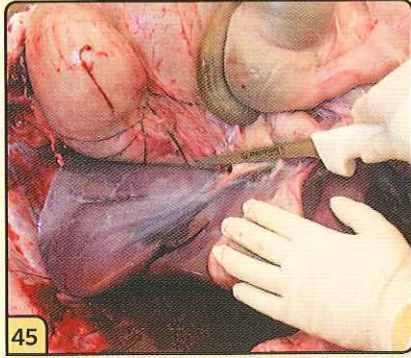
42 Open the left side of the heart by cutting through the free wall of the left atria and left ventricle.



43 Follow the course of blood flow from atria to ventricle, evaluating the chambers, valves, and myocardial walls.



44 Repeat the process on the right side of the heart.



45

Cut the attachment of the liver and set the liver aside for a more detailed inspection.



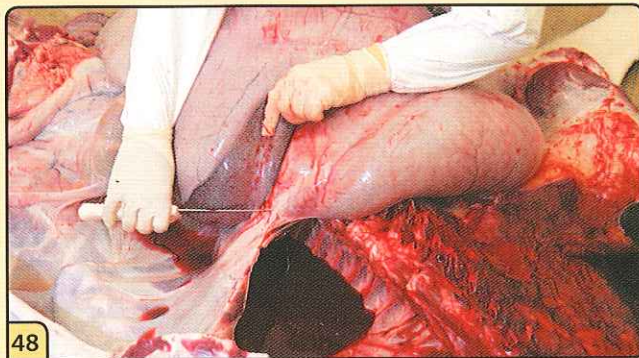
46

Make a series of "bread loaf" slices across the entire liver.



47

Evaluate each slice, assessing for any abnormal areas that require sampling. Collect a representative section of liver for diagnostic testing.



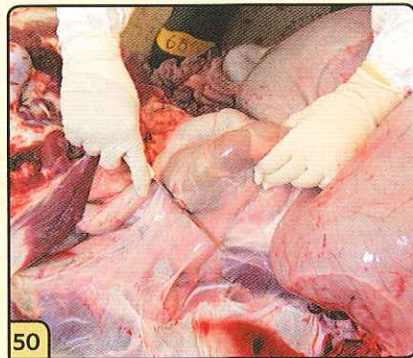
48

Identify the spleen, located on the left side of the abdomen, adjacent to the rumen.



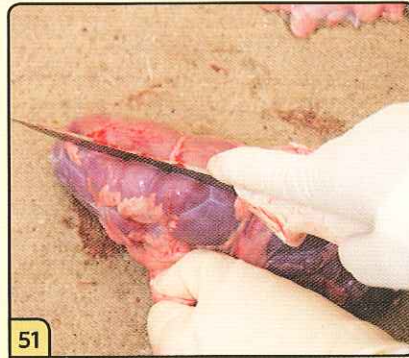
49

Remove the spleen. Make a series of "bread loaf" slices, evaluate the slices, and collect tissue samples.



50

Identify the kidneys, located on the left side of the abdomen, subjacent to the lumbar vertebrae. Remove each kidney and set it aside.



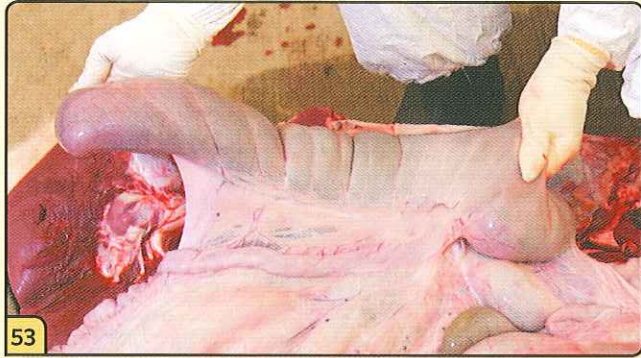
51

Make a sagittal cut along the kidney. Peel and remove the outer capsule of the kidney.

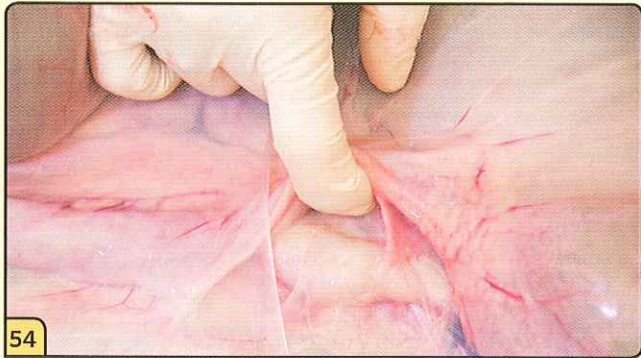


52

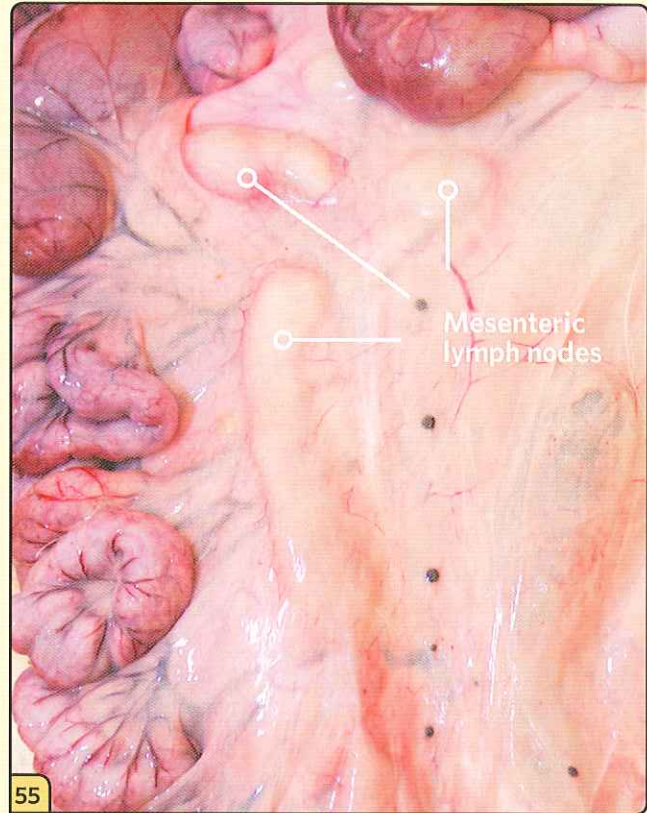
Open and examine the kidney, and collect tissue samples.



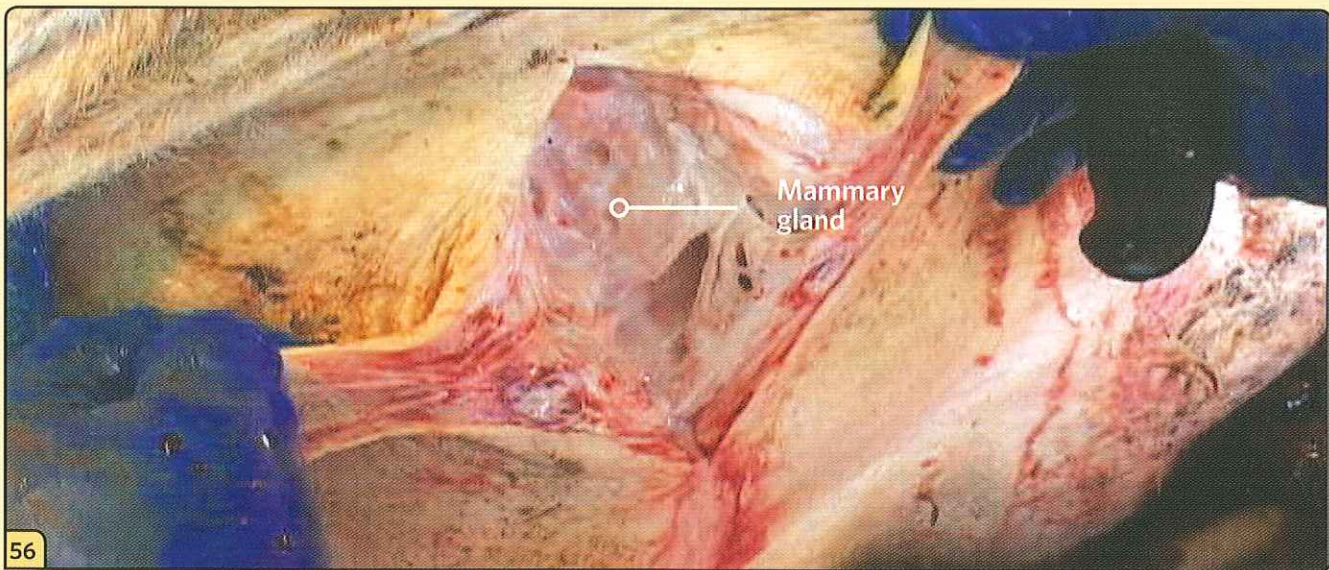
53 Find the ileoceco colic junction, located at the proximal end of the cecum.



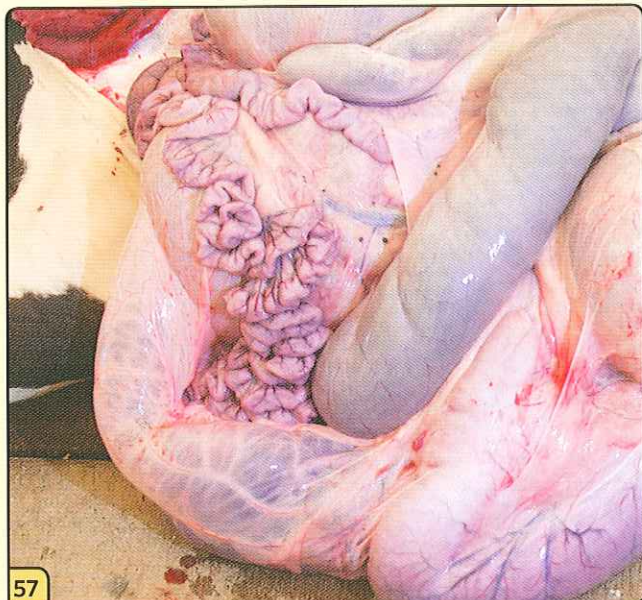
54 Identify and evaluate the ileocolic lymph nodes, located next to the ileocolic junction within the ileocecal fold.



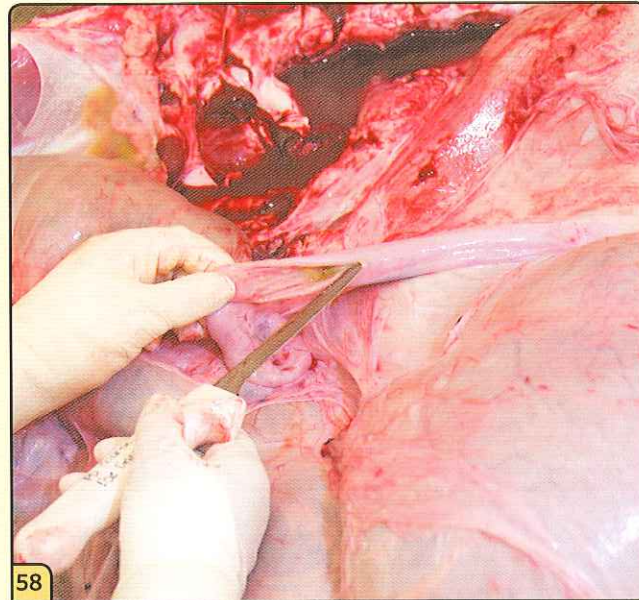
55 Identify and evaluate the mesenteric lymph nodes, located within the mesentery of the small intestines.



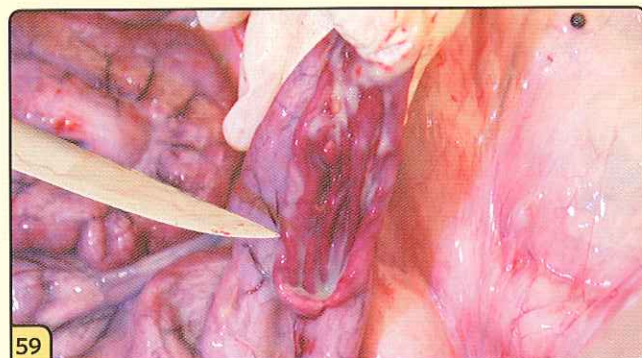
56 Incise and examine the reproductive tract when indicated.



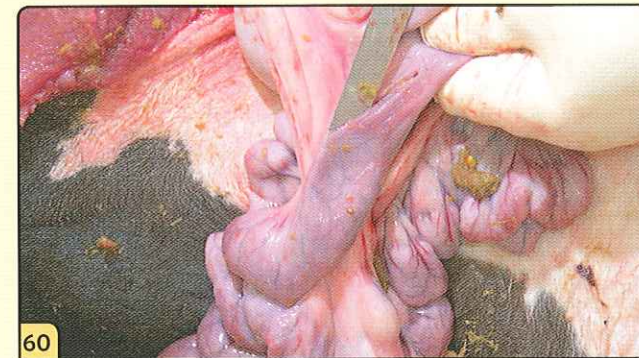
57 The GI tract is now examined in detail. This is generally done after the other organs have been examined to prevent tissue contamination caused by high levels of bacteria.



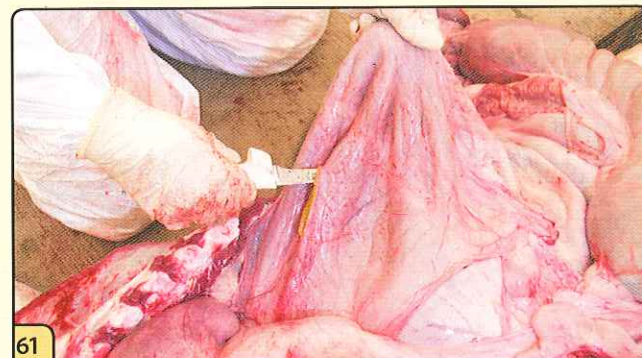
58 Segmentally open and examine the representative sections of normal appearing intestine.



59 Examine and sample the Peyer's patches. This gut-associated lymphoid tissue (GALT) is located in patches along the intestine. Open the Peyer's patches and look for gross lesions that indicate the presence of disease.



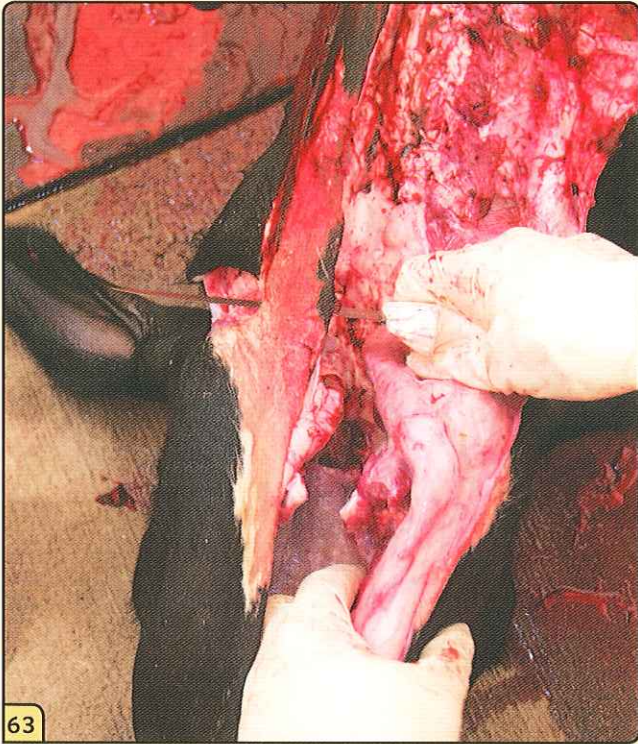
60 Any sections of intestines that appear to have gross lesions should also be opened, examined, and sampled.



61 Open the rumen.



62 Gently scrape away the ingesta and examine the pillars of the rumen, looking for erosions.



63

To remove the head, begin by making a cut ventral and caudal to the ramus of the mandible.



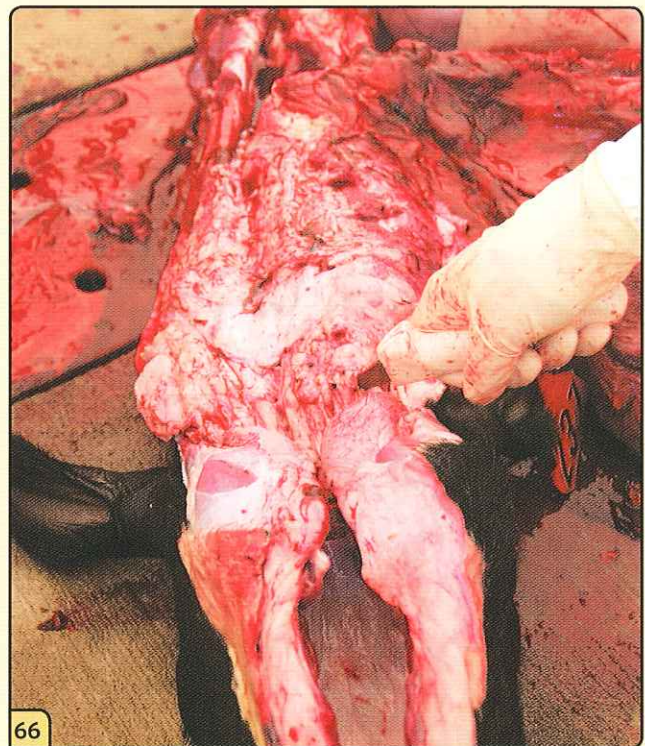
64

Move the head up and down to locate the junction between the 1st cervical vertebrae and the occipital junction by digital palpation.



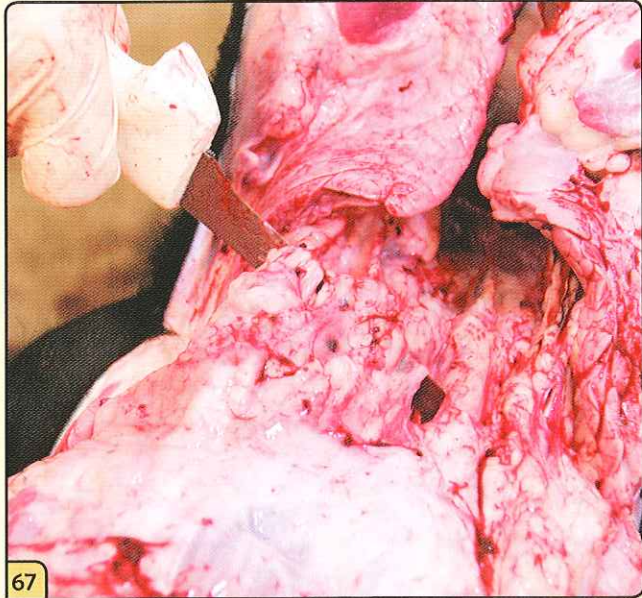
65

Insert the knife into the tissue over the C1-occipital junction.

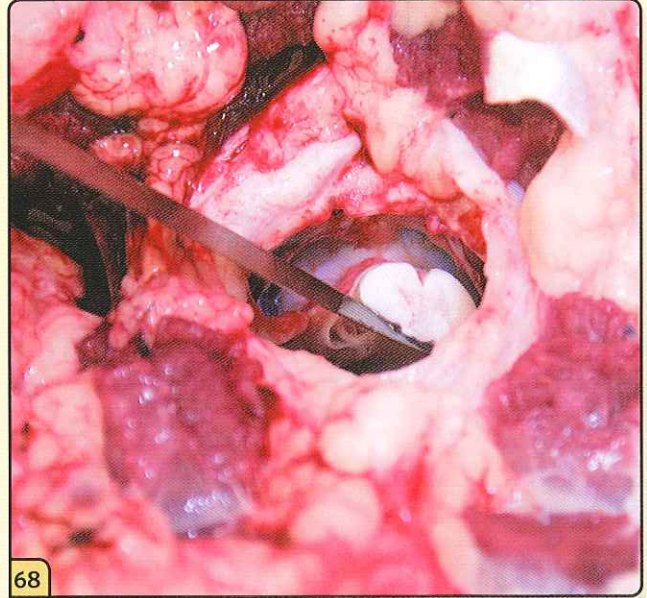


66

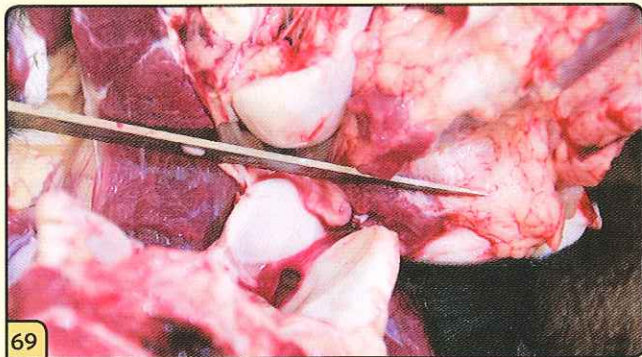
Rotate the blade ventrally and cut the soft tissue attachments.



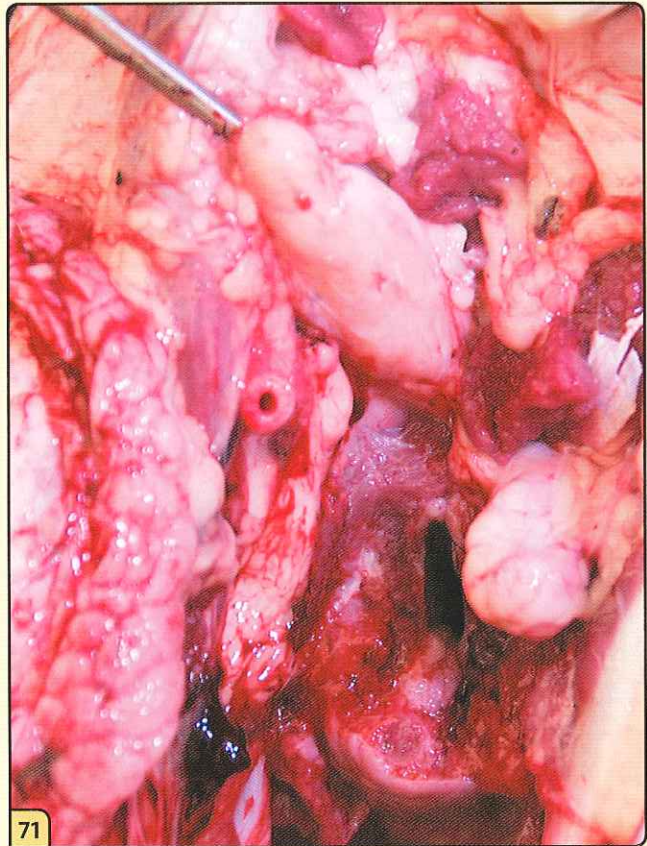
67 Continue to dissect dorsally through the soft tissues until the foramen magnum is exposed.



68 Transect the spinal cord.



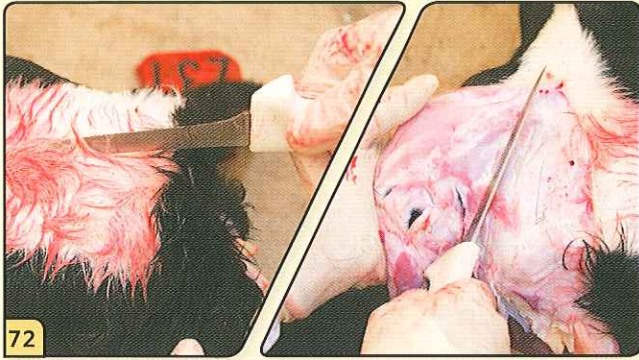
69 Make a cut between the 1st cervical vertebra and the occipital bone of the skull.



71 Examine the retropharyngeal lymph nodes, located ventral to the occipital condyles and lateral to the oropharynx.

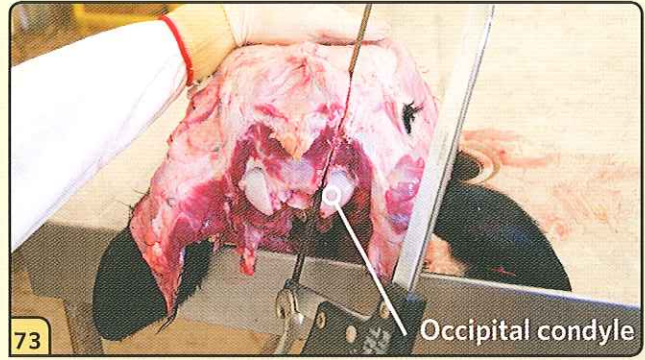


70 Continue to cut the soft tissues until the head is completely disarticulated.



72

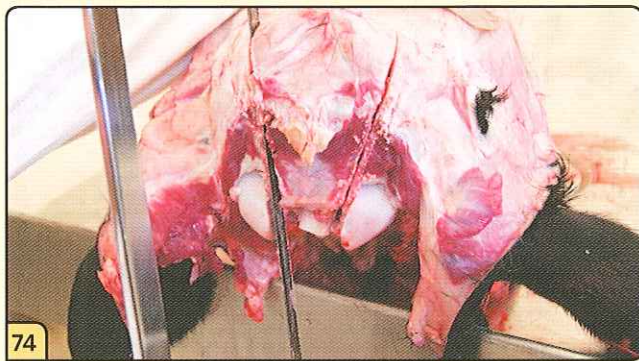
To remove the brain for testing, begin by making a midline cut through the skin of the forehead. Remove the skin to expose the underlying skull.



73

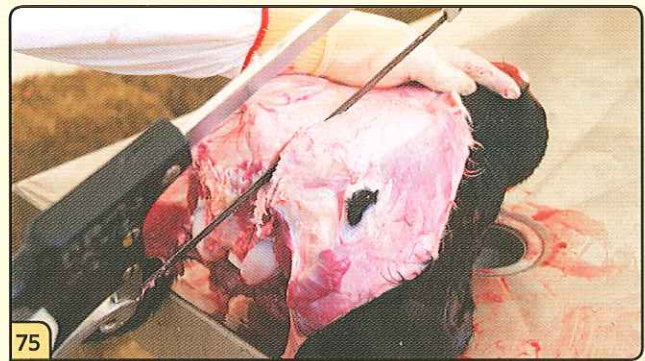
Occipital condyle

To facilitate opening the skull, the head can be placed on an elevated table. Using a bone saw, make the first cut medial to the occipital condyle.



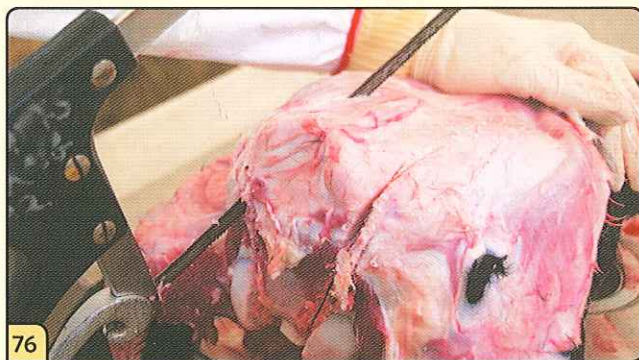
74

Make the second cut on the opposite side.



75

The third cut is an extension of the first. Make this cut in a caudal to rostral direction, toward the medial canthus.



76

Make the fourth cut on the opposite side in a caudal to rostral direction, toward the medial canthus.



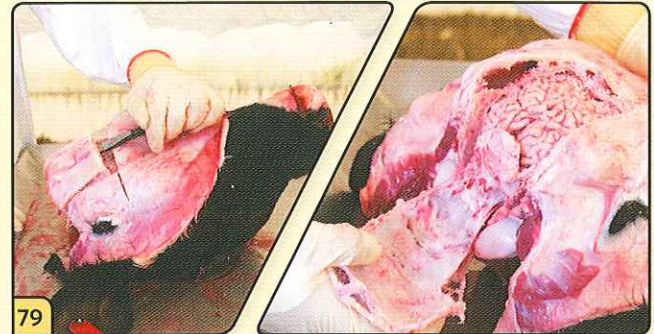
77

The final cut connects the two lateral cuts caudal to the frontal sinus. Note that the exact location will be age-dependent.



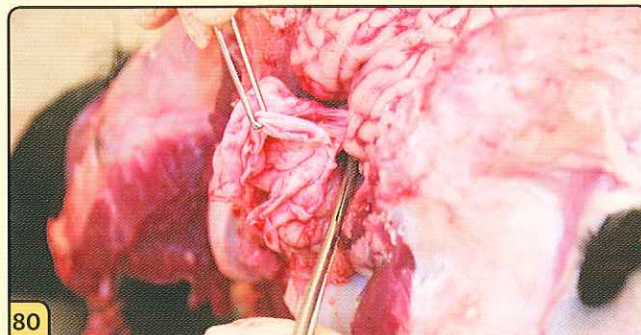
78

Insert the chisel into the cuts to separate the bone.



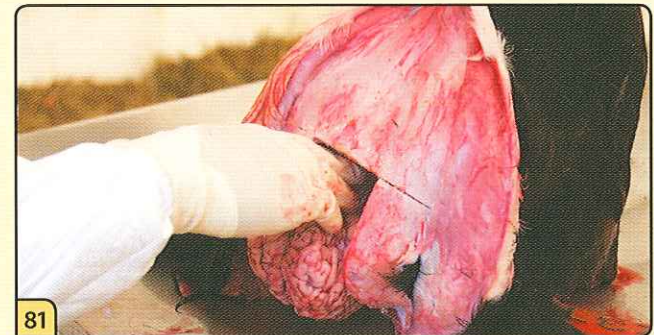
79

Reflect the calvaria caudally to expose the brain.



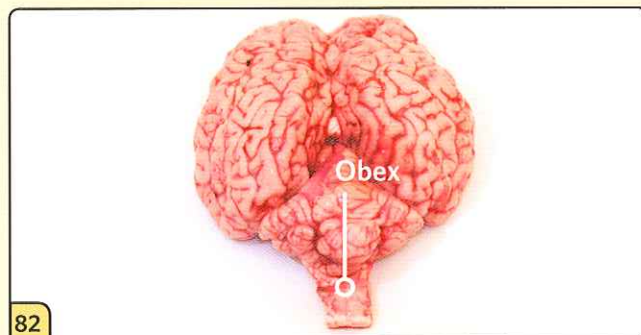
80

Use forceps and scissors to cut away the meninges.



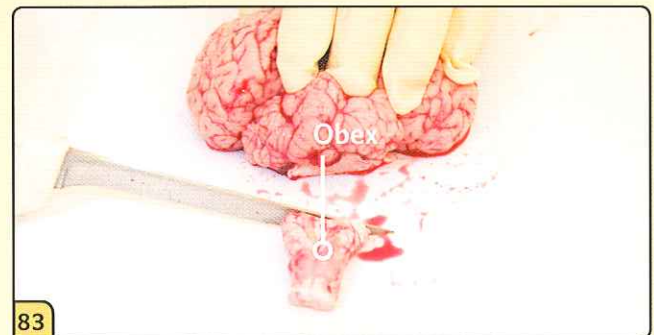
81

Use a combination of gentle blunt dissection and transection of the cranial nerves to remove the brain.



82

Place the brain on a clean work surface. Identify the obex, which is the V-shaped structure located beneath the cerebellum, where the 4th ventricle narrows into the spinal cord.



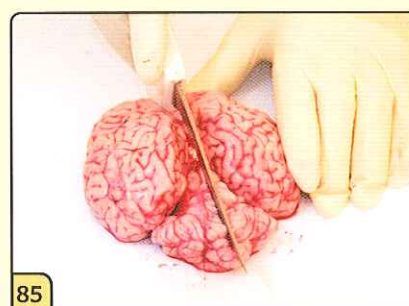
83

Remove the obex by making a transverse cut rostral to the obex.



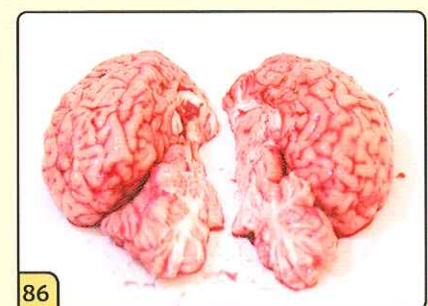
84

Place the fresh obex in a labeled tube for laboratory submission. It is best to use a 50 ml conical tube.



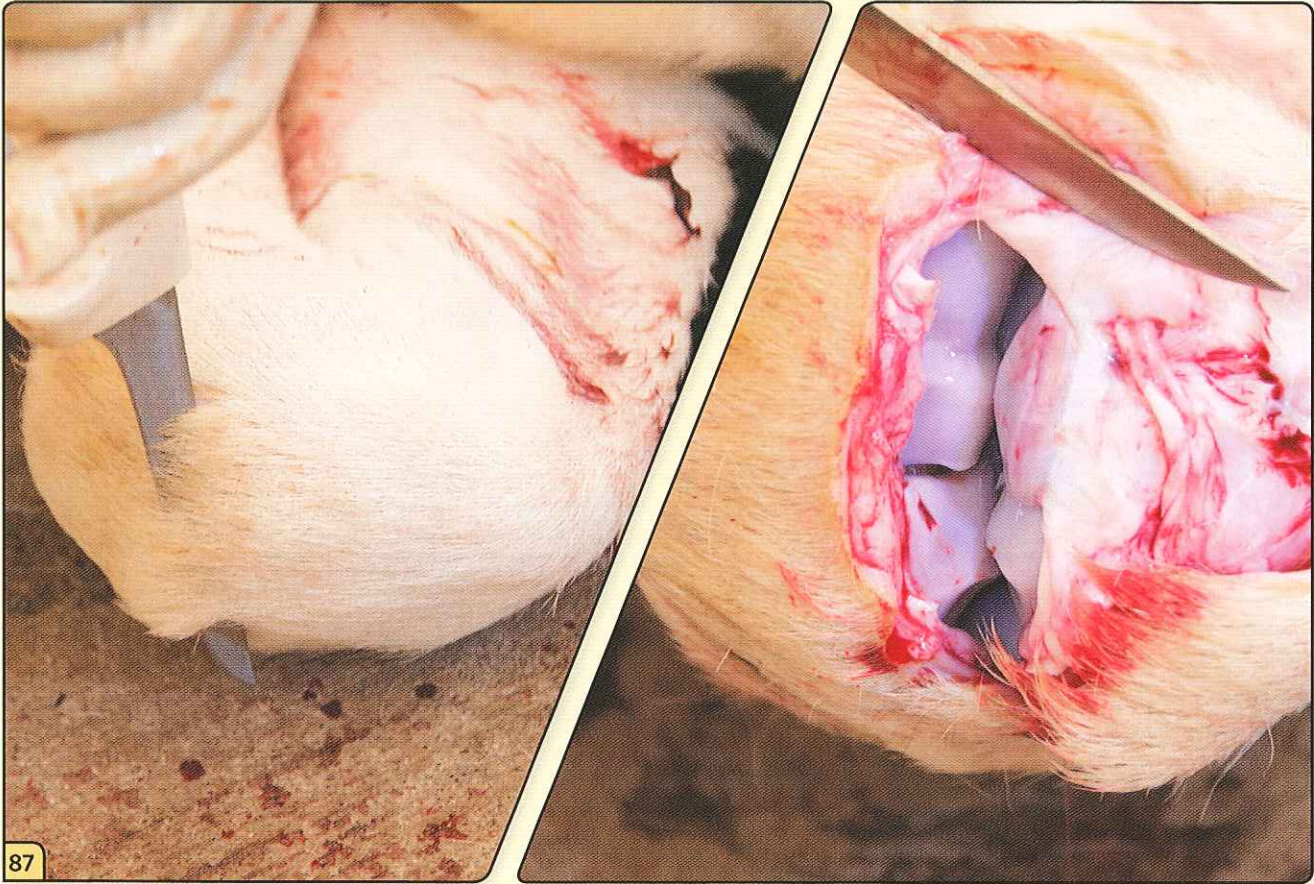
85

Make a midline sagittal cut through the cerebrum and cerebellum to divide the brain in half.



86

Submit one half as fresh tissue for microbiology and the other half fixed in formalin for histopathology.



87

Open several joints, such as the carpus and stifle, and examine the joint fluid and cartilage surfaces.