

# **Illustrated guide to companion animal necropsy**

- **This guide shows a series of views to assist the student in basic techniques. It is intended to serve as an introduction to this topic.**
- **Students are expected to supplement this information by practical training.**

# Where to begin?



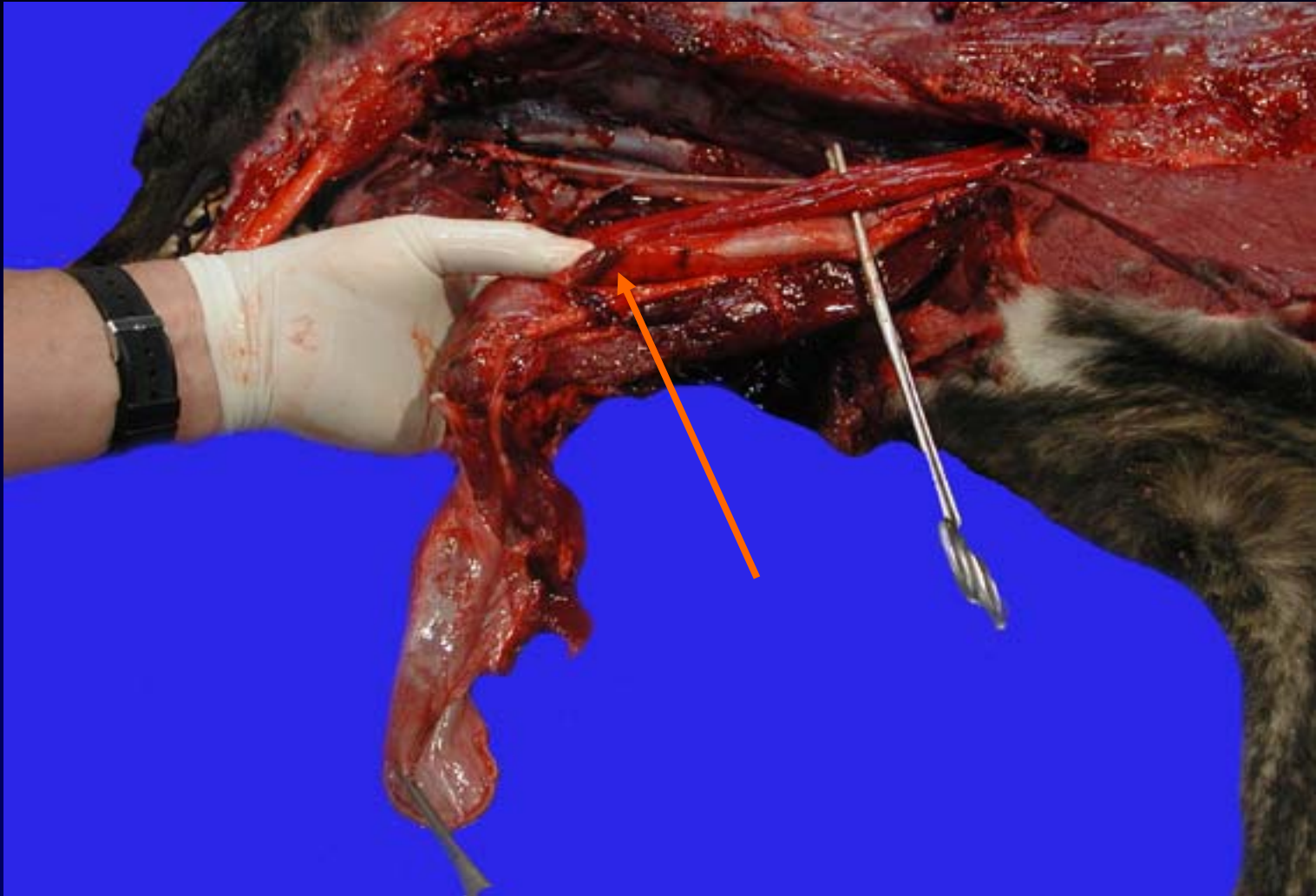
- **External examination of the cadaver.**
- **After external examination, place the subject in right lateral recumbency, (right side down) prior to beginning dissection. Our protocol is for right side down except in ruminants.**
- **What are the advantages of this approach in companion animals, and why is it unsuitable for ruminants?**

## The initial dissection



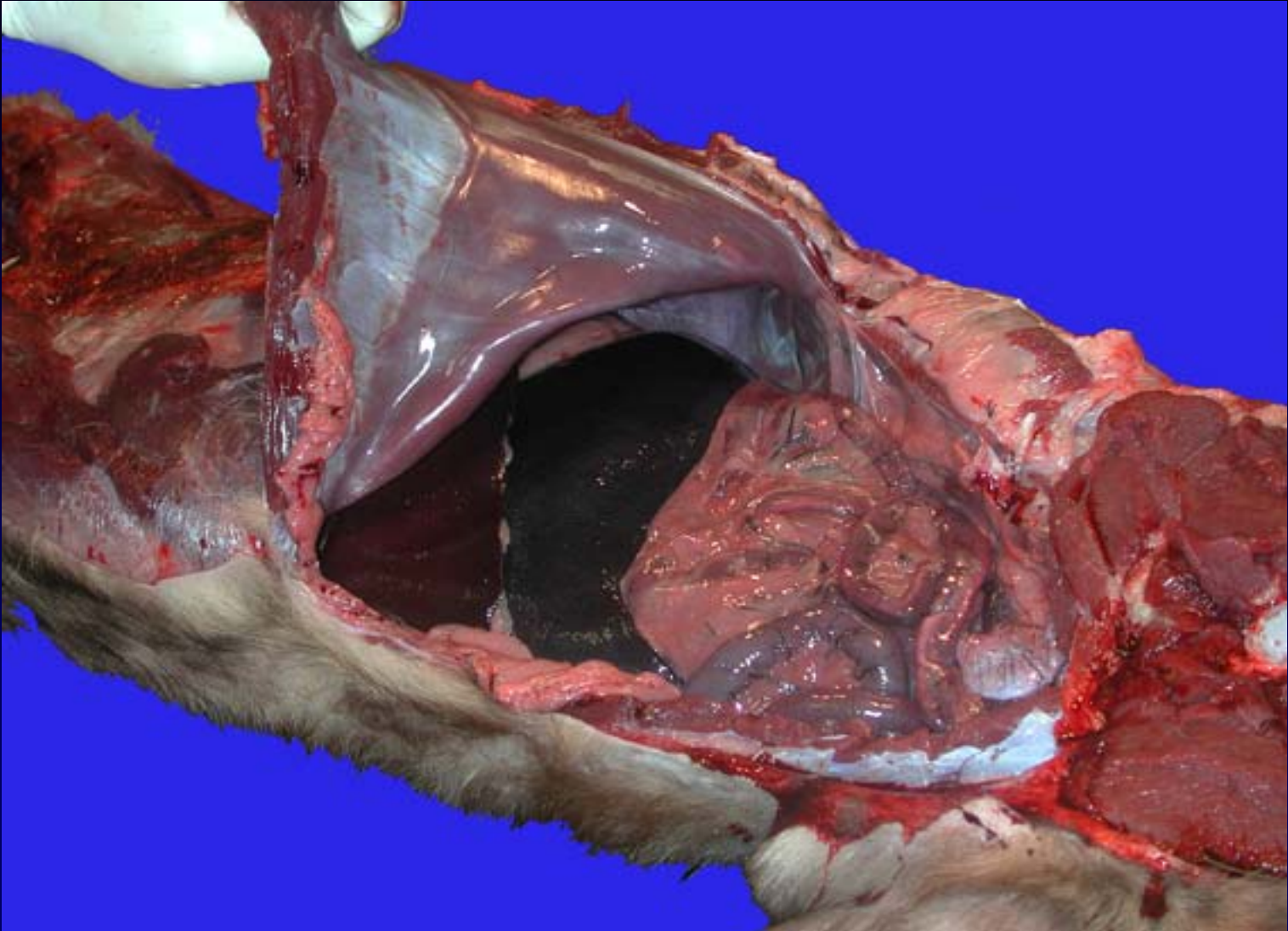
- **Midline ventral incision from chin to anus, reflect the left (upper) forelimb, and also reflect the left rear limb after disarticulation at the hip joint.**

# Oral cavity and neck



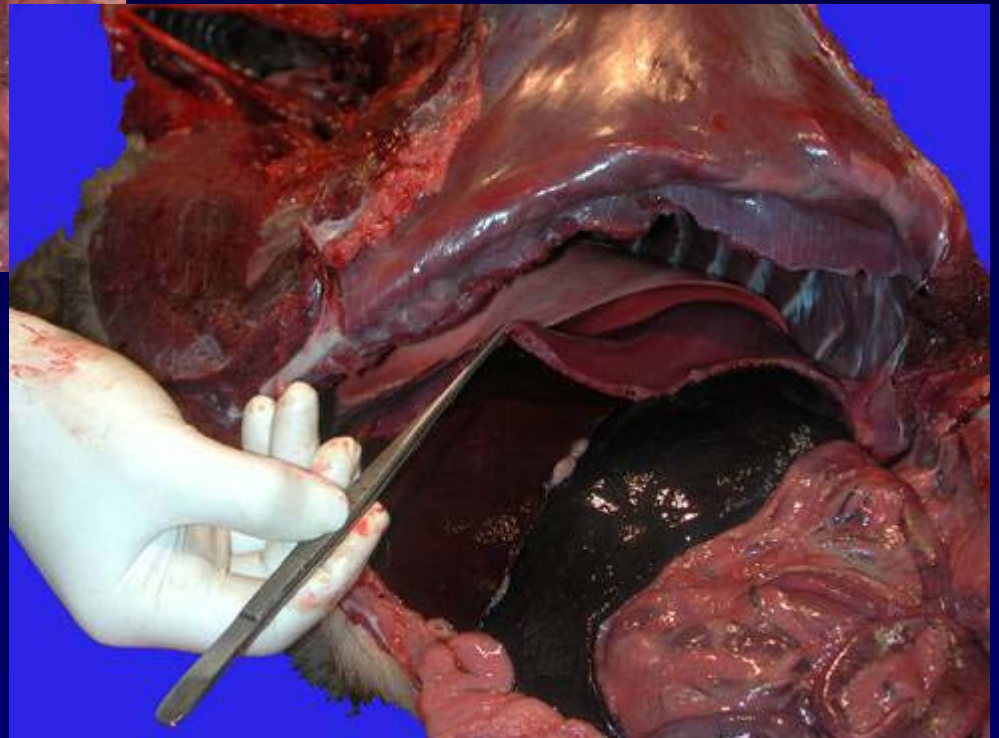
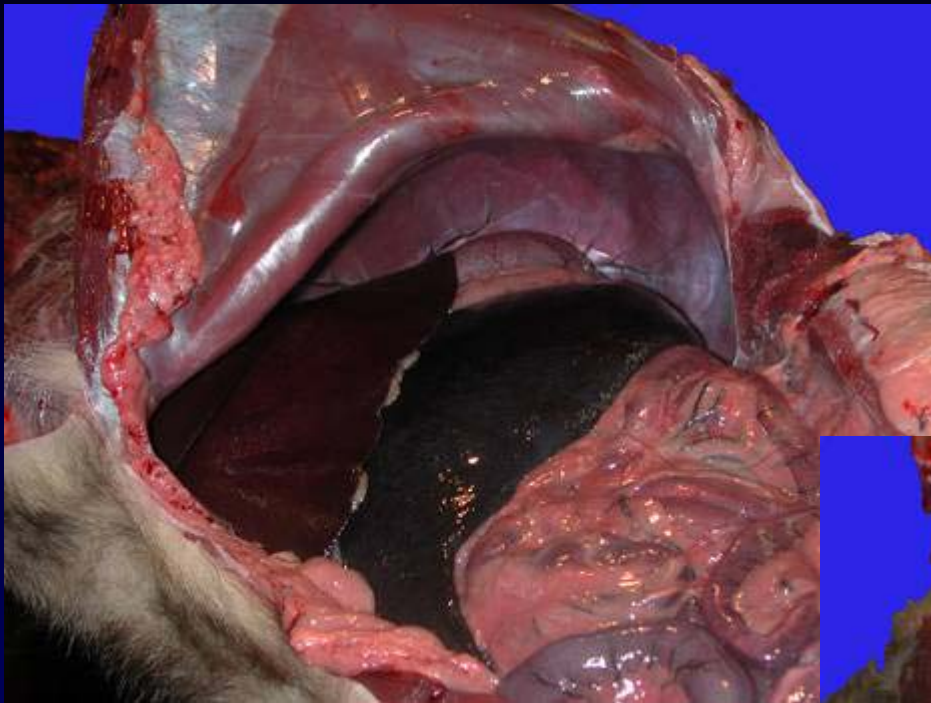
- **Dissect along inside of mandible to free the tongue**
- **Clamp trachea near thoracic inlet in order to avoid the thyroids (arrow)**
- **Why clamp the trachea and why do it now?**

## Approach to the peritoneal cavity



- **Semicircular incision from last rib, in front of pelvis and along ventral midline to sternum.**

# Evaluating the diaphragm



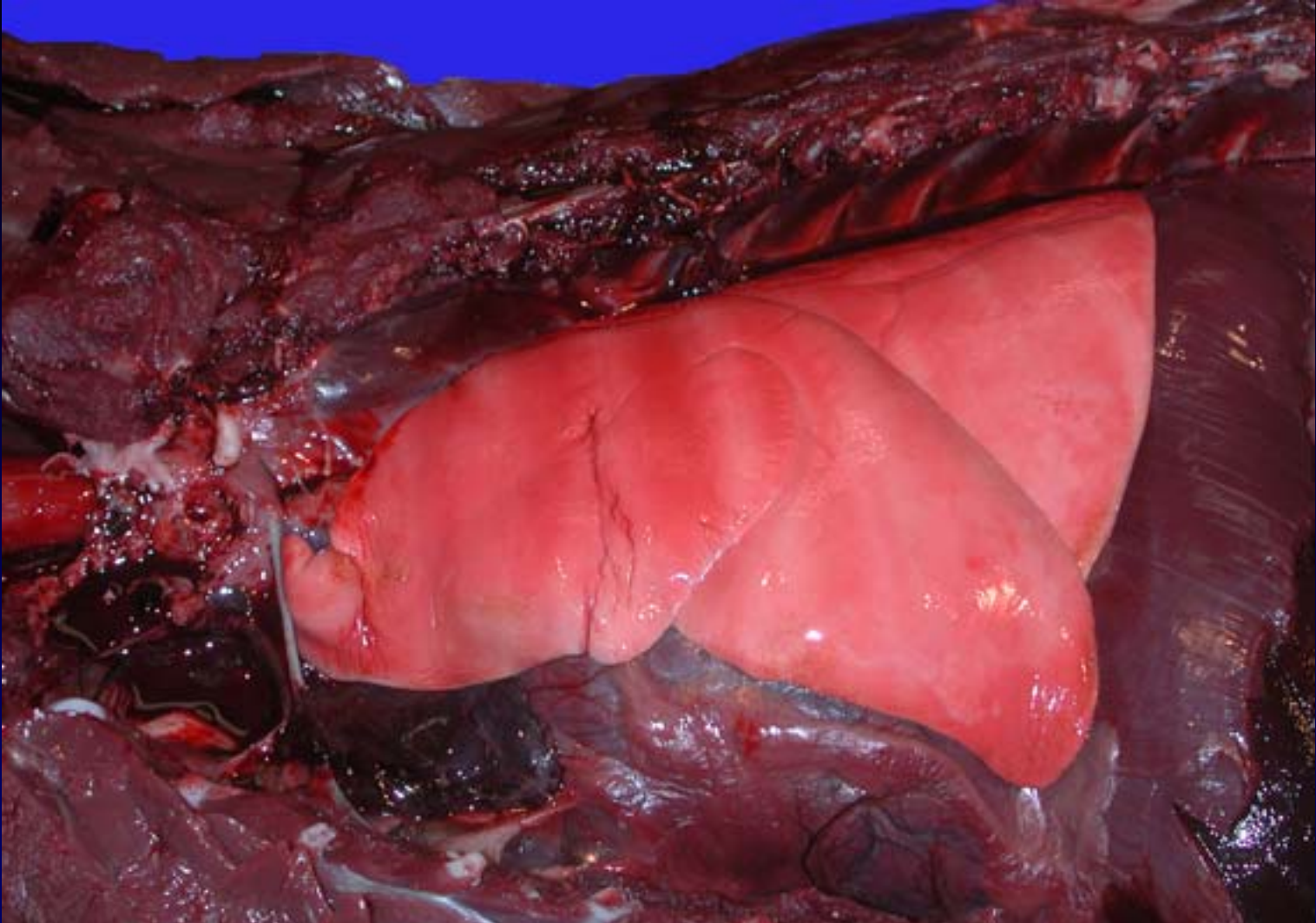
- **Check for pneumothorax**
- **The normal diaphragm is domed into the thorax**
- **Incise along the margin. - a central incision will probably perforate the lung, and is not recommended**

## The display stage



- **Now is the time to plan the investigation in detail, including collection of any samples for microbiology or toxicology, prior to possible contamination.**
- **Necropsy from this side allows good visualization of heart, liver, spleen and small intestine**

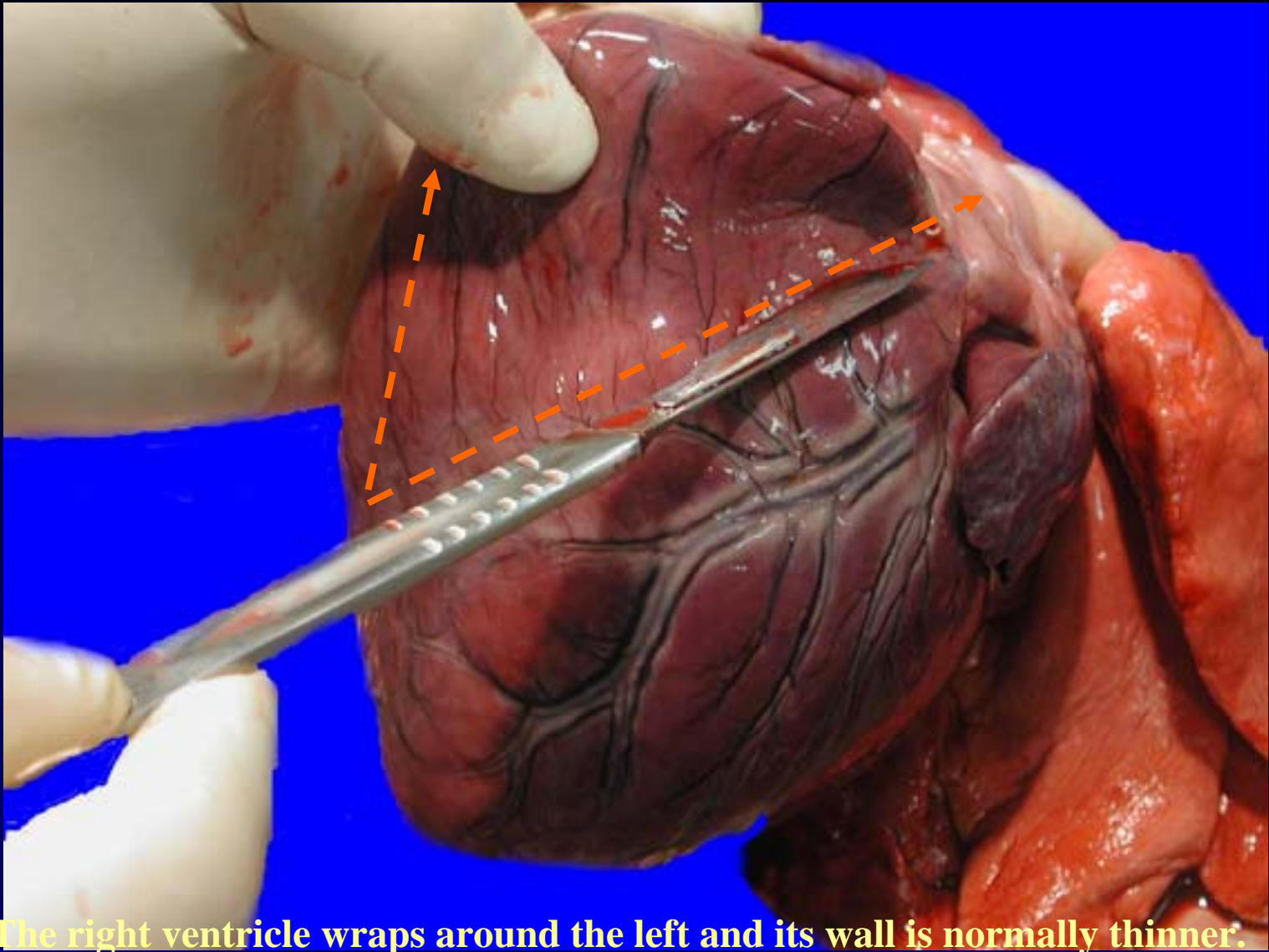
## Evaluation of thoracic viscera



- **Detection of lesions is much easier for inflated lungs than if they have been allowed to collapse. Thoracic contents are removed as a unit, and dissected outside the cadaver. Abattoir workers sometimes call the thoracic viscera “the pluck”.**

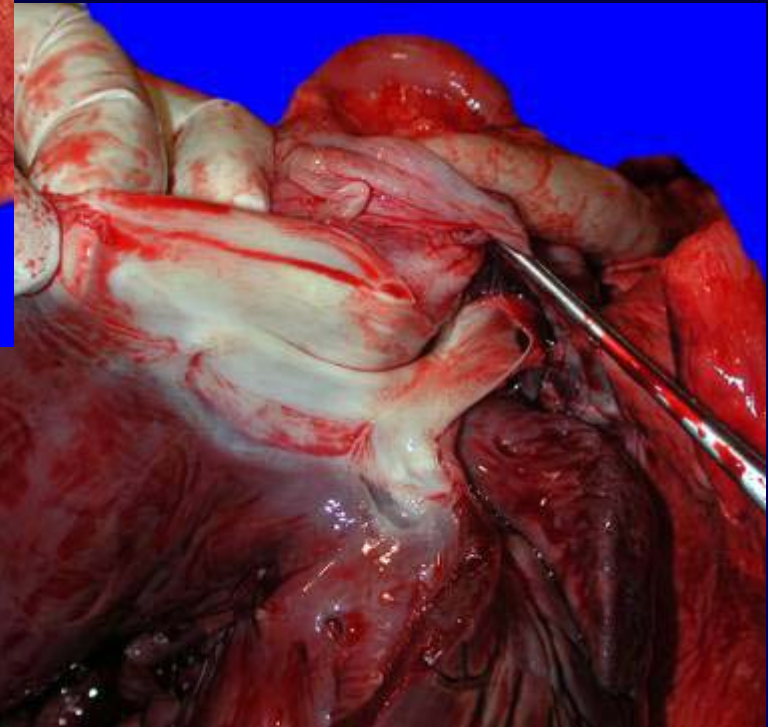
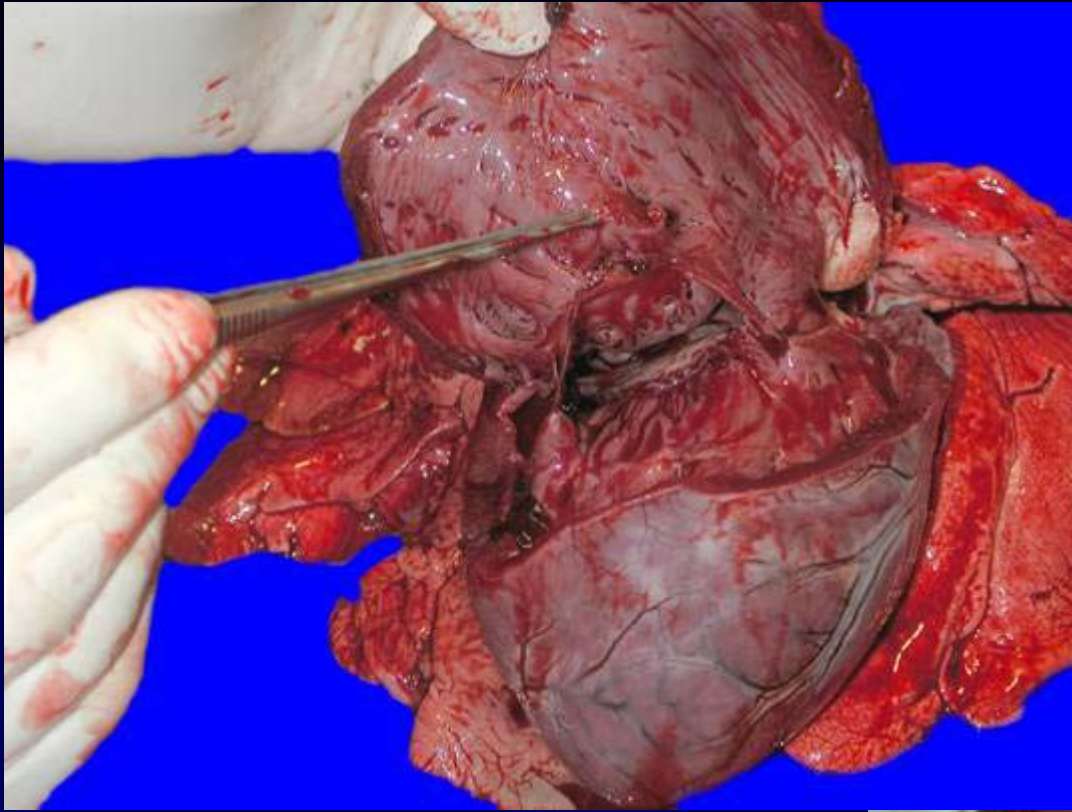


## Evaluating the right heart



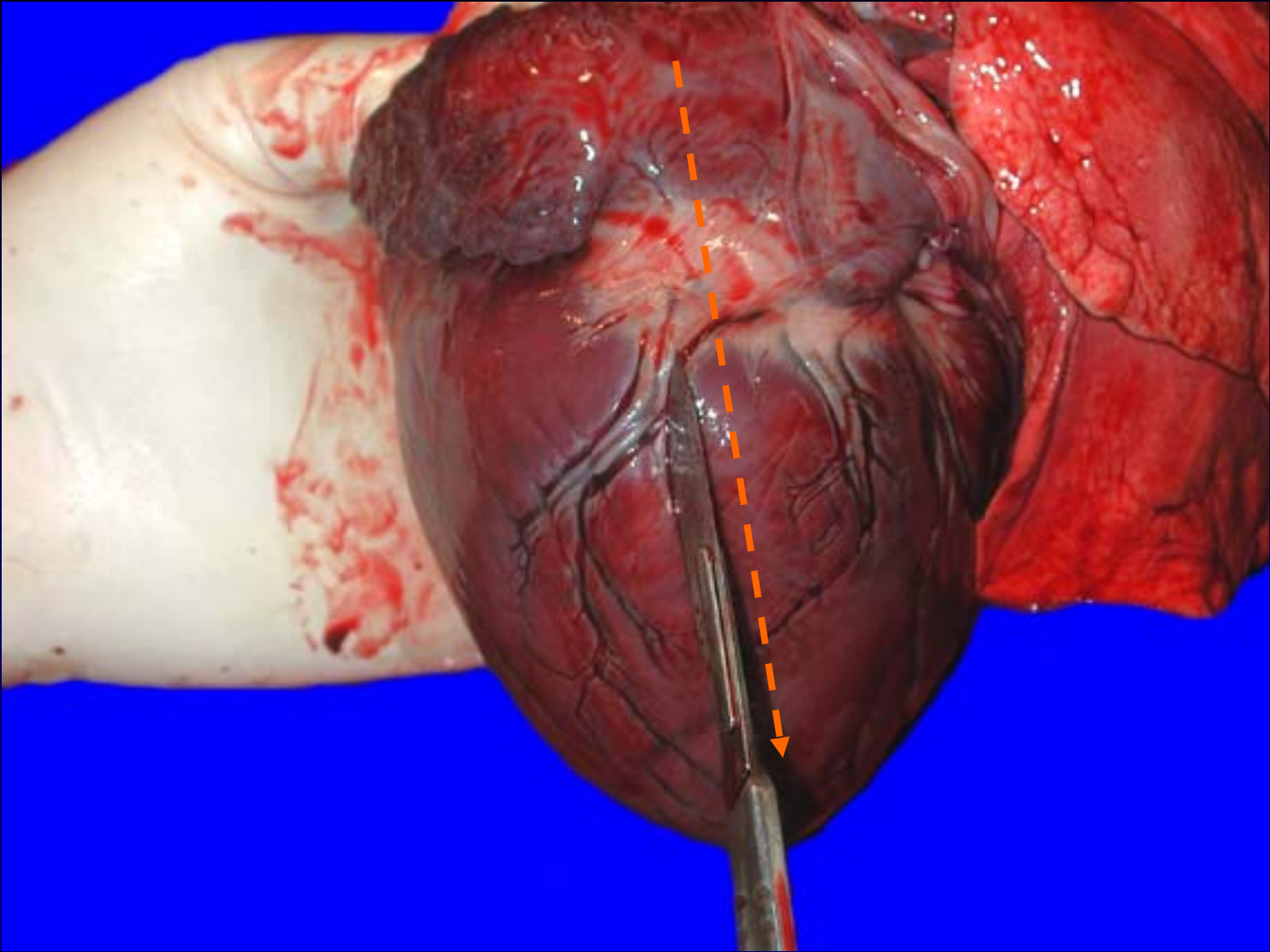
- **The right ventricle wraps around the left and its wall is normally thinner.**
- **The right ventricle often contains a postmortem blood clot**
- **The ventricle is opened using a “V” shaped incision.**

## Views of the dissected right heart



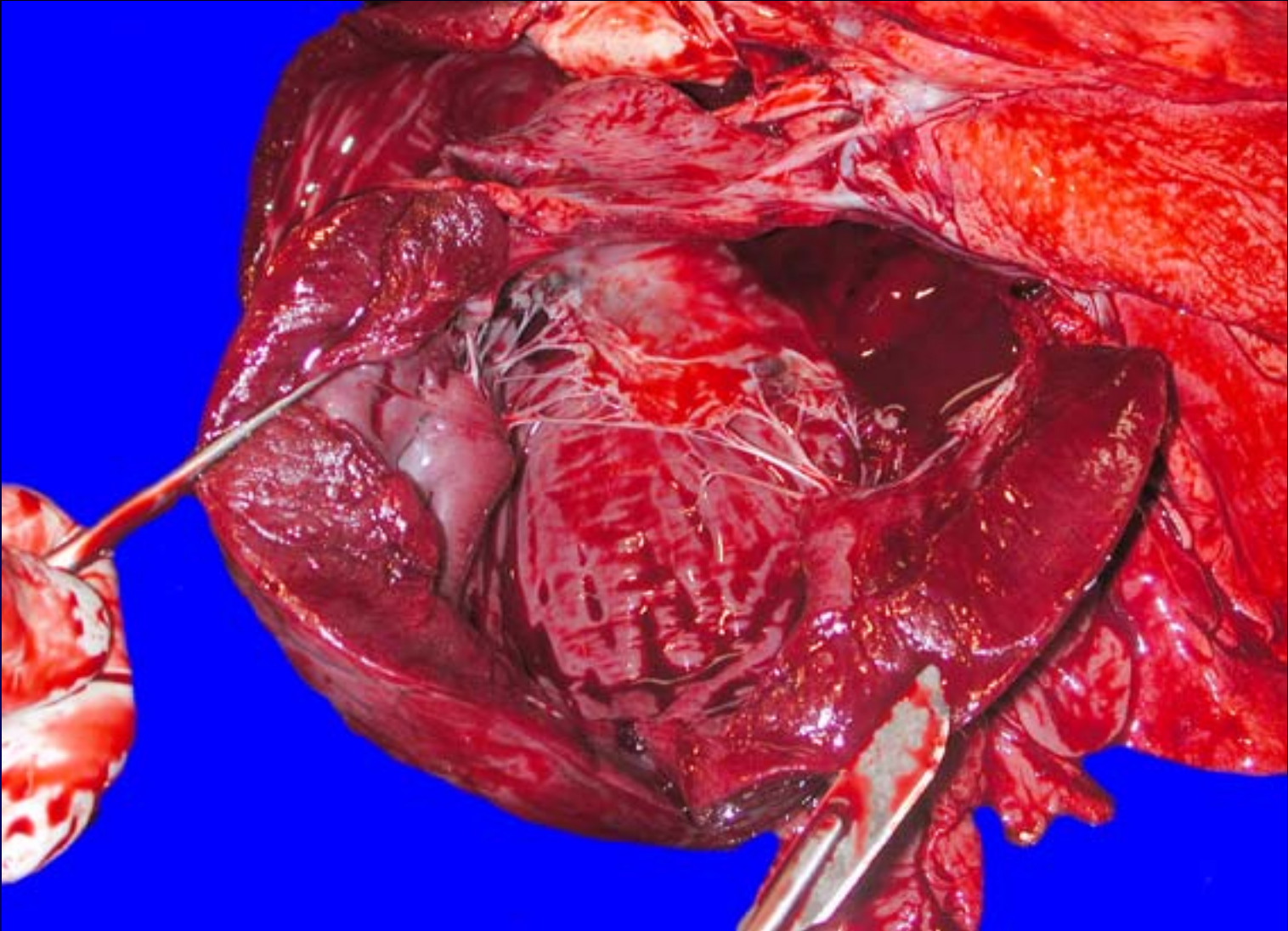
- **Opened ventricle illustrating tricuspid valve (above)**
- **Opened outflow tract illustrating pulmonary valve (right)**

## Evaluating the left heart



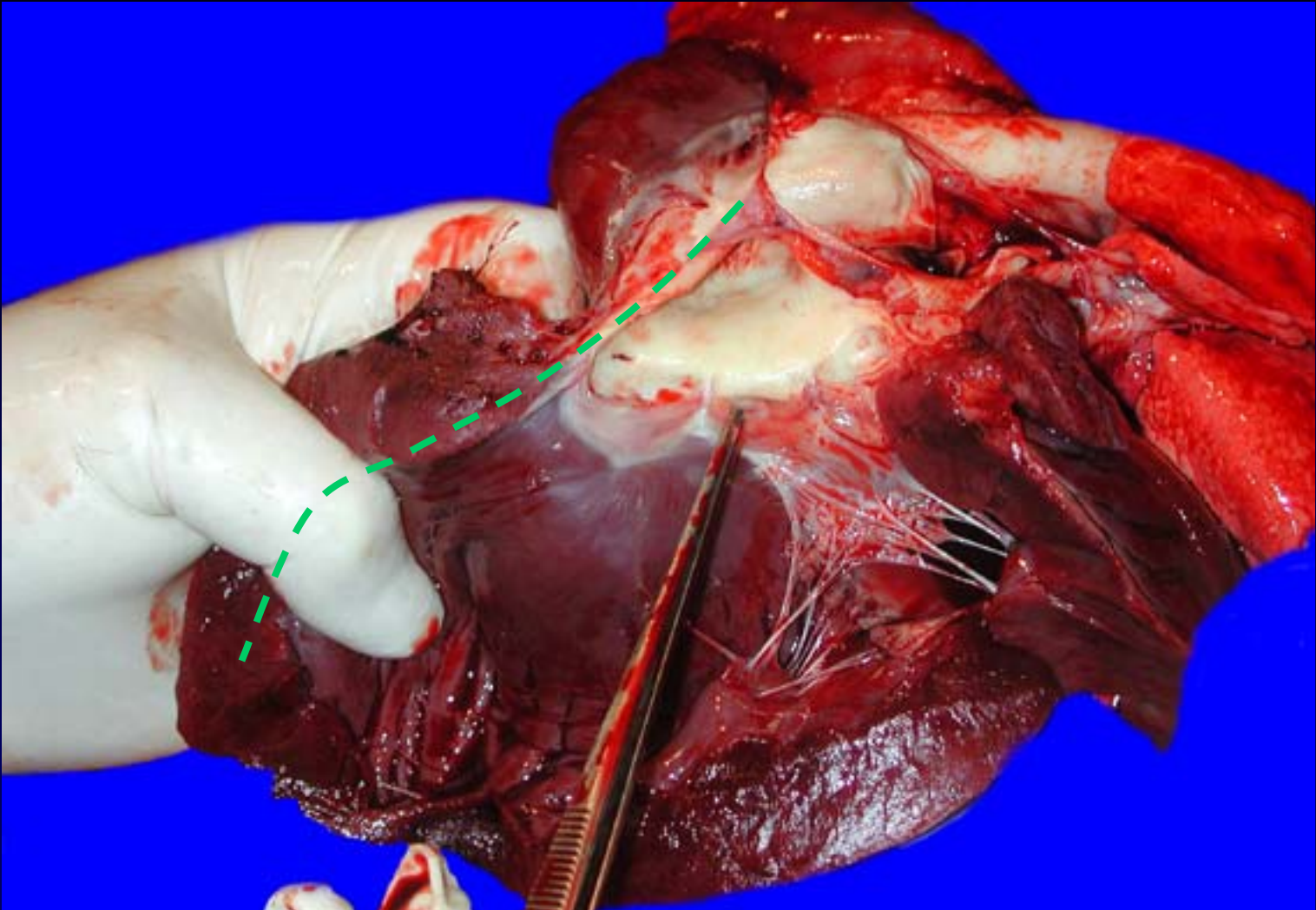
- **A single incision is made down the centre of the left heart**

## Evaluation of the left heart



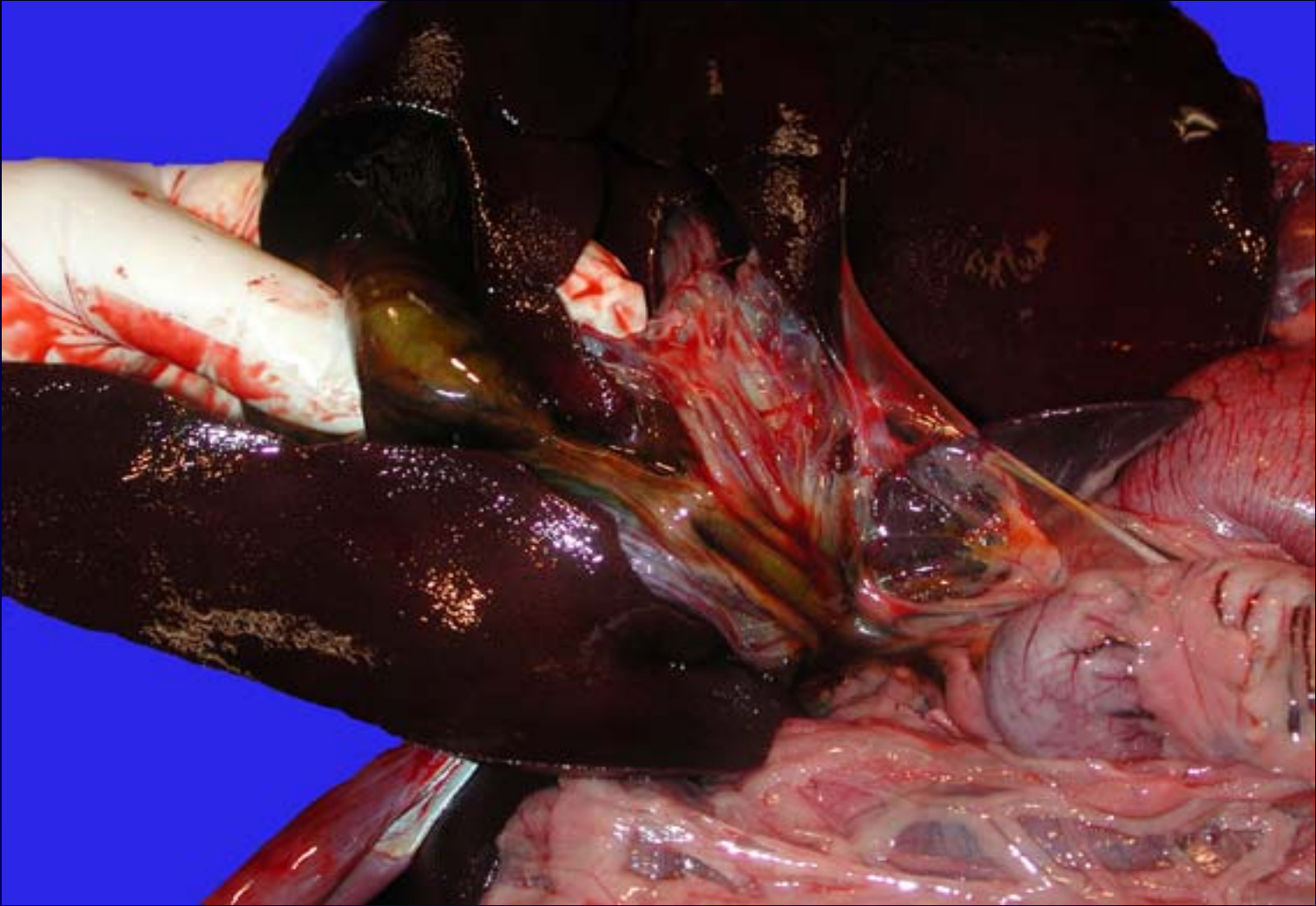
- **This view illustrates the ventricle and intact mitral valve.**
- **This view alone is inadequate. What else needs to be done?**

## Evaluating the left heart



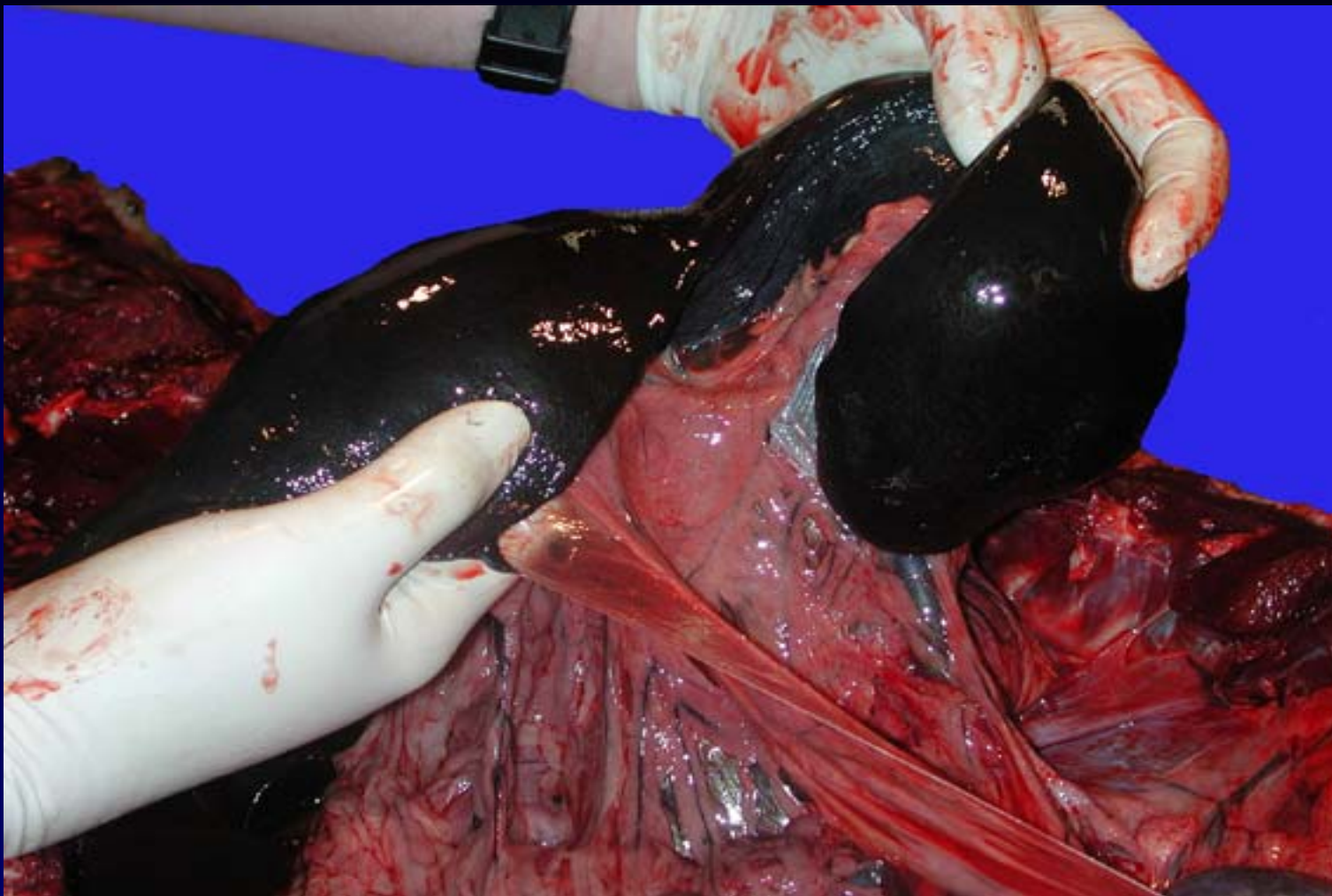
- **The outflow tract and aortic valve are now exposed. This can be achieved by sectioning through the mitral valve, but in this illustration an incision along the left free wall of the ventricle allows exposure and has left the mitral valve intact**
- **Don't forget to extend incisions into to the atria to evaluate those as well!!**

## Where to start on the abdominal viscera?



- **Check patency of the gall bladder**

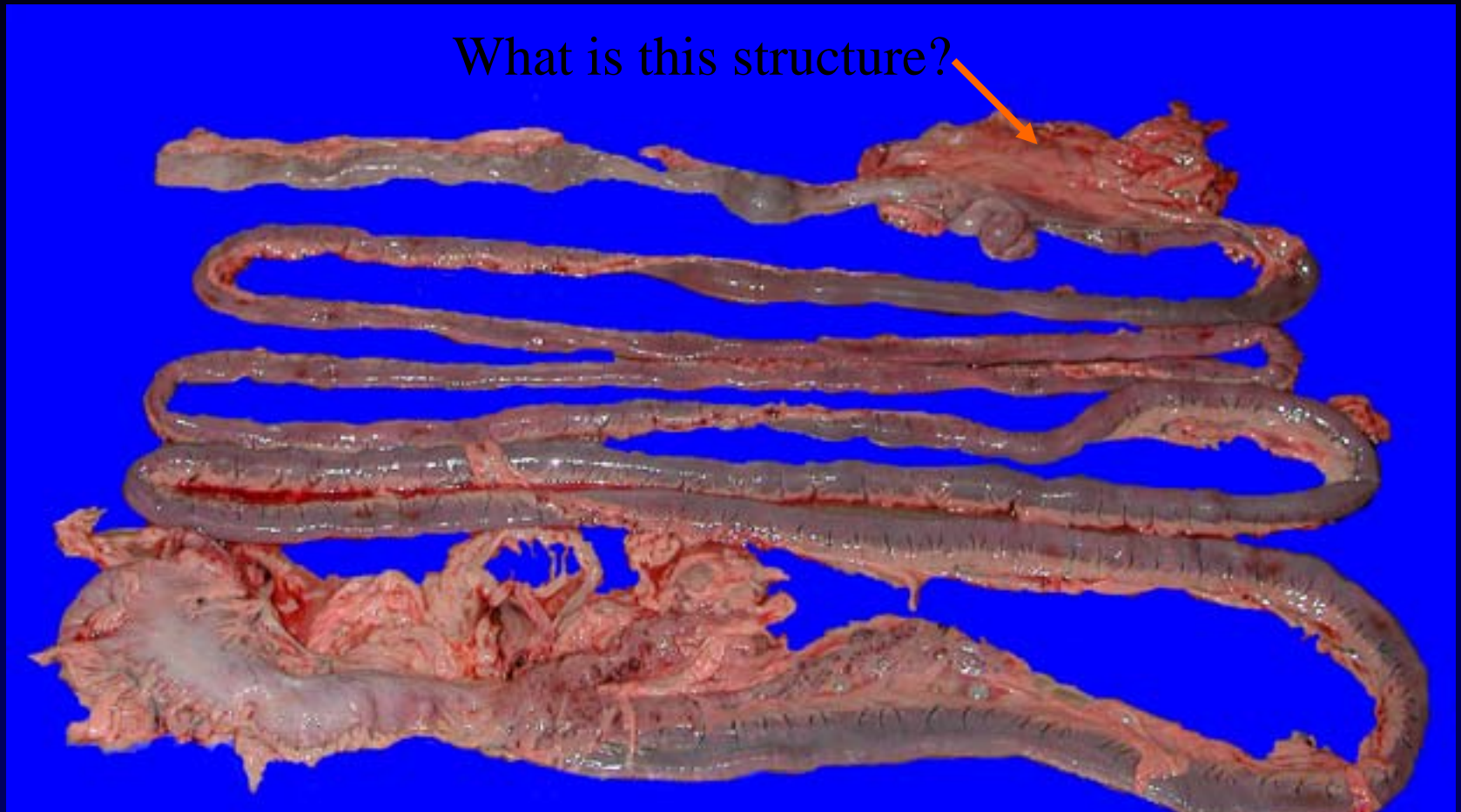
# The spleen



- **Dissect the spleen free of its attachments and remove for evaluation**
- **Spleens in dogs are commonly engorged with blood because of barbiturates**

# Evaluating the intestinal tract

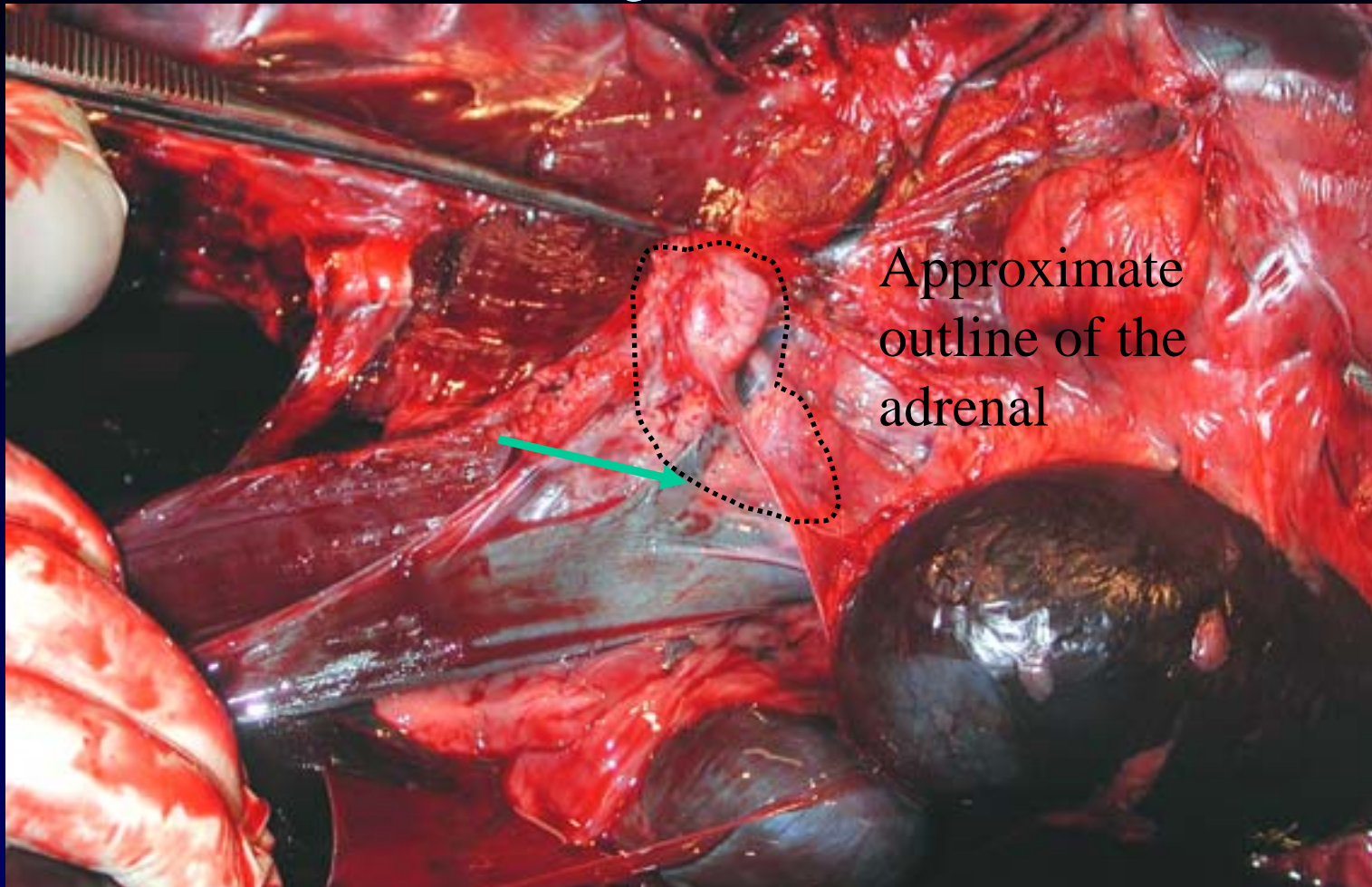
What is this structure?



- Dissection of the gut is often left until late in the necropsy unless gastrointestinal disease is suspected. **Why?**
- The intestinal tract is removed, checking the mesentery for lesions during this dissection.
- In companion animals we routinely open the entire tract, the stomach best approached by opening along its greater curvature.

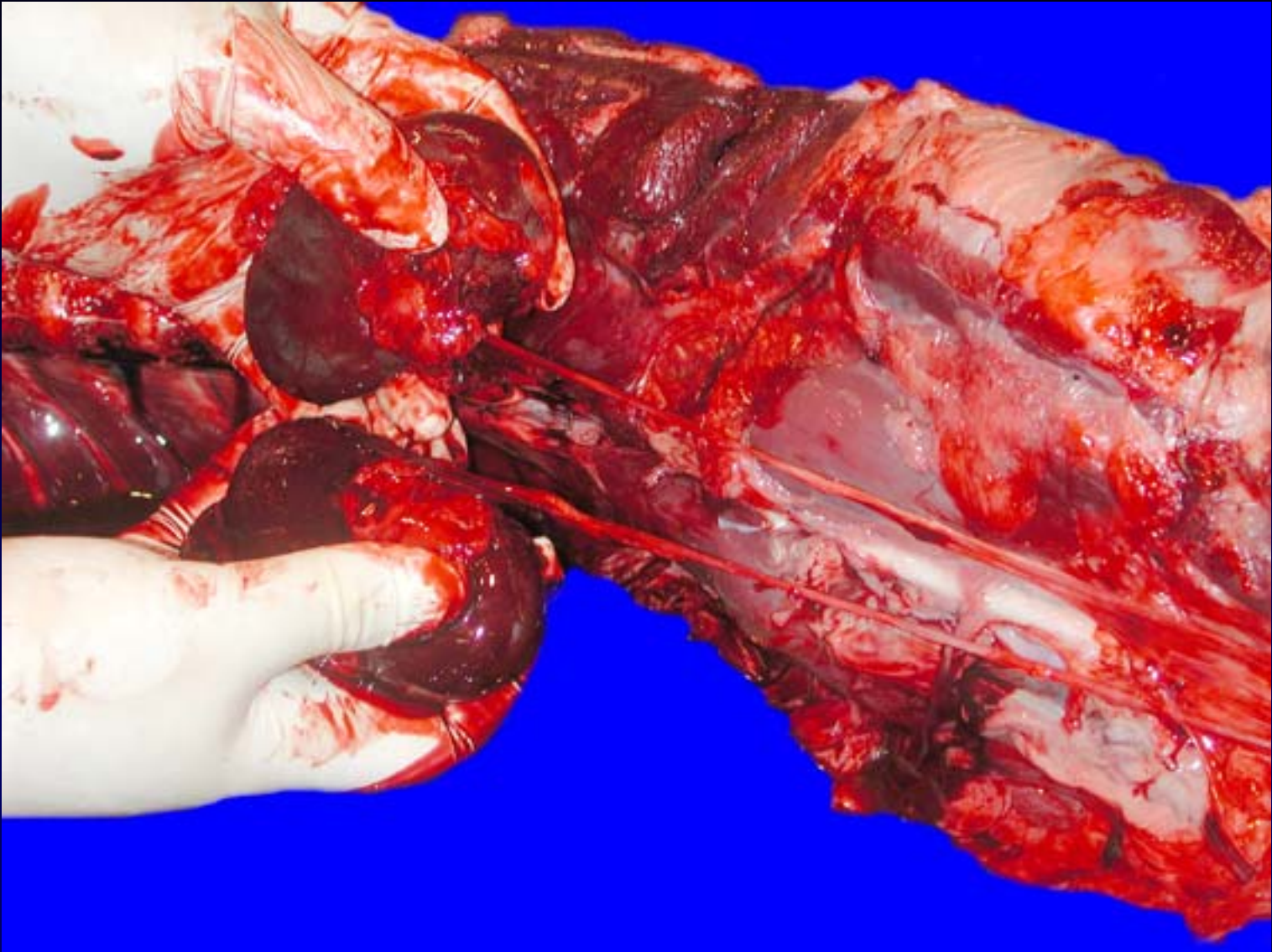


## Locating the adrenals



- **This can be difficult if there is a lot of adipose tissue, or if they are atrophic**
- **Best to locate them prior to disturbing the kidneys**
- **The large vein that runs across the adrenal is distinctive (arrow) and helps distinguish it from nearby lymph nodes, which may also have a similar external color.**

## The urinary tract



- **Dissect kidneys free of vascular attachments but preserve ureters**

# Evaluating joints

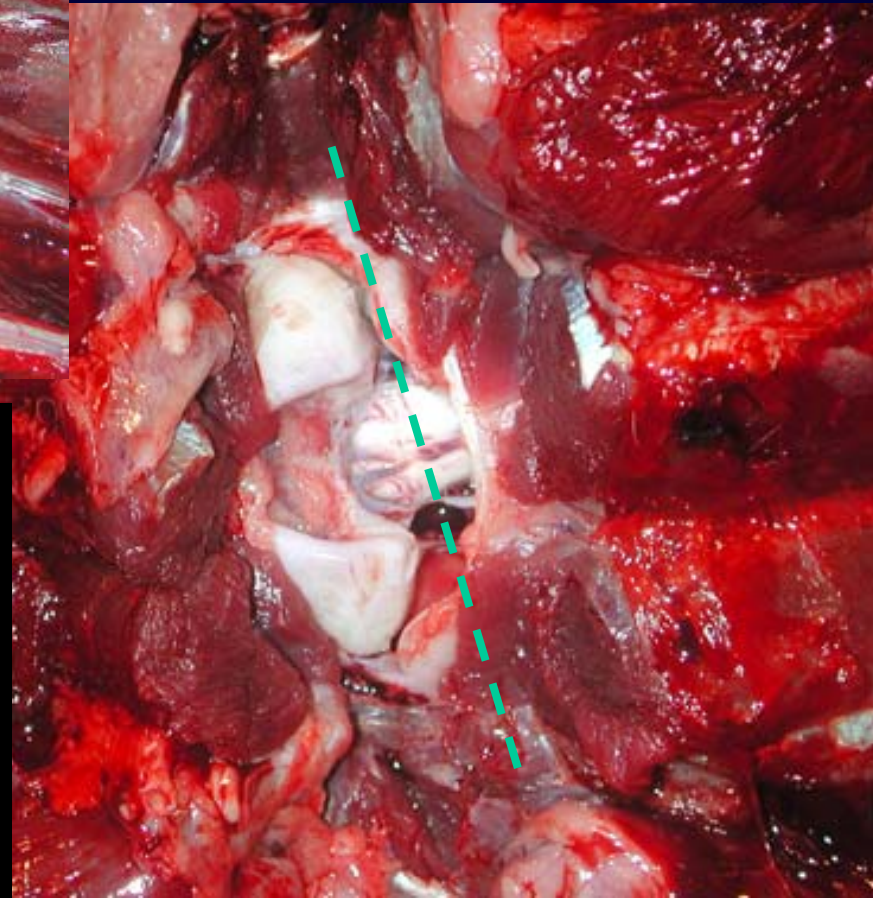


- **Open joints carefully along the capsule, taking care not to damage the underlying cartilage.**
- **How many joints should you open before considering sufficient have been checked?**
- **What is the character of normal joint fluid, and of articular cartilage?**

## Approach to evaluating the brain

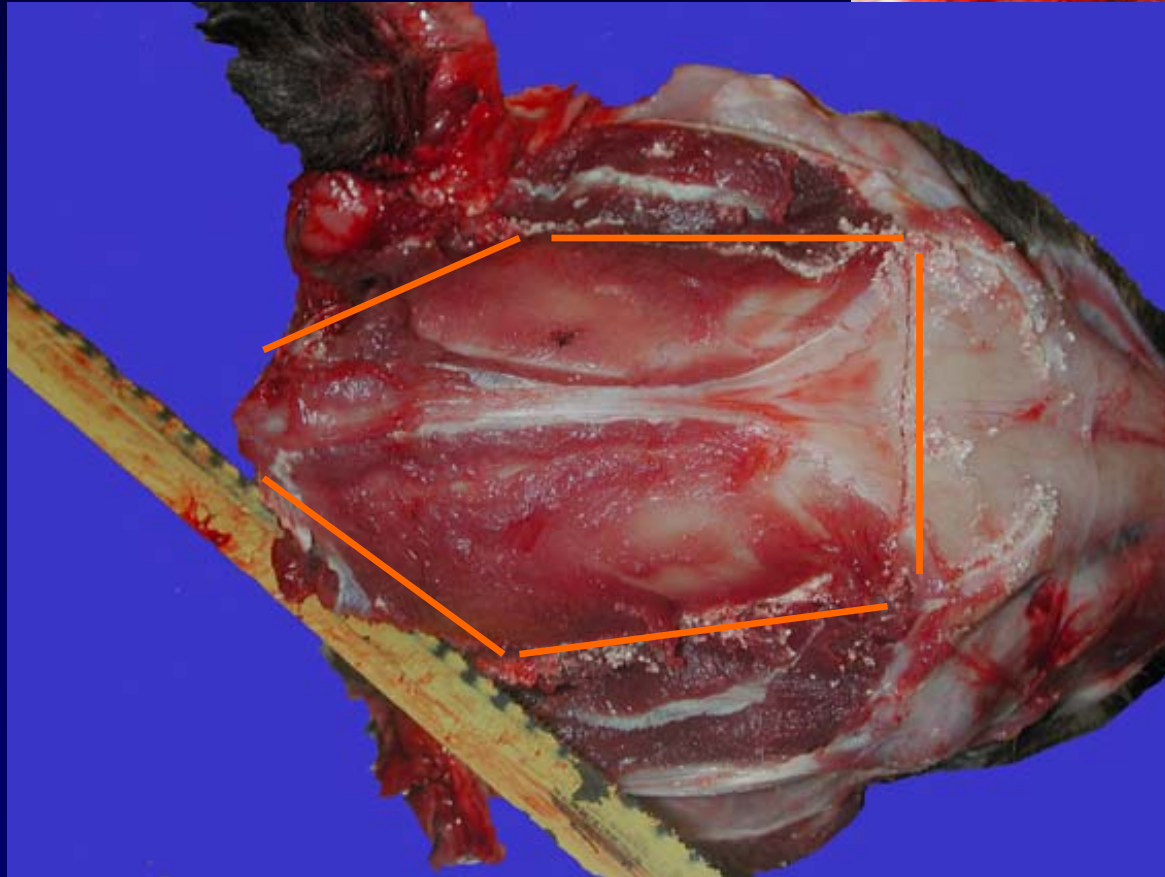
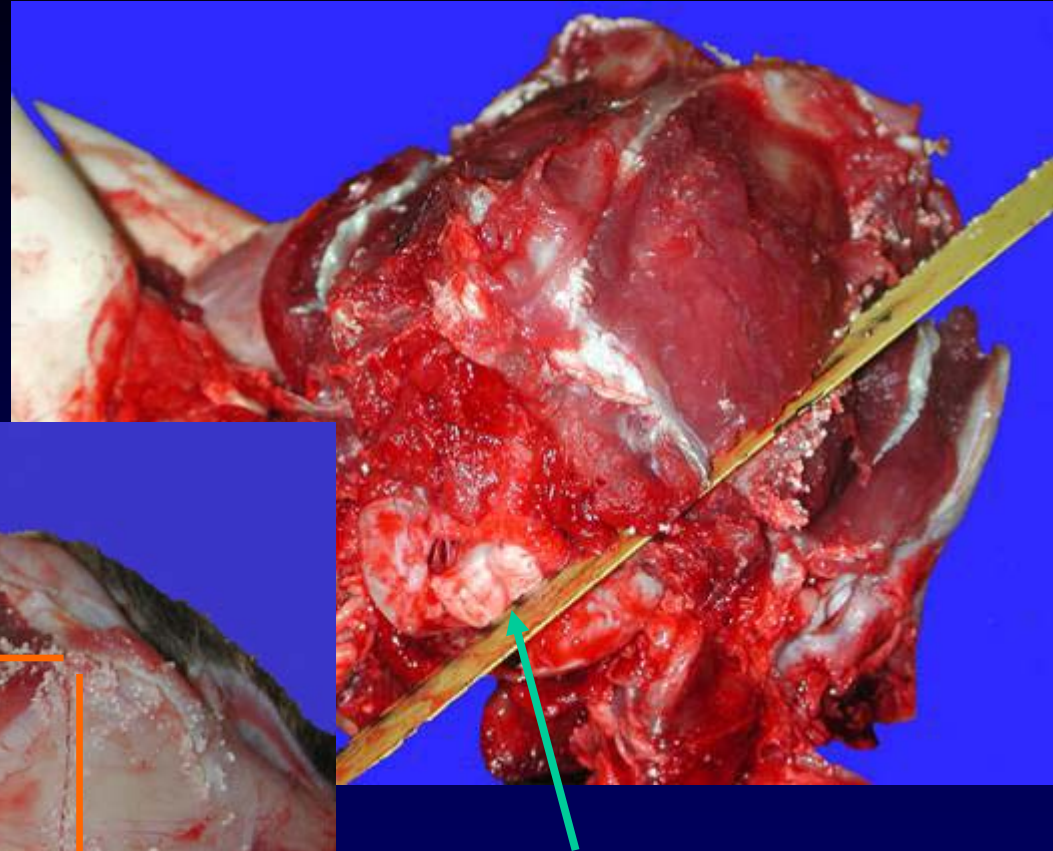


- **A ventral approach, where there is a dimple in the cervical muscles shown here at the tip of the scalpel blade.**
- **The atlanto-occipital joint can be opened, CSF collected and then the cord is sectioned transversely, as indicated.**

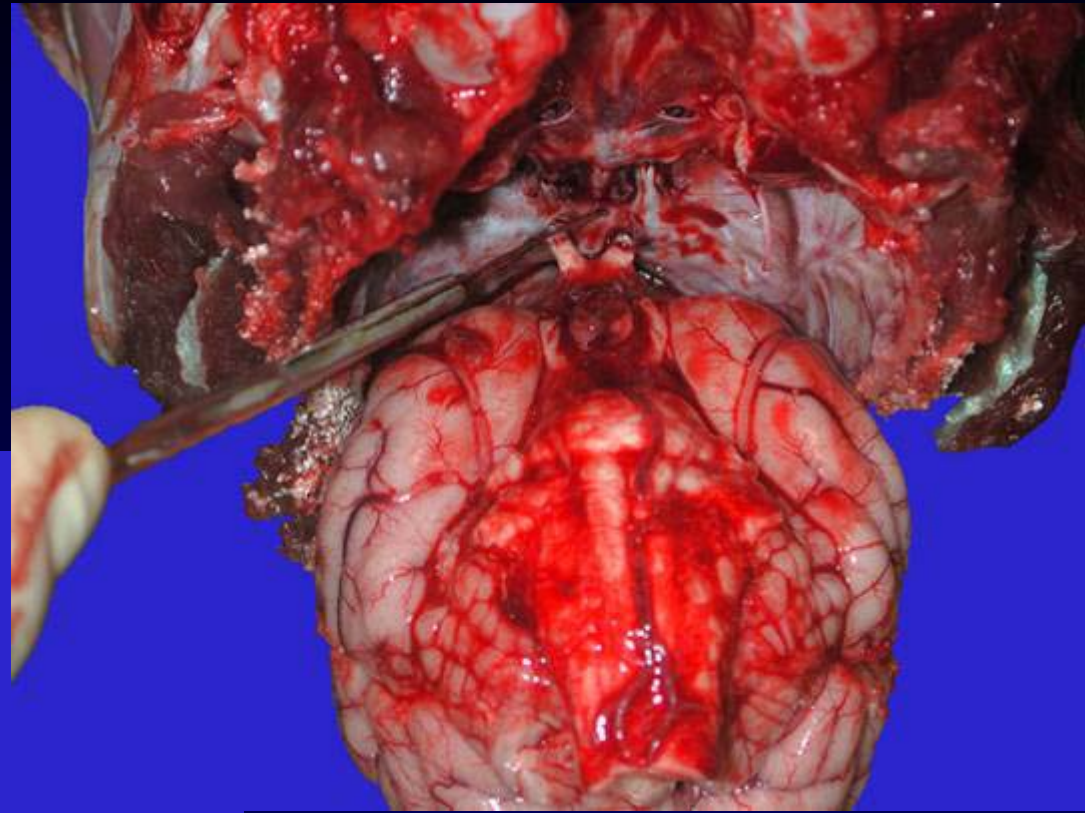
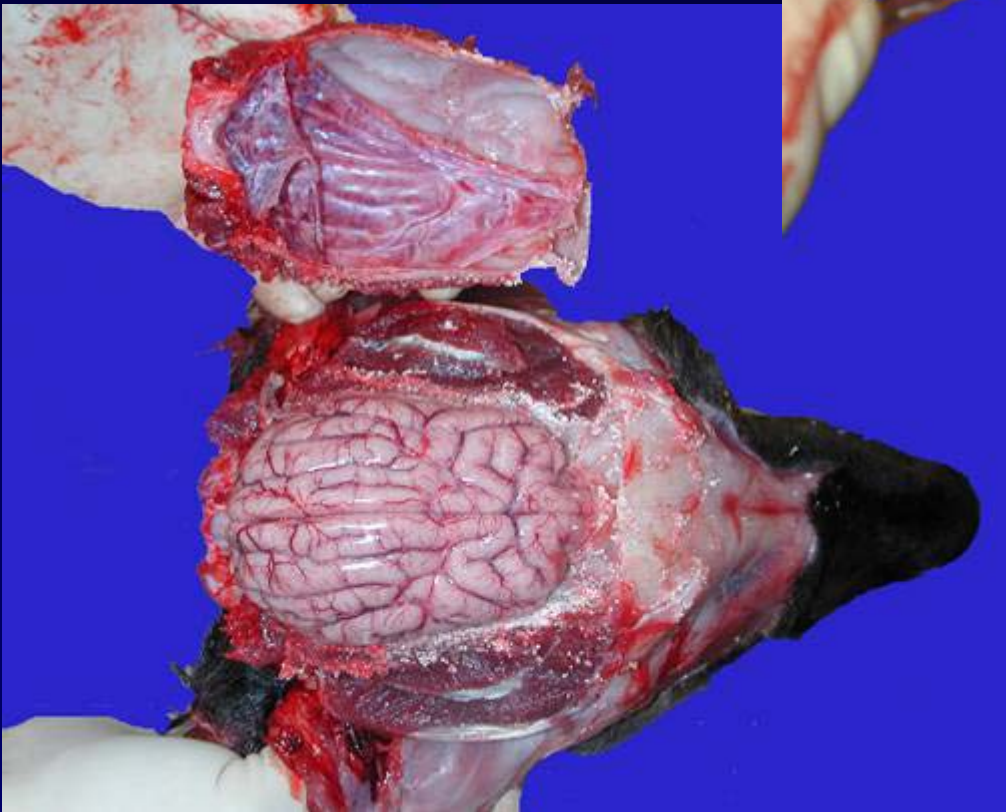


# Approach to removing the calvarium

- Initial saw cuts should extend into the foramen magnum (arrow)
- A total of 5 cuts are made as shown below



# Removal of the brain



- **The calvarium is removed using bone cutters if necessary**
- **After removing the dura, the brain is gently freed by sectioning all the cranial nerves.**

# Safety in the Post Mortem Room

- **The following slides illustrate the common sense rules to observe whilst working in the Post Mortem Room at Werribee. These rules are designed for your safety and the safety of other personnel.**

# Out of Bounds



- **Students are not allowed to use the controls for the hydraulic table.**





- **Only staff are allowed to use the controls for the overhead cranes located in the Post Mortem Room and its annexe. Beware if cadavers are being moved overhead as they may drop unexpectedly on their chains.**



- **Students are not permitted to operate the bandsaw. When the bandsaw is in use, keep well clear and do not distract the operator.**



- **Cadavers left in the Cool Room for post mortem, cremation or storage should always be clearly tagged with patient information and with any risk to handlers (eg. radioactive isotope or chemotherapy use) indicated.**



- **A labcoat or overalls and enclosed footwear must be worn at all times by personnel in the Post Mortem Room. Shoes or boots must be disinfected by walking through a footbath before leaving the Post Mortem Room. Failure to do this could lead to spread of infectious agents throughout the Clinic and Hospital.**



- **Use the scissor lift trolley to move large dogs and comparably sized bodies.**



- **The wrong way to sharpen a knife - note the unprotected left thumb.**

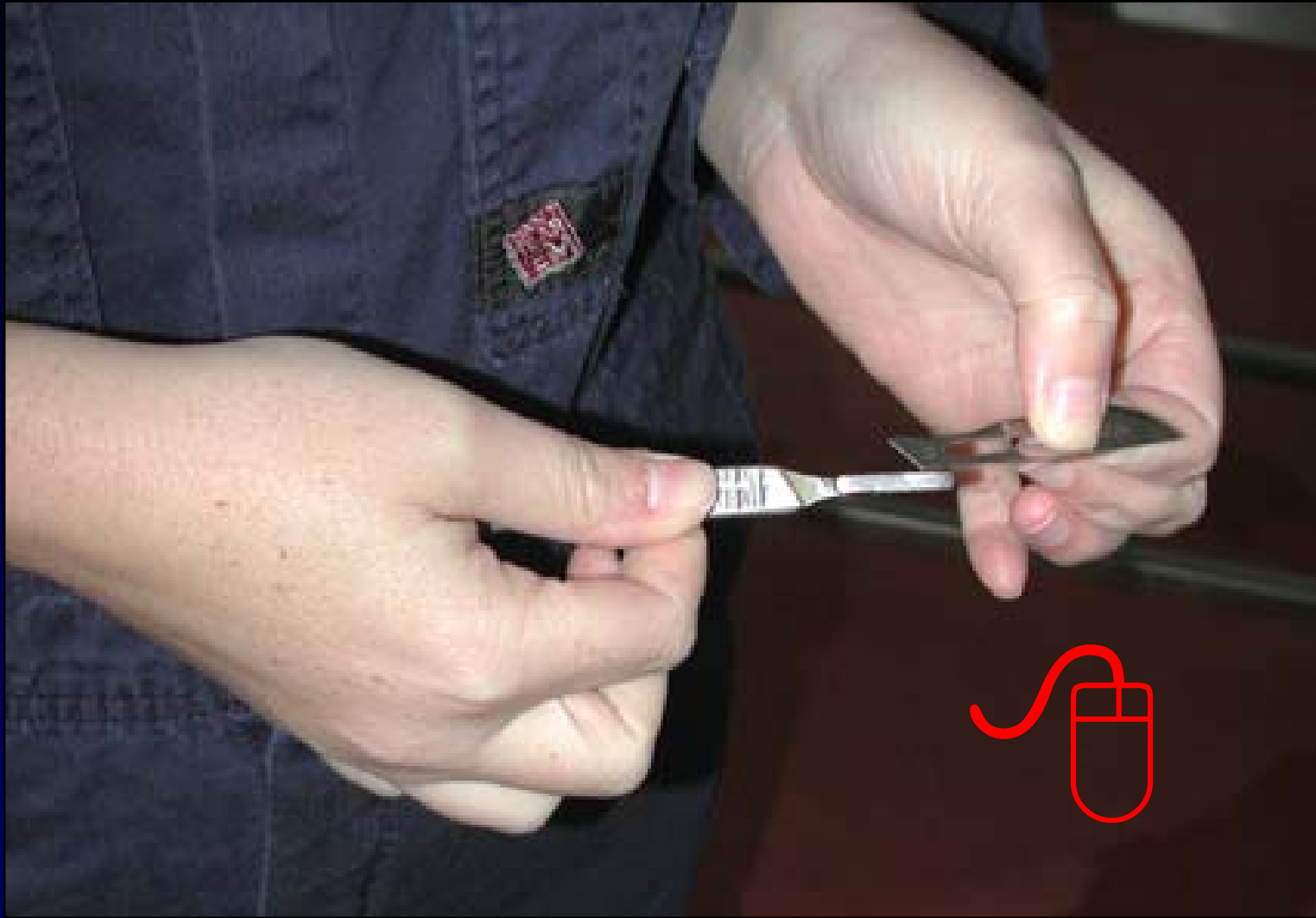


- **The right way - the thumb is protected by the guard on the steel.**

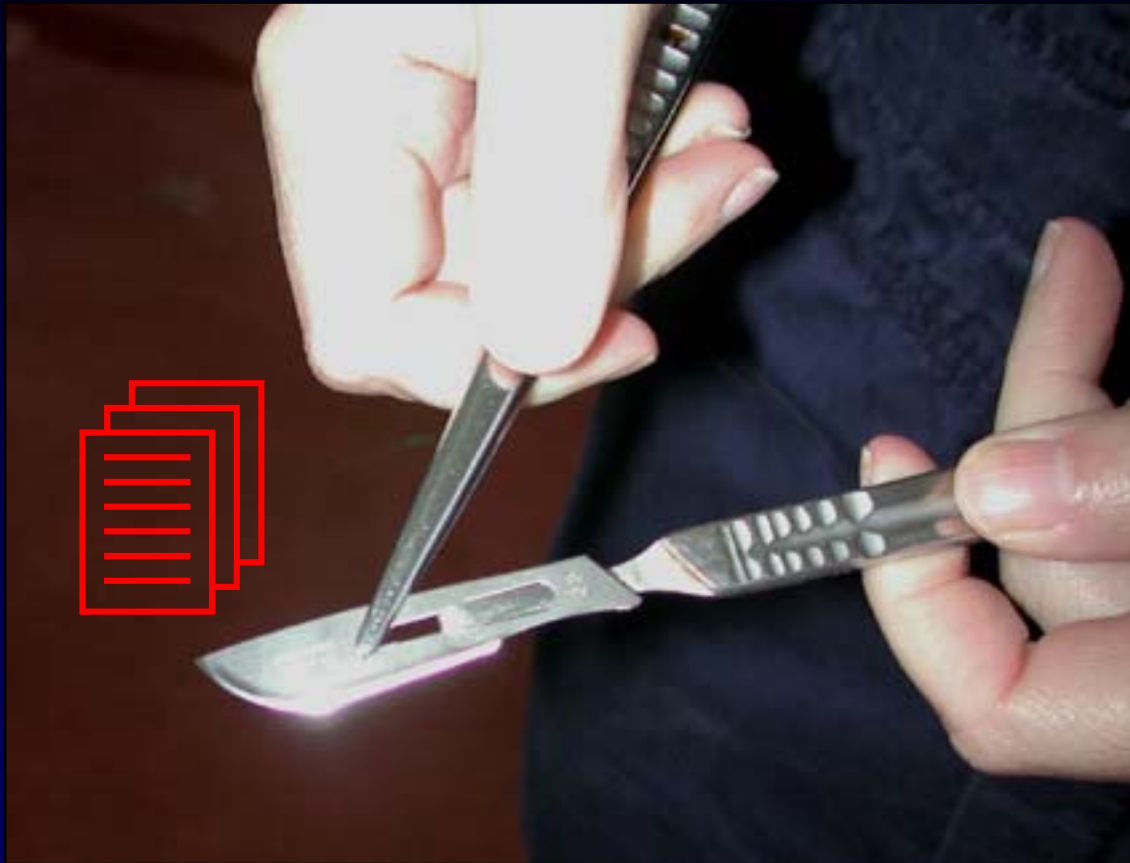


- **Never handle tissues without gloves.**





- **Never remove scalpel blades from holders by hand.**



- **Always remove scalpel blades from holders with forceps.**



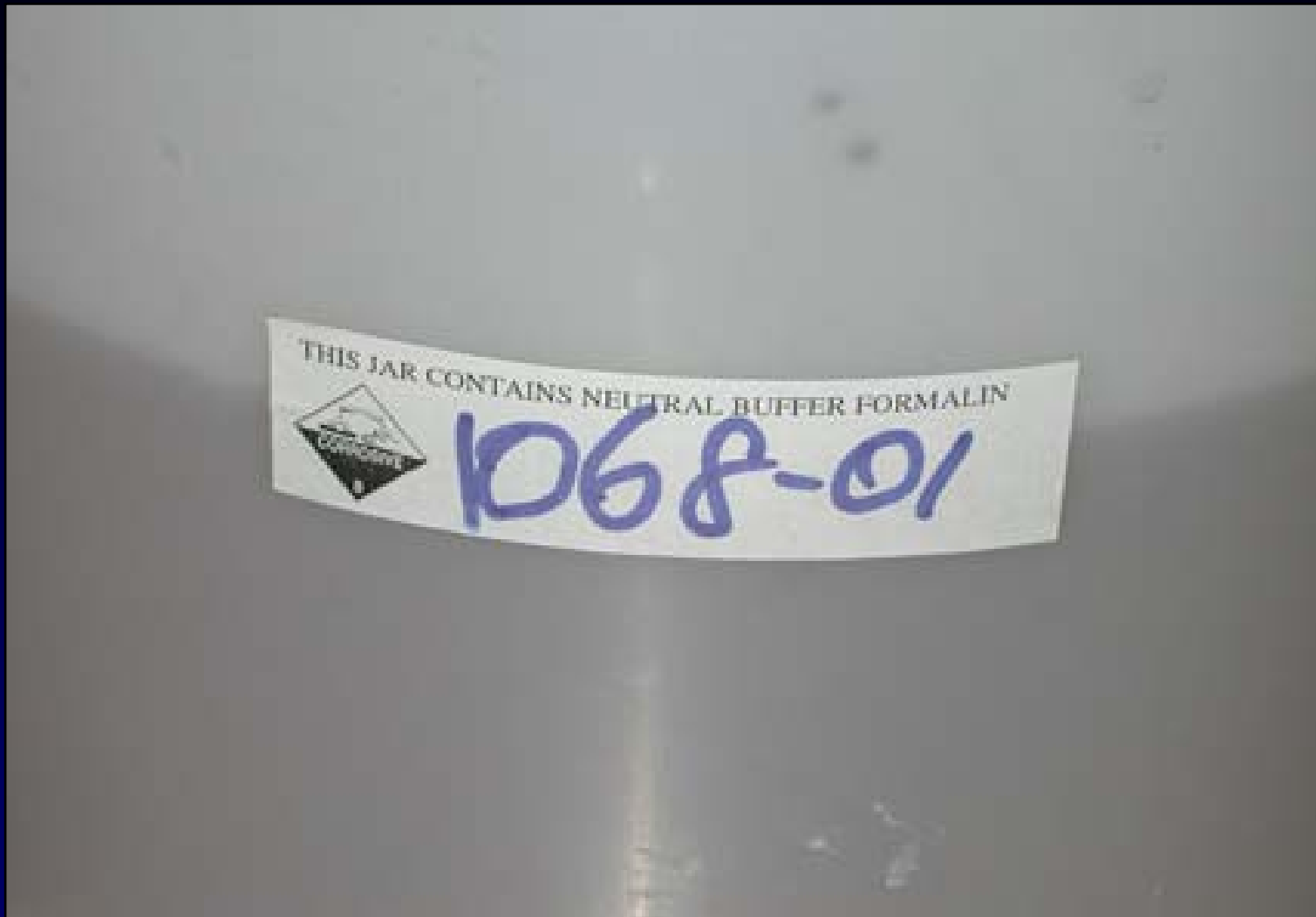
- **Never leave scalpel blades lying around.**



- **Dispose of scalpel blades, needles and any other sharp objects into the yellow sharp containers.**



- **These bins are for non-infectious waste material. Do not place any biological material or any sharp objects in these bins.**



- **At the end of a post mortem, always check that all collected specimens are clearly labelled with the patient identification number.**

- **When hosing at the end of a post mortem, use low pressure hot water with disinfectant to reduce aerosolisation of potential pathogens.**





- **Instruments and specimen containers must be thoroughly cleaned after a post mortem. Scrub hands with disinfectant after disposal of gloves.**