

**Postmortem examination of  
domestic animals with special  
reference to report writing.**

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# General instructions

- Try to share observations collected from 14500 postmortem examinations of various domestic and wild animals.
- Too short period to understand all the conditions within 1.5 hours.

# Methods/ procedure of postmortem in cattle/ large ruminants

- Hanging position is the best method to carry out stress less postmortem.
- JCB –
  - tying forelegs of animal together with strong rope
  - Hanging of animal to bucket of JCB at our height
  - Cut through mid line





- Reflect skin
- Observe musculature
- Open abdomen without bursting the rumen
- If want to remove postmortem bloat – just give small blade sized cut / stab to rumen.
- By force of gravity all organs layered in a observable manner
- Brain to be opened with cutter / chisel and hammer

# Sub cut tissues



# Muscles

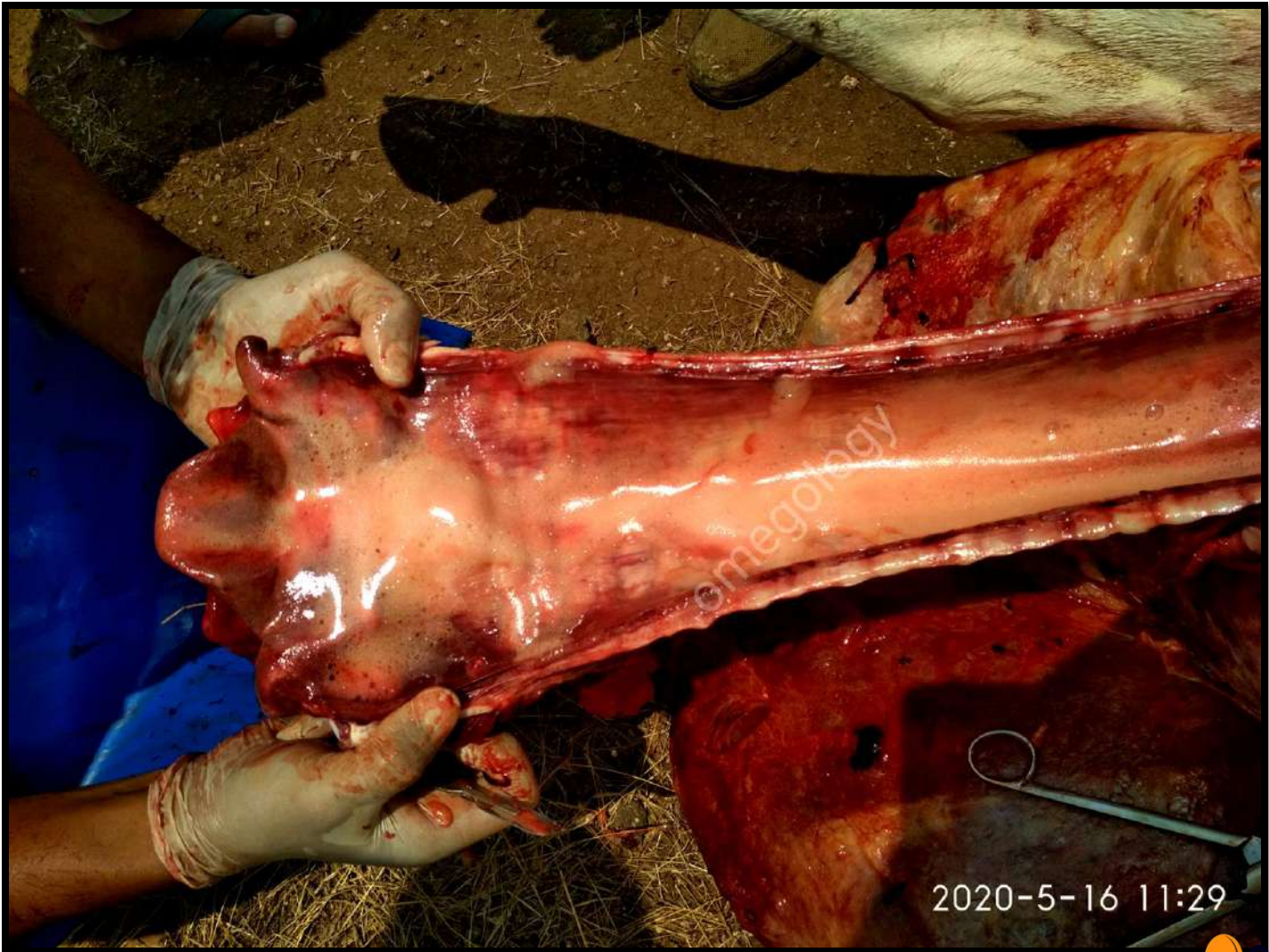




# Deep coetaneous tissues



- Cut diaphragm
- Push trachea along with larynx through thoracic inlet
- Just pull it down with minimal scalpel work at the thoracic opening and mediastinal attachments.
- No need to cut ribs
- Observe respiratory system first – collect samples, mediastinal lymphnodes, heart blood , lung and thoracic fluid etc as per your need.



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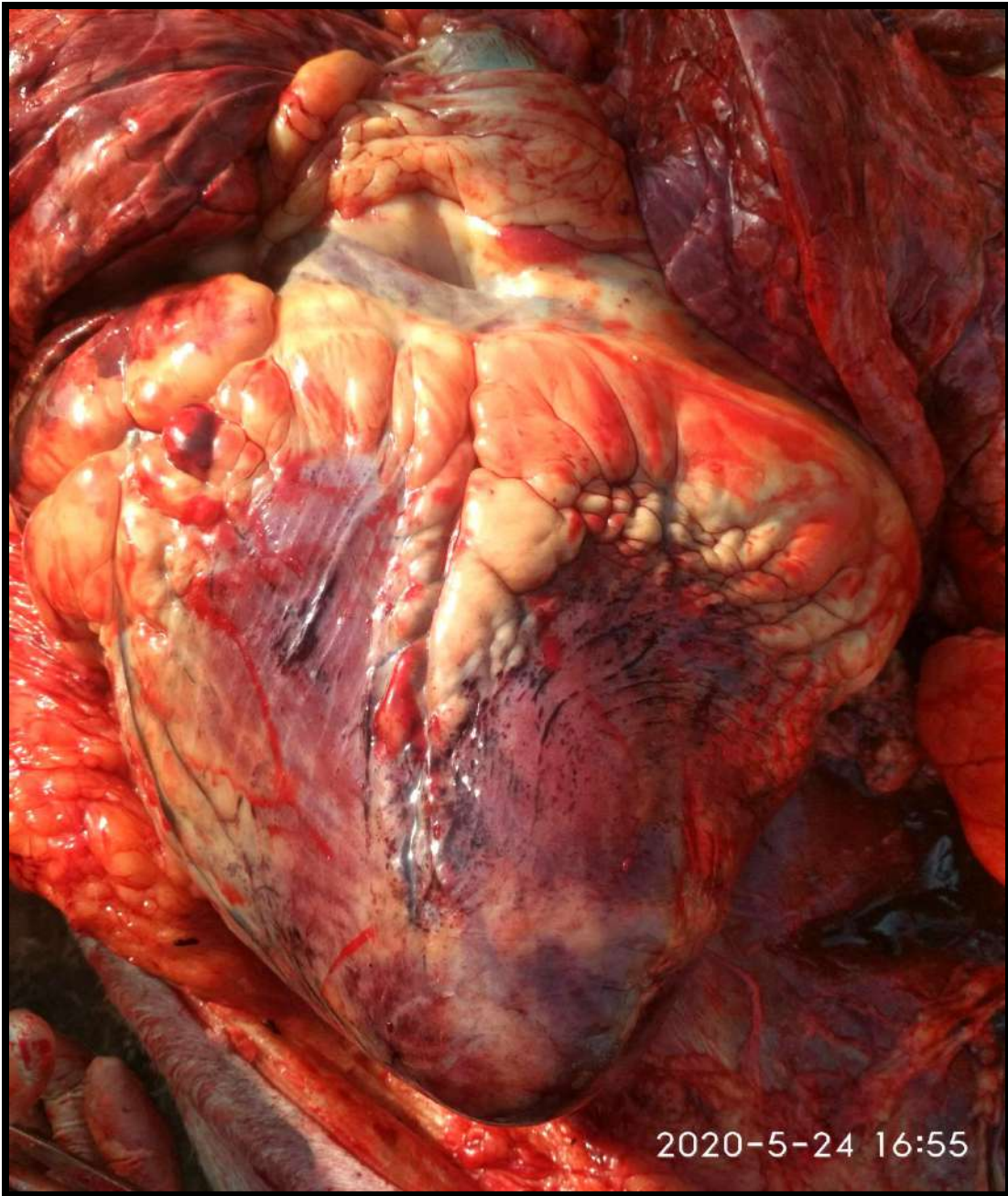
# Lungs – patchy pneumonia



# Lungs

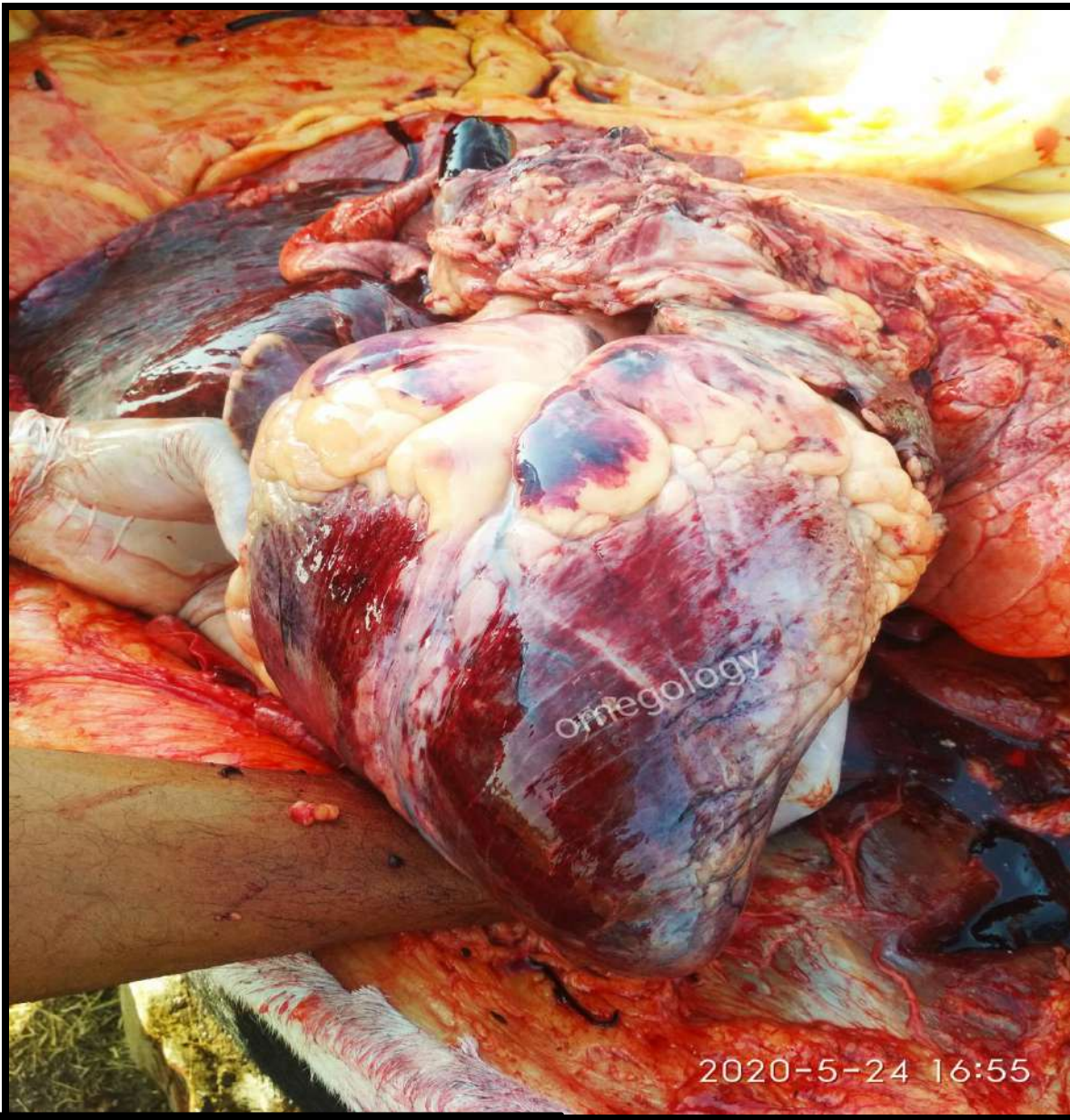


- Impression smears to be taken from lung tissues and heart blood for instant diagnosis.
- Observe pericardium- fluid, its color, amount, contents etc.
- Cut open the heart observe for the hemorrhages, types of clots, amount of blood present in left chambers etc.



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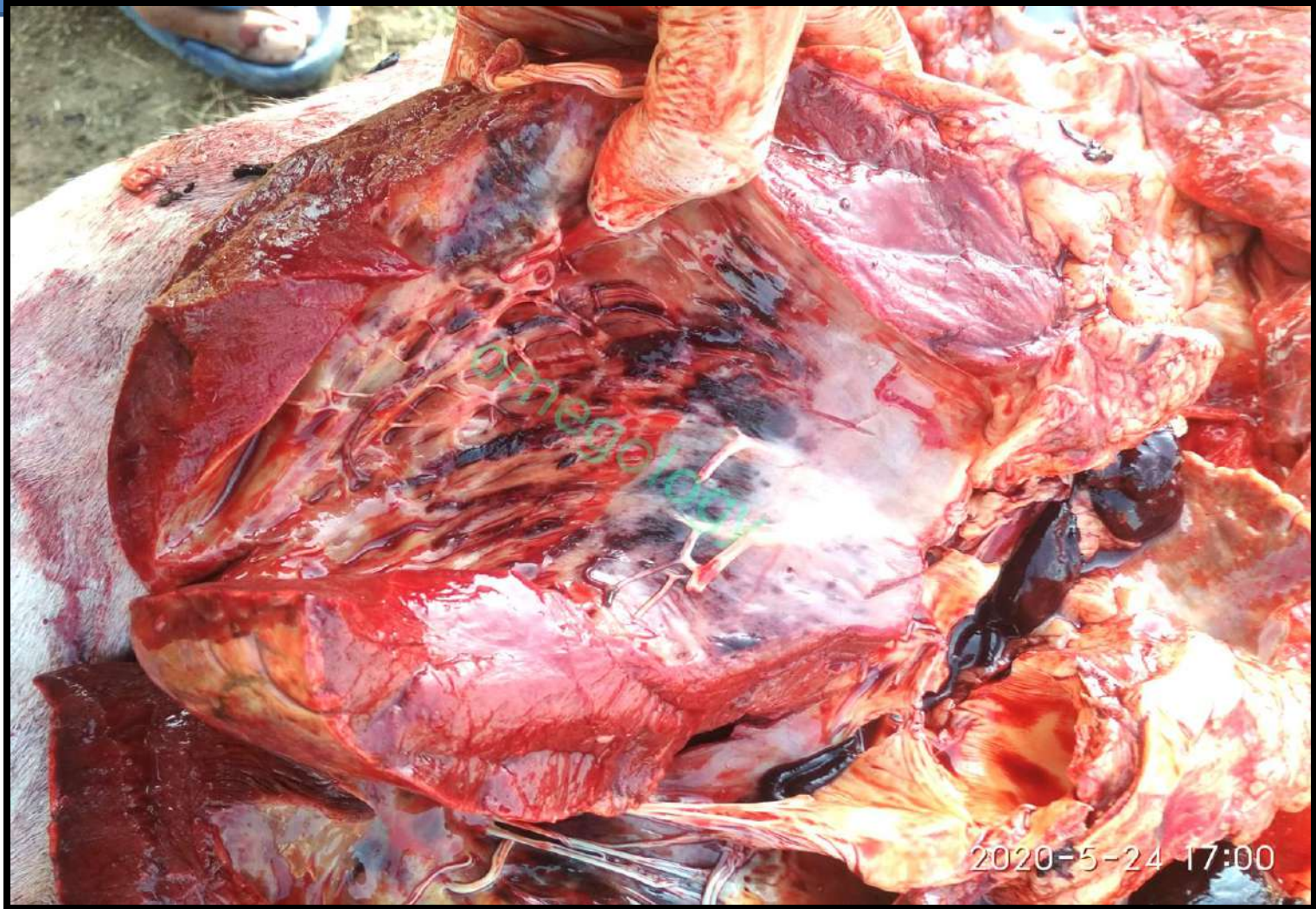
Epicardium



Epicardial hemorrhages

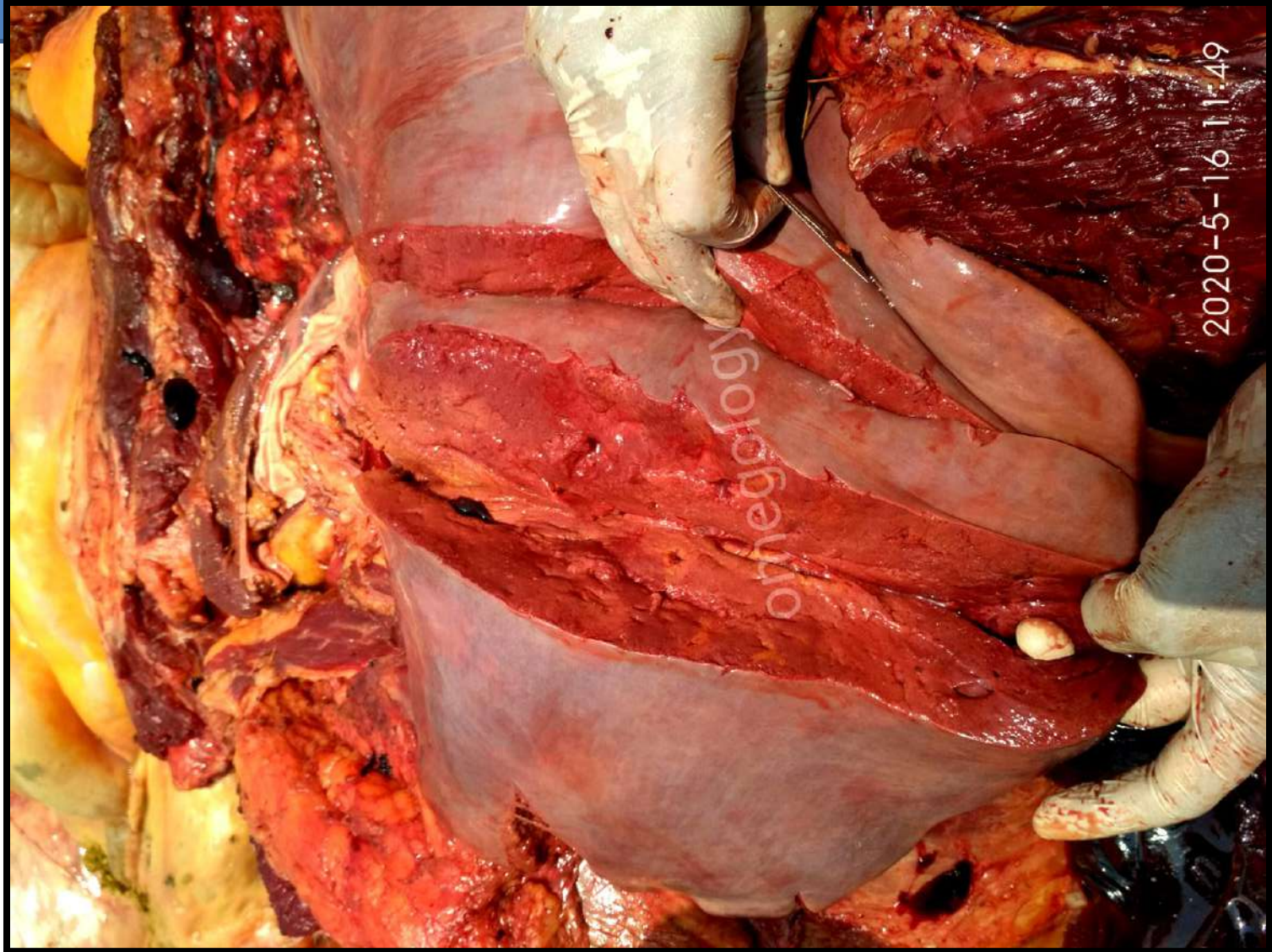


# Endocardium



- Examination of liver- size , edges, consistency, color etc.
- Take serial cuts to observed inner parenchyma and extent of lesions in deeper tissues.
- Gall bladder- size shape, adhesions, color of bile etc
- Go to spleen – just left side of rumen observe in similar way.

# Cut section of liver



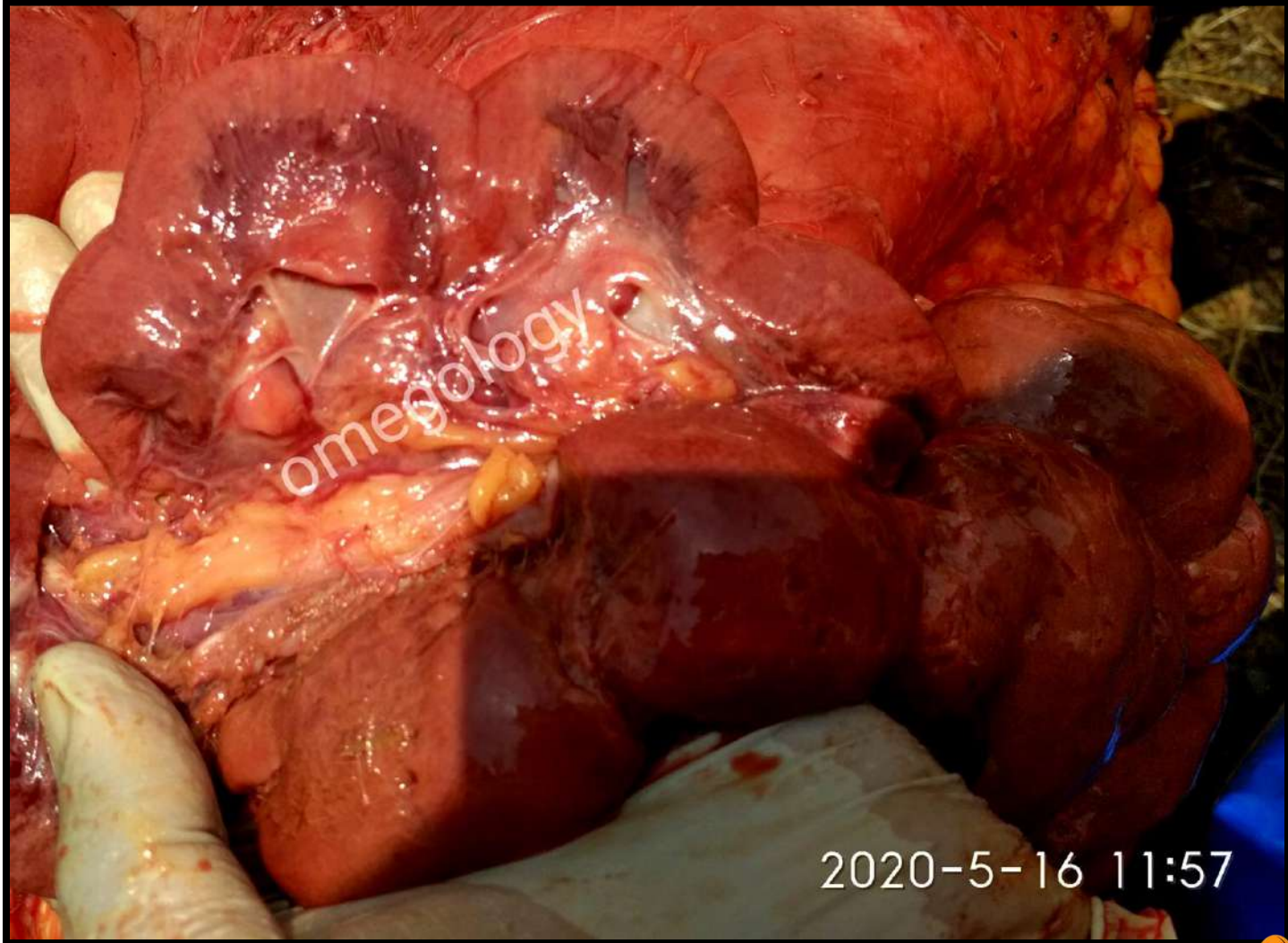
# Spleen



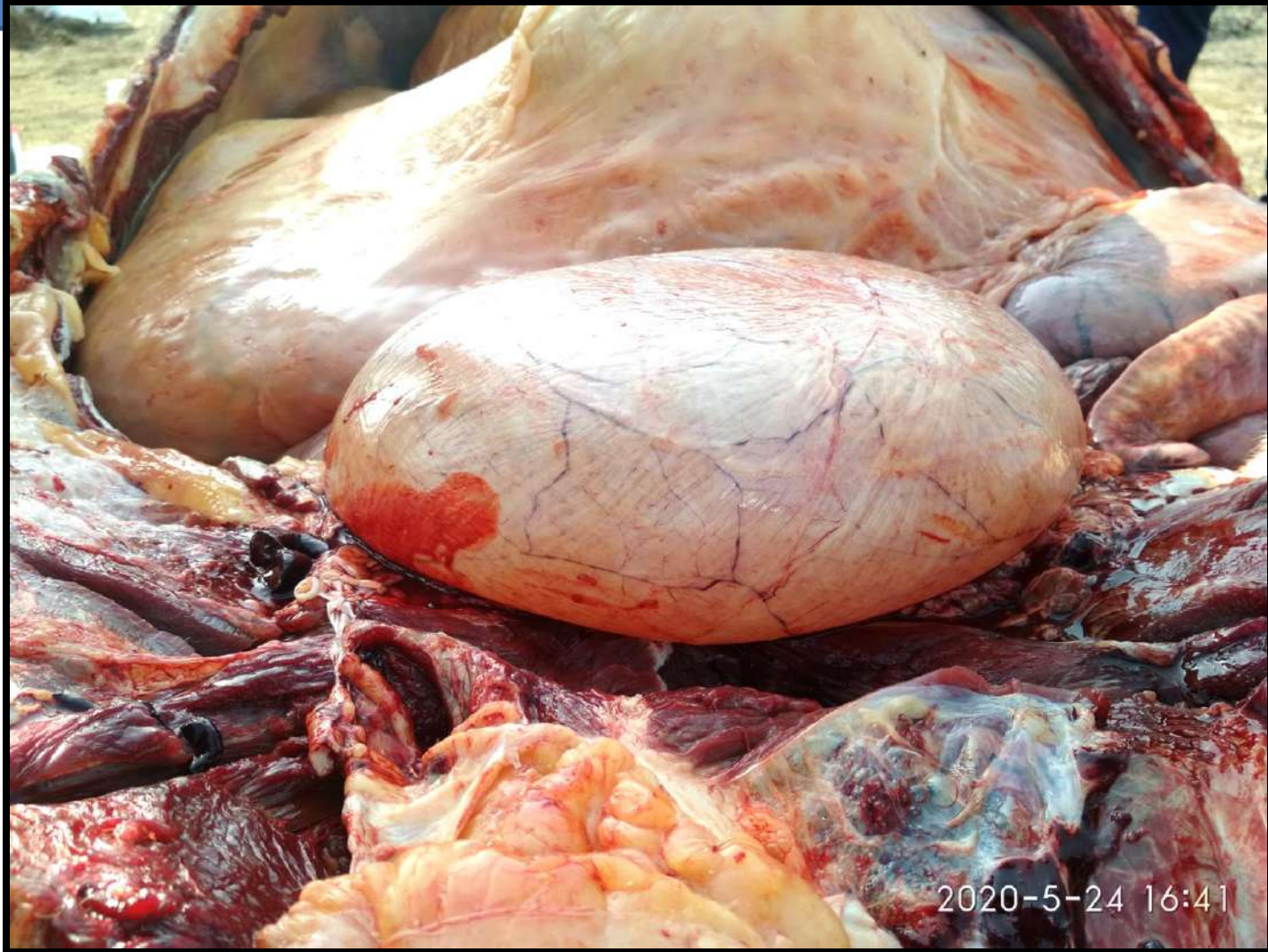
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- Reach to kidney – observe it by middle section .
- Observe for cortex, paracortex, medulla, renal pelvis and ureters and bladder
- Caecum – ileocaecal junction
- Colon
- Small intestine- worms- round and tape worms etc.
- Mesentery – mesenteric lymph nodes,

# Cut section of kidney



# Bladder



# Intestine – mucosa





# Mesentery

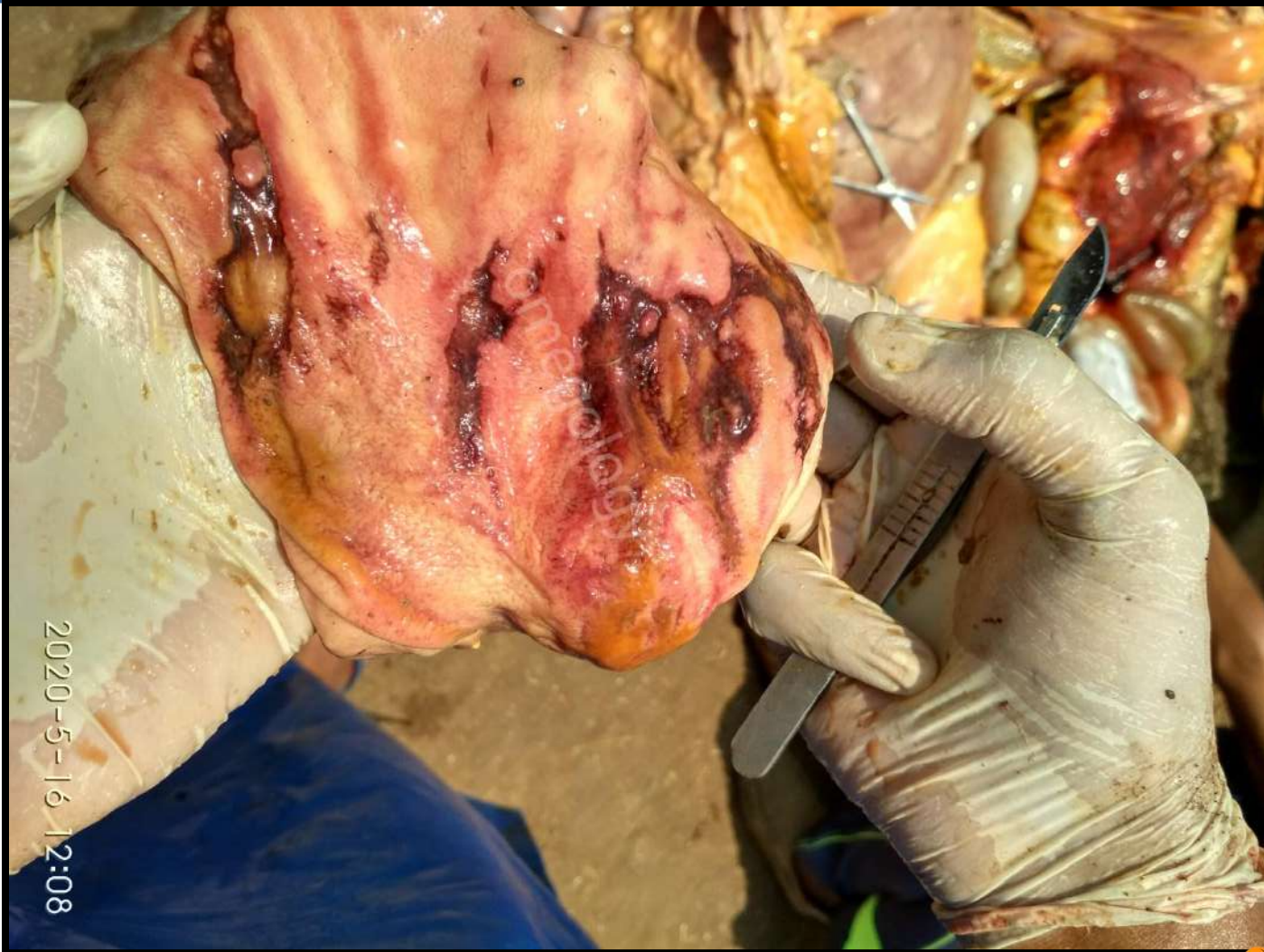


- Duodenum- immature amphistomes
- Abomasum – ulceration, hemorrhages, other abnormal colored foci, haemonchus
- Omesum- pappilale
- Reticulum – foreign bodies
- Rumen - groves , papillae, amphistomes

# Abomasal folds



# Abomasum pyloric portion



# Reticulum



# Rumen



# Types of postmortem

Funny but true classification :

(not available in any literature)

- General- insurance cases – pre-decided cause
- Special
  - Diagnostic cases
  - Legal cases

# Indications of postmortem

- Insurance cases
- Legal cases
- Diagnostic postmortems -
- **If more mortality is there**
  - Need to plan treatment strategy
  - Need to plan prevention strategy
  - Need to collect samples for investigations

Try to read hidden message from dead to live



# Insurance cases

- In this we want to give some favor to farmers to get compensation from company,
- We have to write such disease conditions in which his insurance claims should not be rejected.
- We are in search of findings which can be fit in claim policies.
- More or less we are giving some acute uncurable conditions in insurance cases.

# Conditions generally written in insurance cases

- Acute tympani / bloat
- Grain engorgement/ acidosis
- Pneumonia – bronchopneumonia
- Snake bites
- Non specific Septicemia toxemia
- Foreign body syndrome

# Understanding the sets of lesions

- Each pathological conditions, which causes death will be having typical patterns of sets of lesions
- These sets are most of the time are fixed, little changes may be their but almost other fixed lesions must be observed in that particular disease conditions.

# Example of one set

- Pale mucous membranes
- Pale subcutaneous tissues
- White froth in trachea
- Edema of lung
- Excess of pericardial fluid in pericardium
- Clear fluid in body cavities
- Chicken fat clot in heart chamber and major blood vessels





- Gelatinous transformation of all adipose tissues. (mesentery, omentum, pericardial, peri renal etc.)
- Pale and fibrosed liver
- Pale and swollen kidney
- Thick and nodular lesions in intestines
- All these lesions are of anemia and long standing enteropathiae / cirrhosis/ inanation



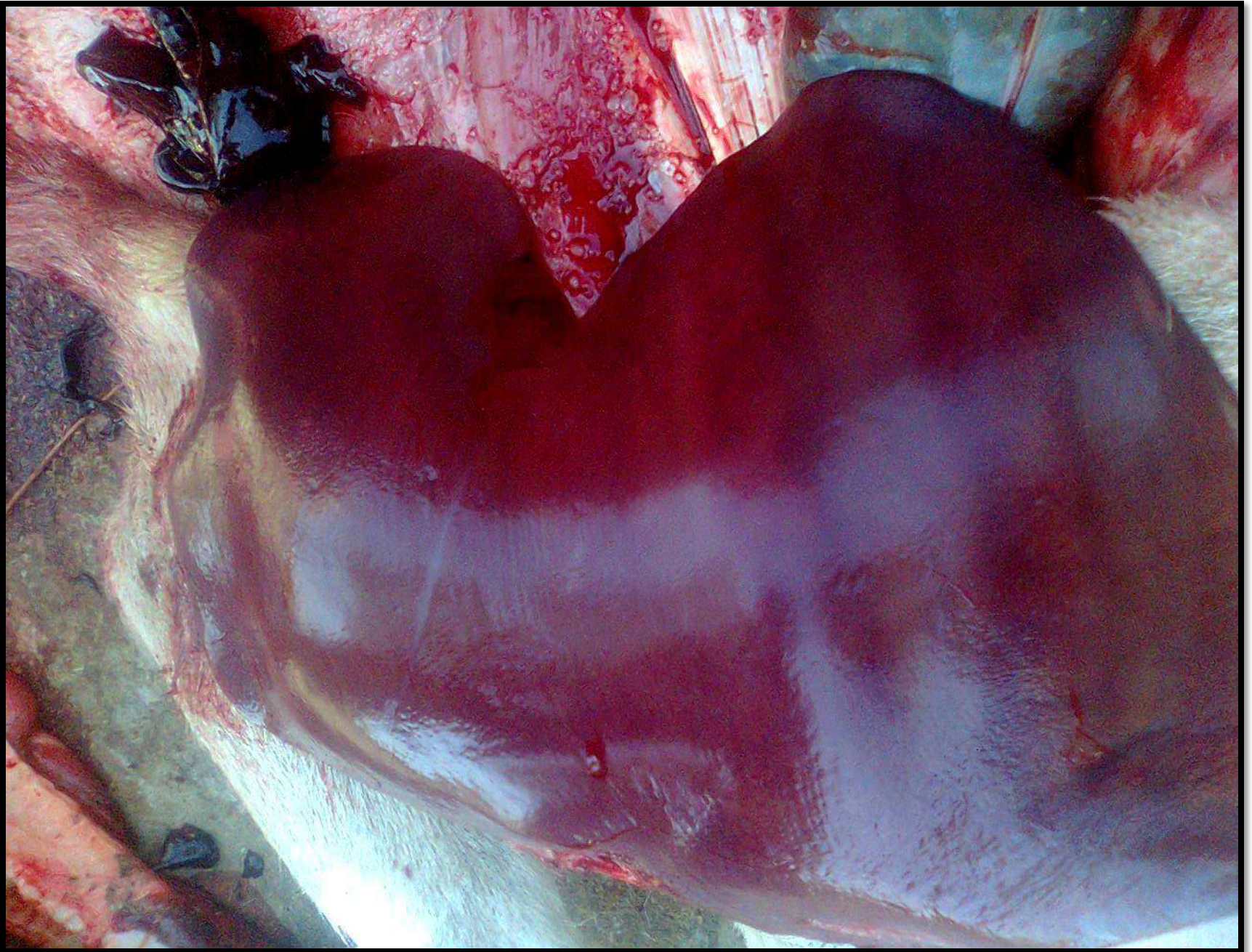
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# Tympani

- Rib impressions on surface of liver due to enlargement of rumen before death of animals.
- Mesenteric blood vessels are engorged with blood
- Eyes open , mouth open
- Rumen filled with trapped bubbles of gas up to deep ingesta.



- **Posterior vena-cava engorged with blood**
- **Lungs collapsed but major blood vessels are engorged with blood**
- **Heart chamber scanty of blood clots.**

# Grain engorgement/ acidosis

- Most of the lesions are non specific toxemia
- Congested mucous membranes
- Congested microvasculature in subcutaneous tissues , serosae and mucosae of intestines, rumen , lungs, heart
- Liver swollen congested
- Kidney congested



- Rumen papillae pilled off easily and some times sloughed down on the engorged grains
- Better to measure pH at least by pH paper.
- Severe congestion and hemorrhages on ruminal mucosa with focal pin point hemorrhages on tips of papillae.
- Heart chambers empty, hemorrhages,



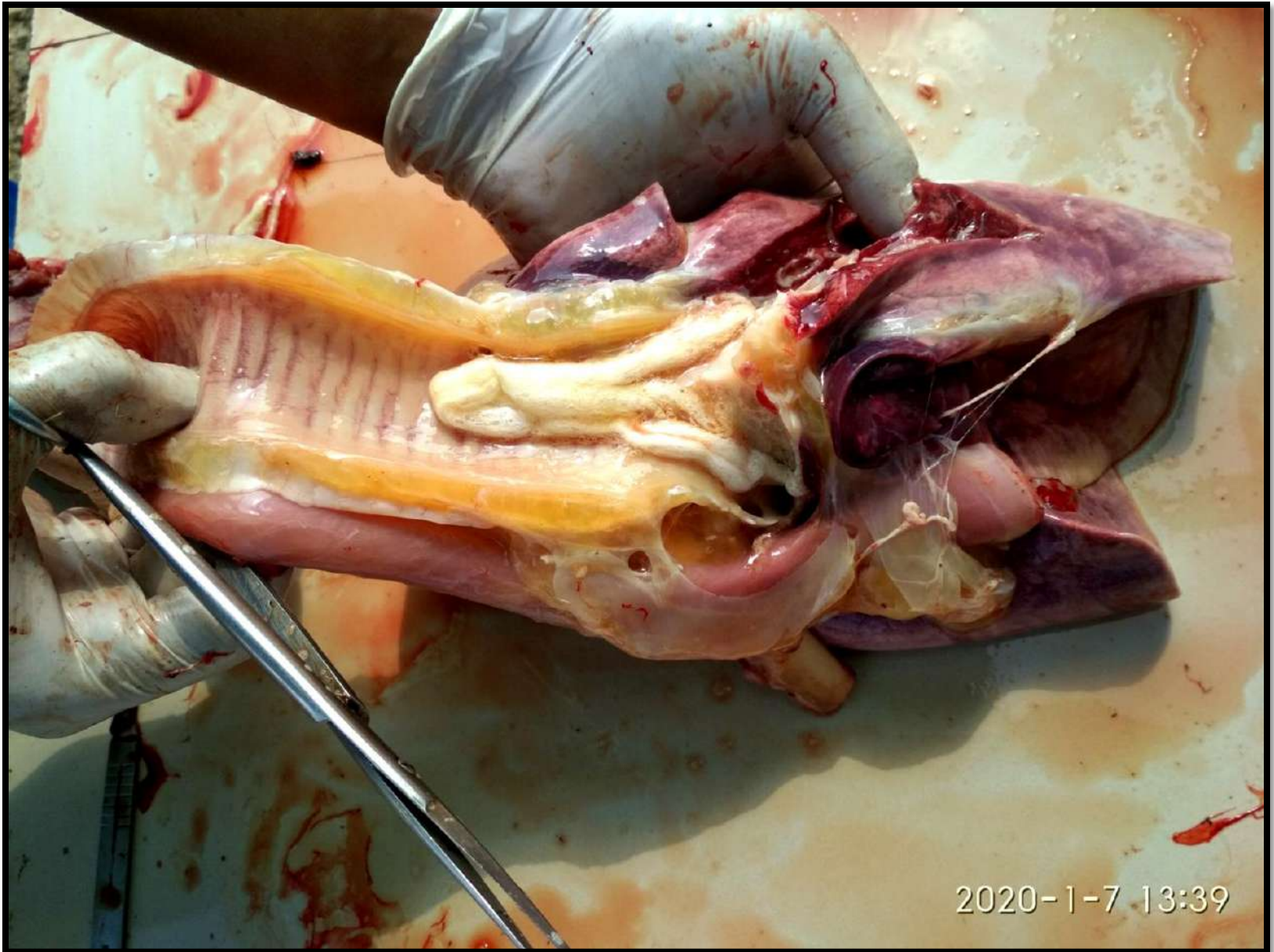
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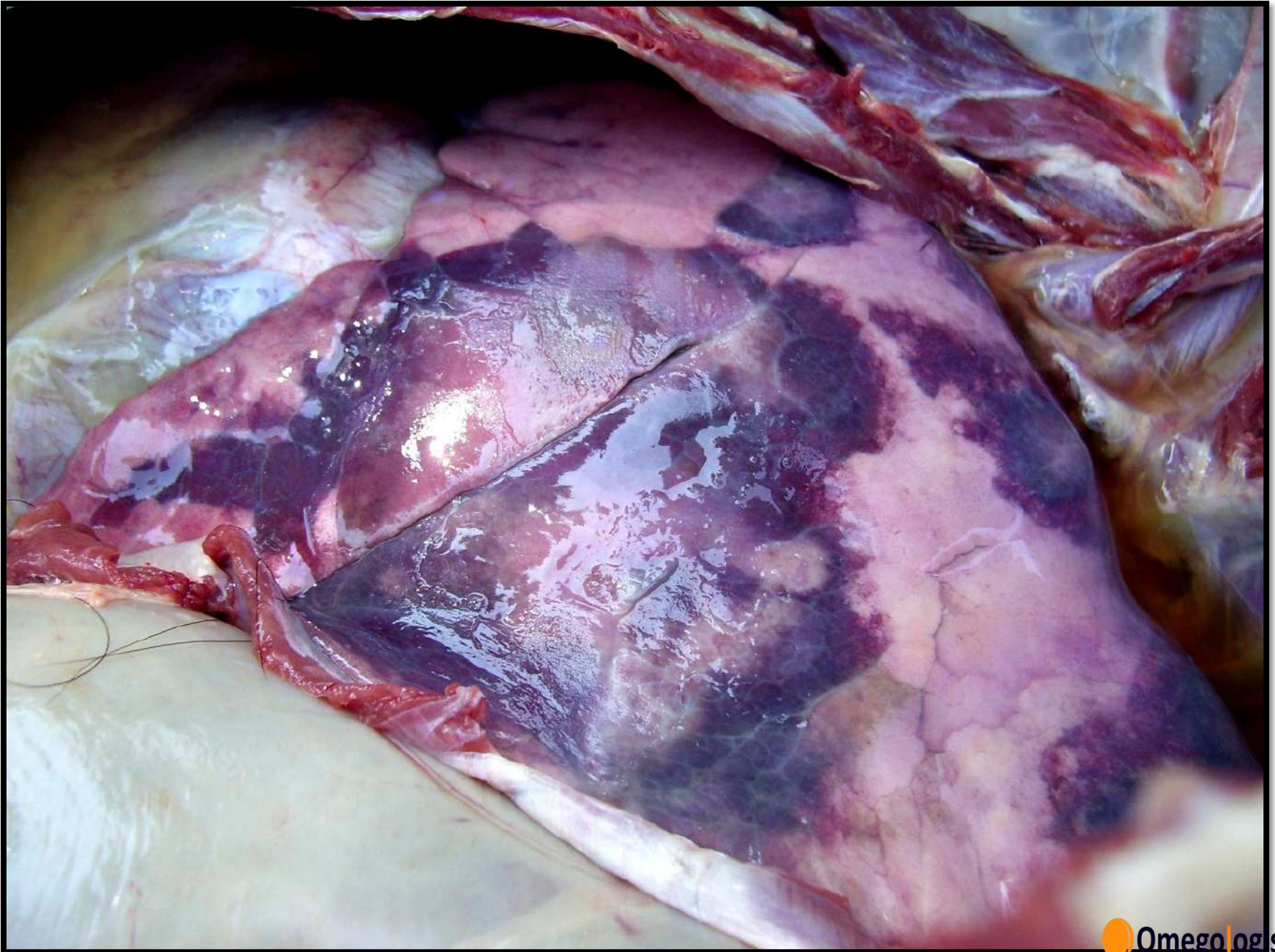
# Pneumonia

- Trachea congested – terminal portion filled with froth and exudates – sero-fibrinous, purulent, fibrinous clots etc.
- Lungs severely congested, consolidated, different patches of hepatization must be observed.
- Heart – pericardium will have excess of fluid and some time fibrinous clots. Empty left chamber of scanty of blood clots.





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- **Mediastinal lymph nodes – swollen, congested, edematous**
- **Serous, fibrinous fluid in thoracic cavity**
- **Some times adhesions of parietal surface of pleura to thoracic wall/ muscles.**
- **Liver –swollen / may be contracted/ fibrotic depending on duration of pneumonia.**
- **Kidney swollen**



# Snake bites

- Fang mark should be there- many times complaints are there fang marks are not visible.
- In such conditions you need to search for fang marks through out the skin and subcutaneous tissues.
- Generally 1.0 to 1.5 feet areas to be searched from ground level

- If animal was in sitting position then need to search sub cutaneous tissues of neck, thorax abdomen, shoulder and thigh region.
- If snake bite was there in standing position then need to search skin of udder/ muzzle/ mouth / tongue/ knee joints etc.

- Based on toxins postmortem lesions are vary.
- Krait – neurotoxic only- no any lesions- slow death (2-3 days) after bite.
- Cobra- death within 30 to 60 minutes- 24 hrs
- Russell viper – 30 to 45 minutes
- First bite/ second bite/ third bites make a difference in a death of animals

- **Cobra and viper are showing almost similar types of lesions- as both the poisons are having lecithinase in their poison.**
- **Hemolysis- serosanguinous/ cyanotic fluids in all body cavities and near the site of bite.**
- **Edema formation / necrosis due to damage to vascular endothelium.**



- Severe congestion, edema, hemorrhages, cyanosis of lungs.
- Pericardium with reddish / cyanotic fluid
- Hemorrhages on epicardium and endocardium – left chambers are generally empty.
- Pin point hemorrhages on all serosal surfaces.
- Liver kidney swollen and cyanotic.

# Septicemia and toxemia

- Almost noticed in all febrile conditions before death.
- Congestion will be observed from mucous membranes to all seroase and mucosae of all tubular/ hollow organs.
- Congestion and swelling of all solid organs with pin point hemorrhages.
- Left chamber empty or having scanty of blood clots.

# Foreign body syndrome

- Penetrating foreign body must be there
- Adhesions, fibrosis, suppuration, organizing pericarditis should be there
- Adhesions of reticulum to diaphragm and pericardium
- Focal adhesions of lungs, focal and lobular consolidation of lungs

# Legal cases

- **Poisoning**
- **Drowning**
- **Electric current/ electrocution**
- **Accidents**
- **Burns**
- **Eaten by or attack by wild animals**

# Protocol for legal case

- When legal case is there we need to follow common protocol for the legal protocol
- Panchanama – request letter from police,
- If you don't have some necessary materials you may send demand note to police
- All necessary arrangement should be make available by the police in legal matter

# Collection of material protocol

- If carcass is completely autolized – need to carry the postmortem examination and collect what ever available in that dead body.
- Collect material as per the norms
  - In salt
  - In glycerin phosphate buffer
  - Alcohol/ spirit etc
- Seal it and hand over to police.

# Poisoning

- Mostly sudden death are there
- Congestion of all mucous membranes, serosae, mucosae, pin point hemorrhages on vital organs
- Left chamber of heart generally empty
- Don't write name of any specific toxins unless you have laboratory report with you from authorized laboratory

- The lesions were suggestive of hypovolemic shock caused due to toxemia ; However the final cause of death can be drawn after the report of forensic laboratory.
- This is to be write in any legal case, when you have sent the samples to forensic labs.
- E.g. urea poisoning, insecticide / pesticide









# Drowning

- You get dead body of animal floating in water – well/ river/ pond etc.
- Need to differentiate based on lesions observed.
- Many people says – water, algae, sink in water etc. etc. sink test done by some peoples
- Just understand the mechanism of death when water / liquid enter into trachea/ respiratory tract.

- **Basic inflammation rule- reaction of live tissue to the irritant.**
- **Lesions – eyes are opened, Trachea severely congested, edematous, hemorrhages in lungs, red colored froth in trachea and bronchi, emphysema of lungs at margins, pin point hemorrhages on endocardium, mesenteric blood vessels are engorged with blood.**

- Change in osmotic pressure in lung tissues, ruptured capillaries – blood in alveolar lumens + mixed with water- hemolysis of blood– extensive movements of lung – churning of air and water- produce red colored froth
- If animal die before reach to water – no above lesions- clear water with out redness, no emphysema no inflammations







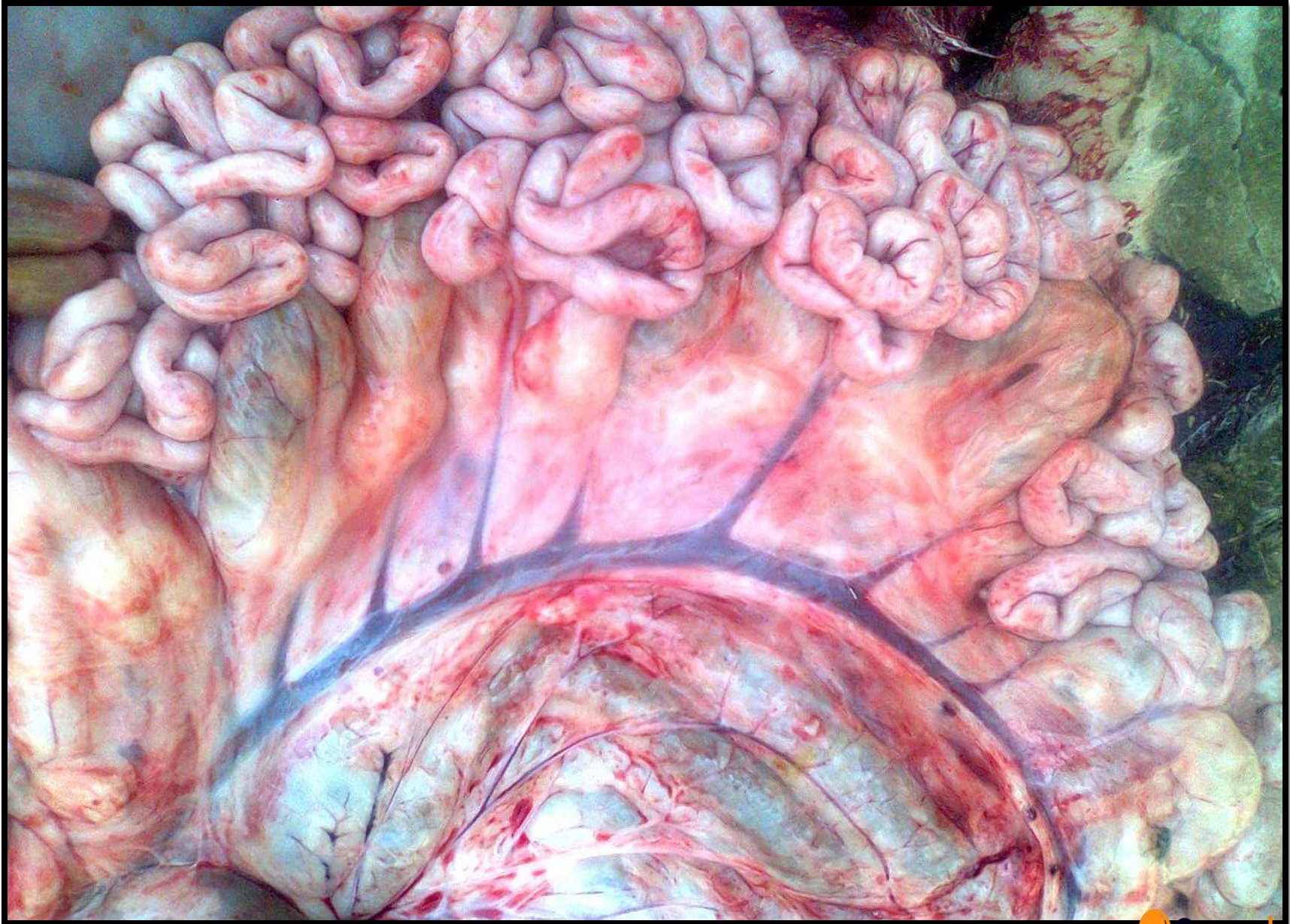
# Electric current/ electrocution

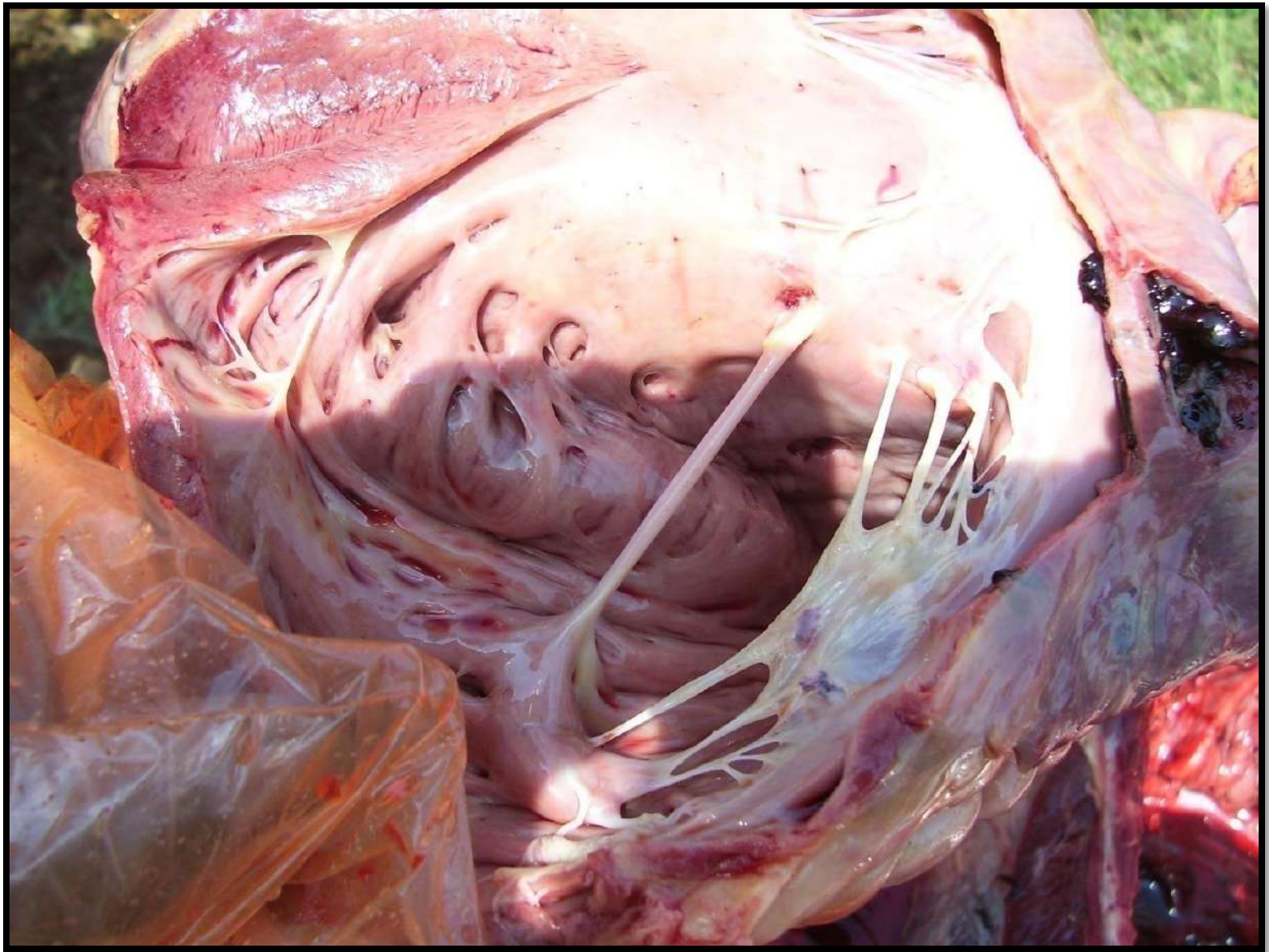
- Entry point -exit point
- Many times no direct contact of live wire
- Circumstantial evidences need to be noted carefully (live wire on wet soil )
- 180 Ampere current is sufficient to cause death in cow.
- Storms with electrocutions should be there
- Signs and lesions are observed in one animal but other animals did not showed any external lesions

- Electric spark – heavily charged electrons at centre , but areas around the spark is charged with electrons and all the death phenomenon is observed due to these electrons.
- Around 20 to 25 feet area around the spark is charged with electrons.
- Spark may fall on one animal but animals around that spark are also found dead.

- Once electron enter into body all the conducting mechanisms is get increasd thousand fold times- heart conduction, nerve impulses, voluntary and involuntary nerve tissues
- Disparity between heart and lung synchronization
- Hypovolemic shock and death.

- Eyes are open
- External marks may be / may not be present.
- Hemorrhages and blood clots in bronchus.
- Severe emphysema of lungs, hemorrhages
- Change in shape of heart scanty of blood clots in heart chambers.
- Mesenteric blood vessels are engorged
- This is true in all species including human being.





# Accidents

- Road accident- dead before accident or died due to accident. (wild animals)
- Some tribal communities kill the animals by poisoning and throw them on high way
- Again same logic of inflammation
- Fractured portion will have inflammation around the surrounding tissues- musculature/ blood clots and inflammatory line

- The lesions were suggestive of hypovolemic shock due to mechanical injury.
- No need to write truck/ car/ bike etc.
- As cant be diagnosed on post mortem lesions.



# Burns

- If carcass is burn completely and only char/char coal is there
- One line report – carcass is completely charred due to burn.
- But problems with incompletely burned carcass, many time to destroy the evidence peoples are doing such things
- They may poison the animal and try to burn it and want to show that died in burn.

- Again same basic logic of inflammation is to be applied- zone of inflammation, exudation etc.
- Eyes are bulged out, mouth cavity swollen and many carbon particles in the cavity, trachea will be edematous, inflamed and carbon particles in to the deeper portion of trachea and bronchi.
- If all these lesions are there – then burn
- Absent – no burn.

# Eaten by or attack by wild animals

- Many times to get compensation from govt. farmers throw their dead animals in jungle areas and will complaint to you that his animal has been attacked by wild animals.
- As you reach to carcass you will get only part of skeleton.
- Ideally you need to say that -the organs are missing hence cause of death can not be drawn. (political issues)

- If whole body is there with injuries at neck/ jugular veins/ back
- You may say that animal by died due to hypovolemic shock caused due to hemorrhages, and these hemorrhages might be occurred due to un known canines / wild animals. ( need all circumstantial evidences from forest department- foot print matching etc.)

# Do`s and don'ts'

- Careful about – NAD
- Should not use any specific etiological factors unless you have authorized laboratory reports.
- Try to open carcass completely
- Examine all the internal organs care fully
- Snapped photos in a good manner
- Till have any difficulty ----- then

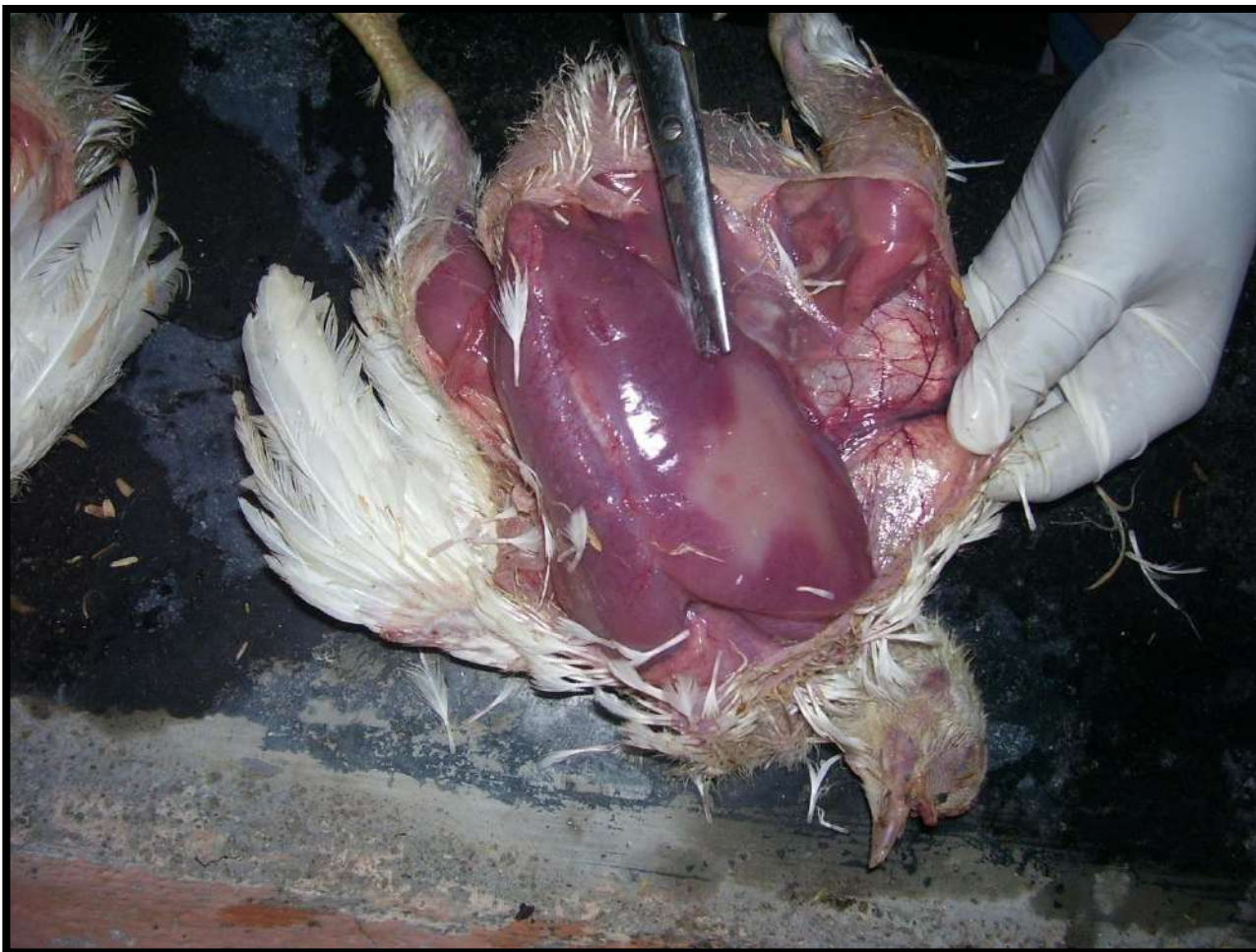
# Poultry postmortem

- External examination
- Internal examination
  - Opening of bonnet
  - Heart, pericardium , liver, air sacs (Thoracic and abdominal), mesentery, proventriculus, caecal tonsils , intestines
  - Trachea, oesophagus , oral cavity, crop, thymus

# Toxemia



# Toxemia





# Heat stress



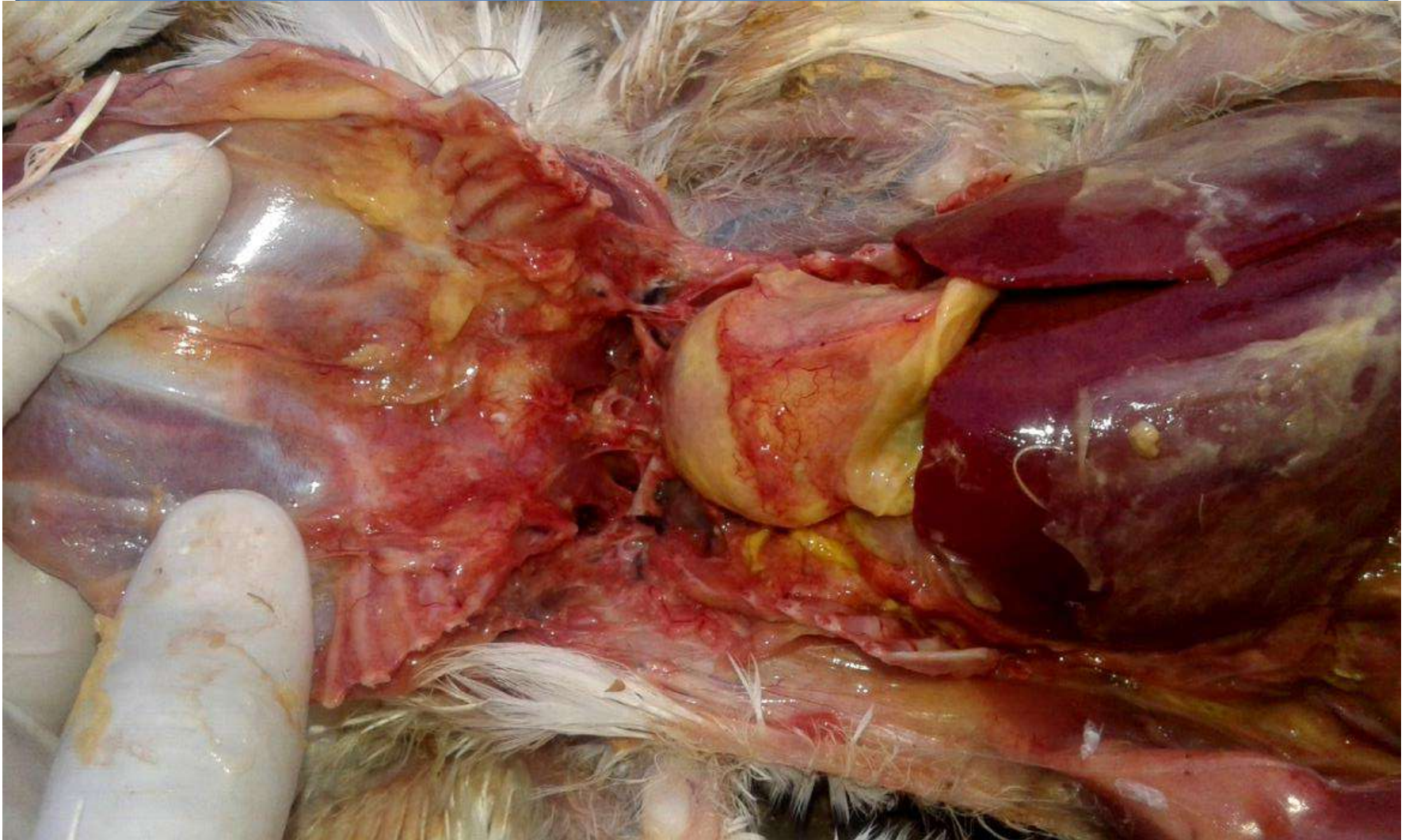
# Mycoplasma



# E coli



# E. Coli mycoplasma



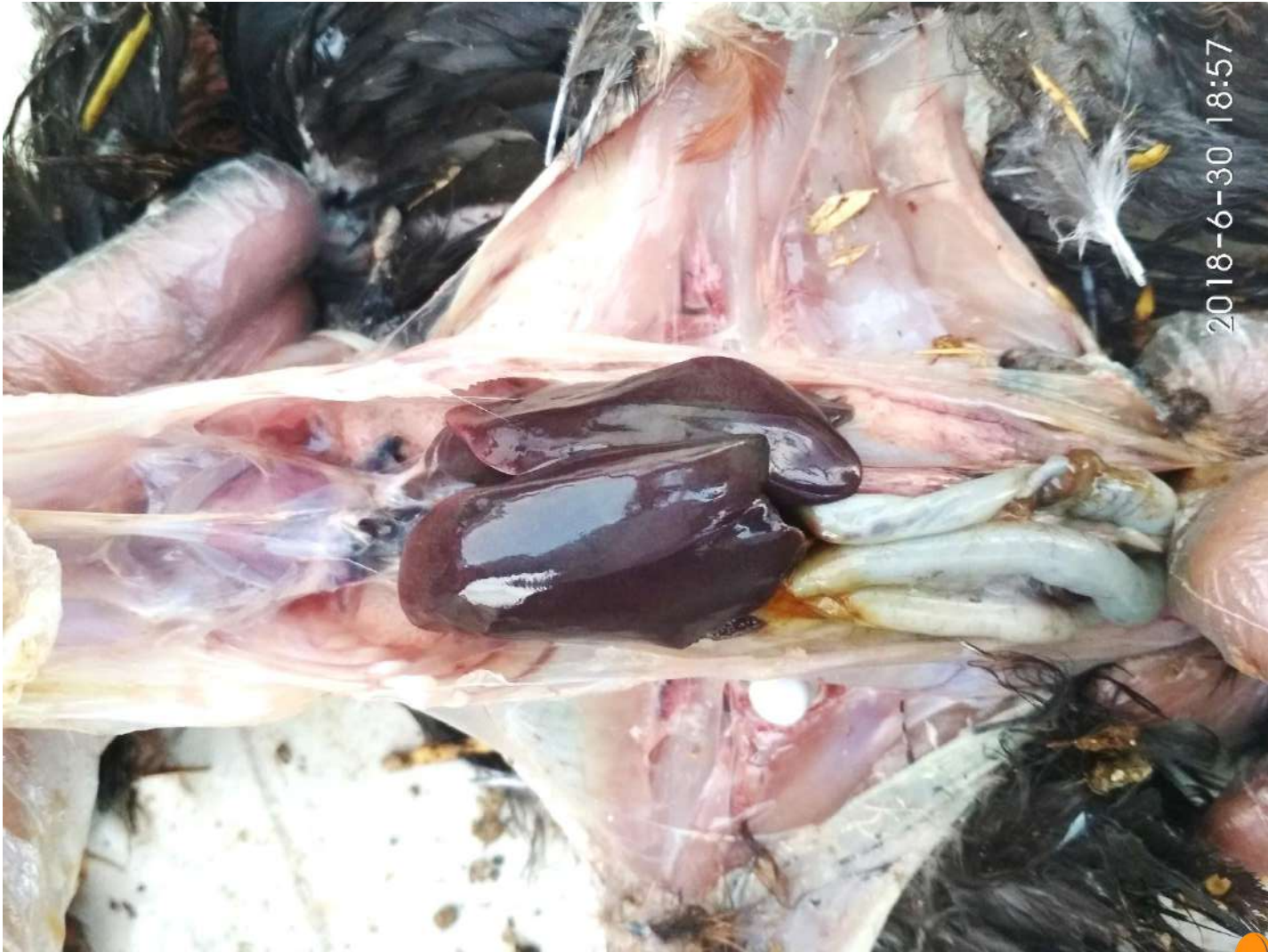
# E coli



# Salmonella



# Salmonella



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# Brooders pneumonia





# Feed toxicity



# Ascites



# Salmonella



# Salmonella



# Mycoplasma



# Coryza



# Feed toxicity



# Feed toxicity





# E. coli



# Salmonella + E. coli

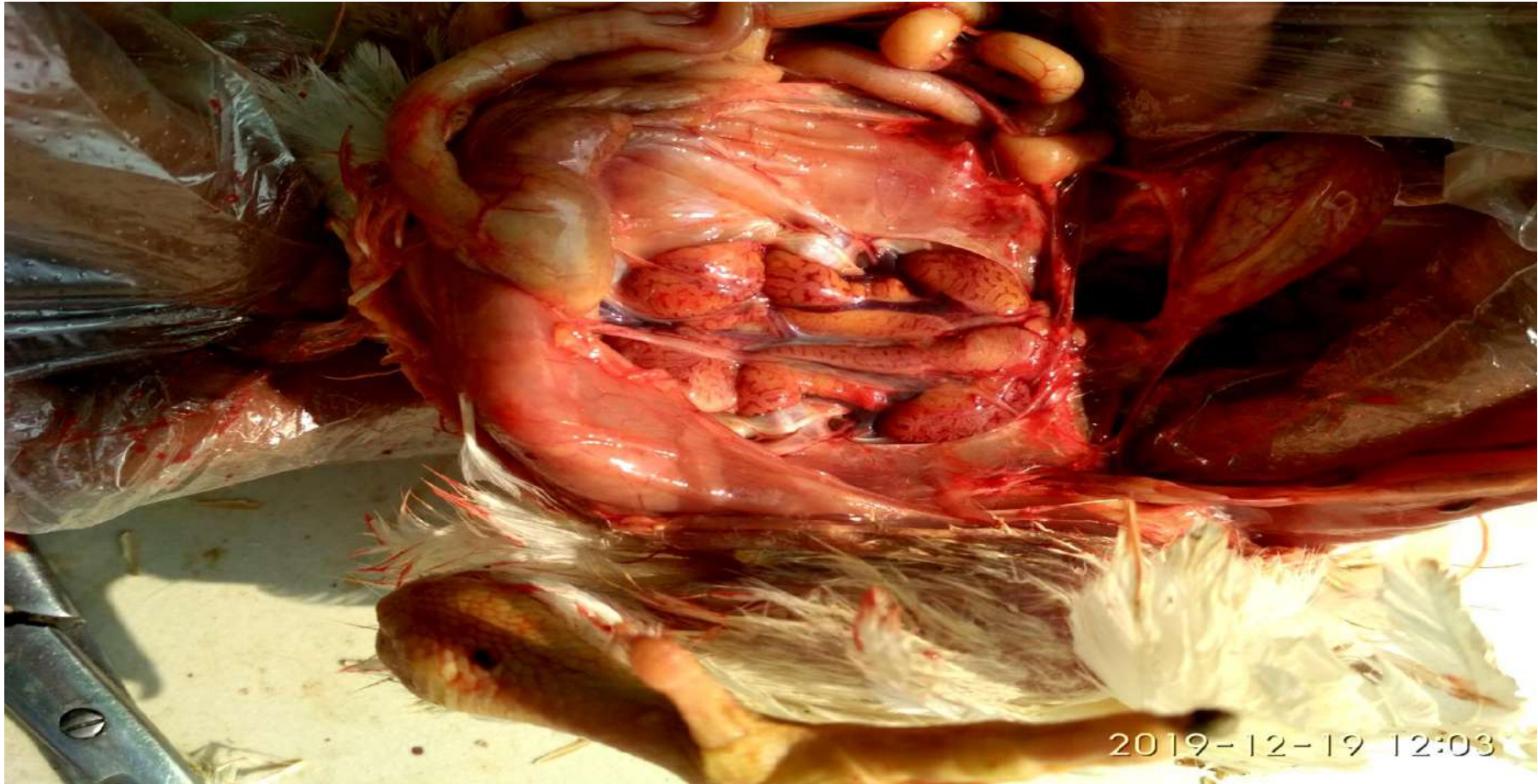


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# Mycoplasma + E coli

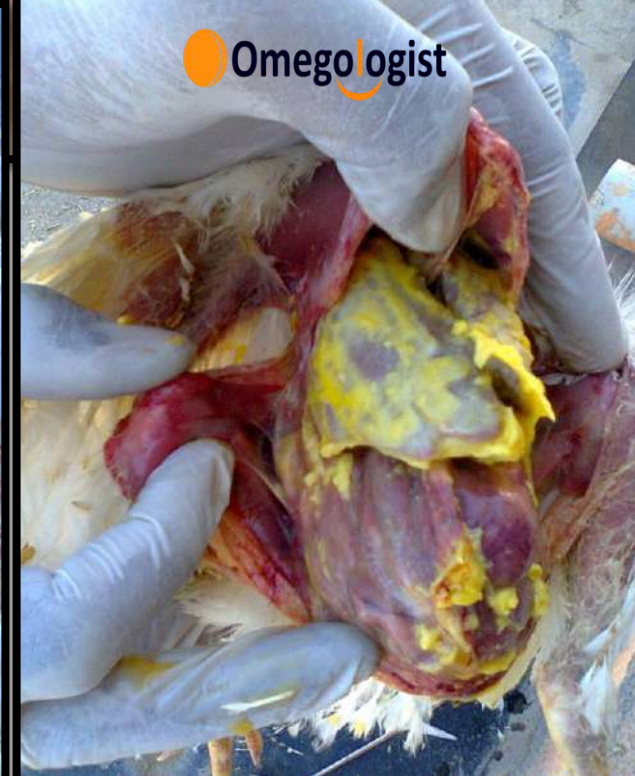
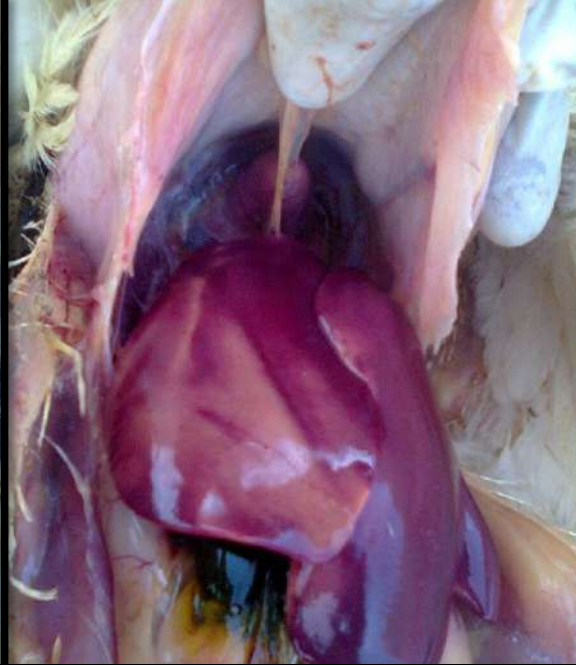


# Adenoviral infection- FLKS



# Gangrenous dermatitis





# Yolk



# Yolk





# E. coli



2019-12-16 16:26

# Coccidia



# Coccidia



# Coccidia



2018-6-28 11:22

# RD



RD



# RD



2020-7-24 10:36

# CIA





# CIA



# IBH



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# IBH



# IBH



# Adenoviral infection



# Adenoviral infection



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# IBH





# Thrush



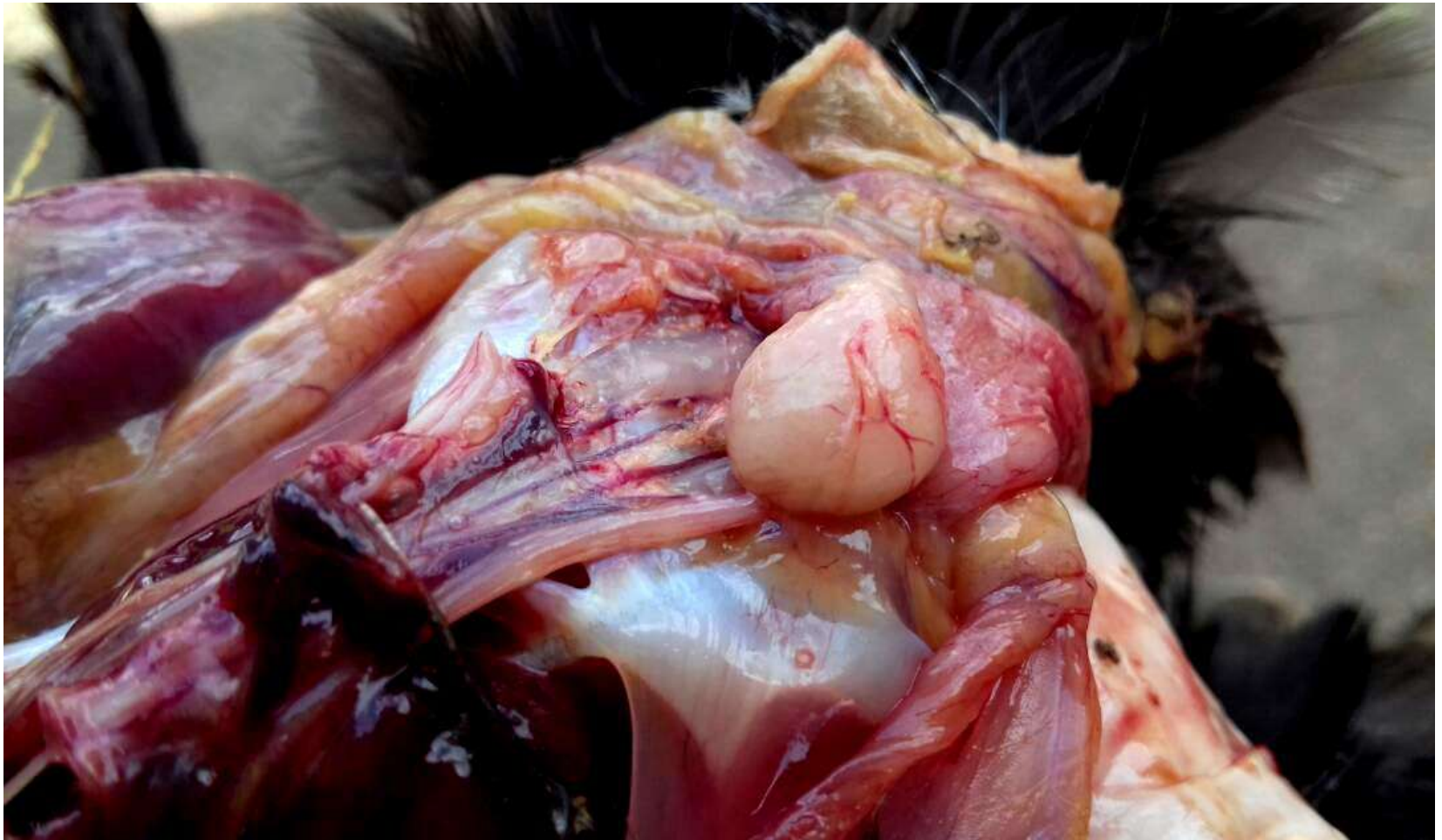
# IBD



# IBD



# IBD



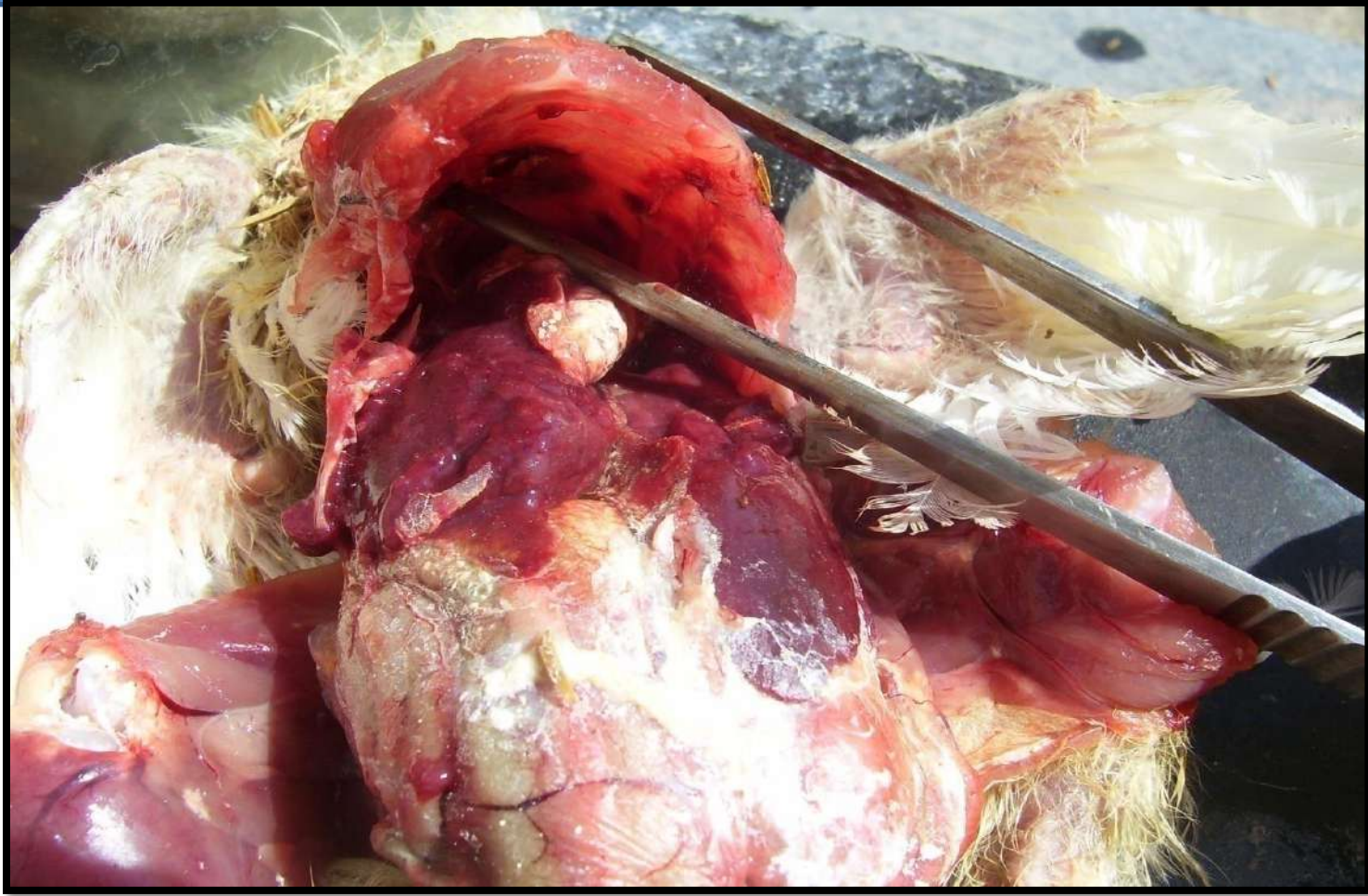
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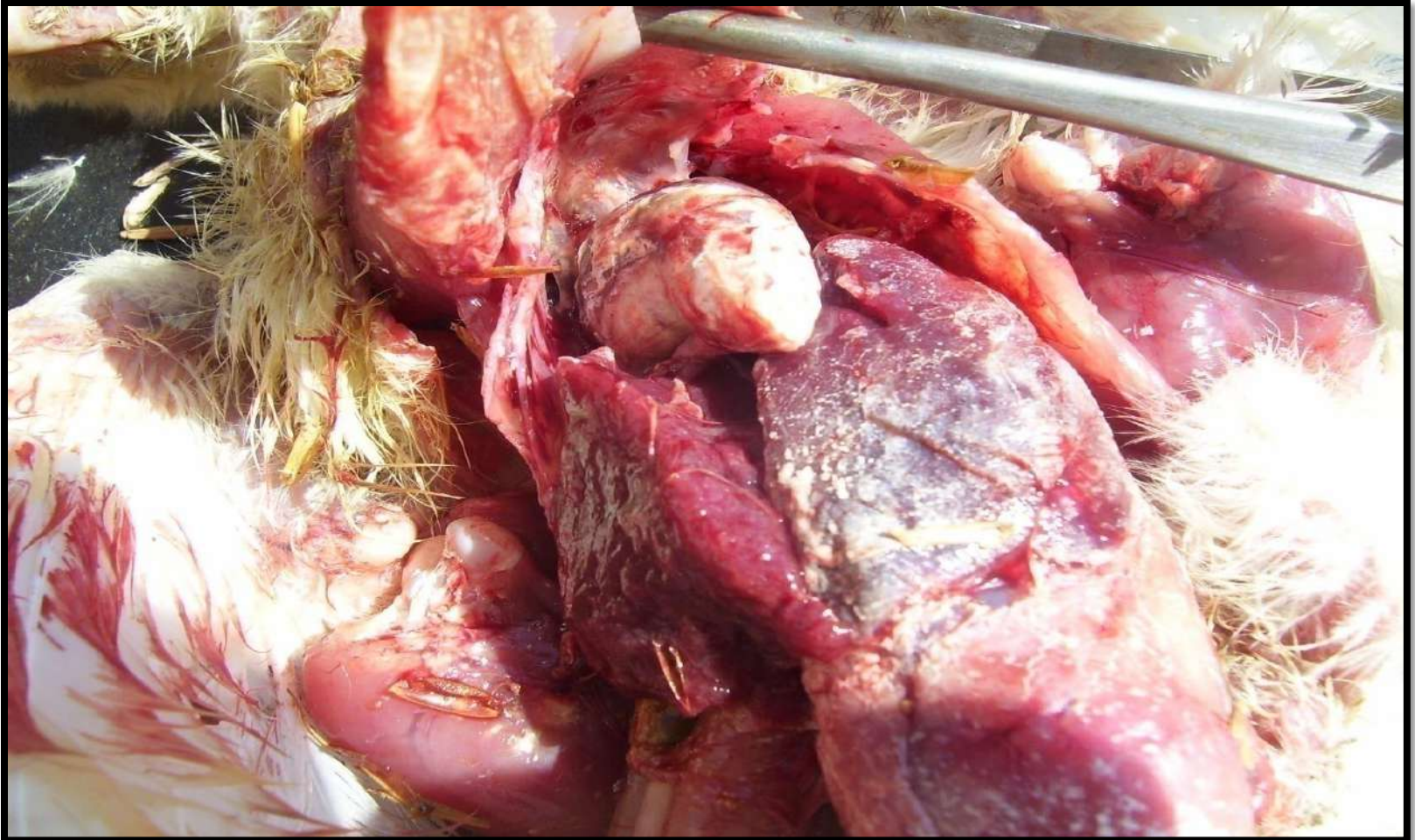
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# Gout

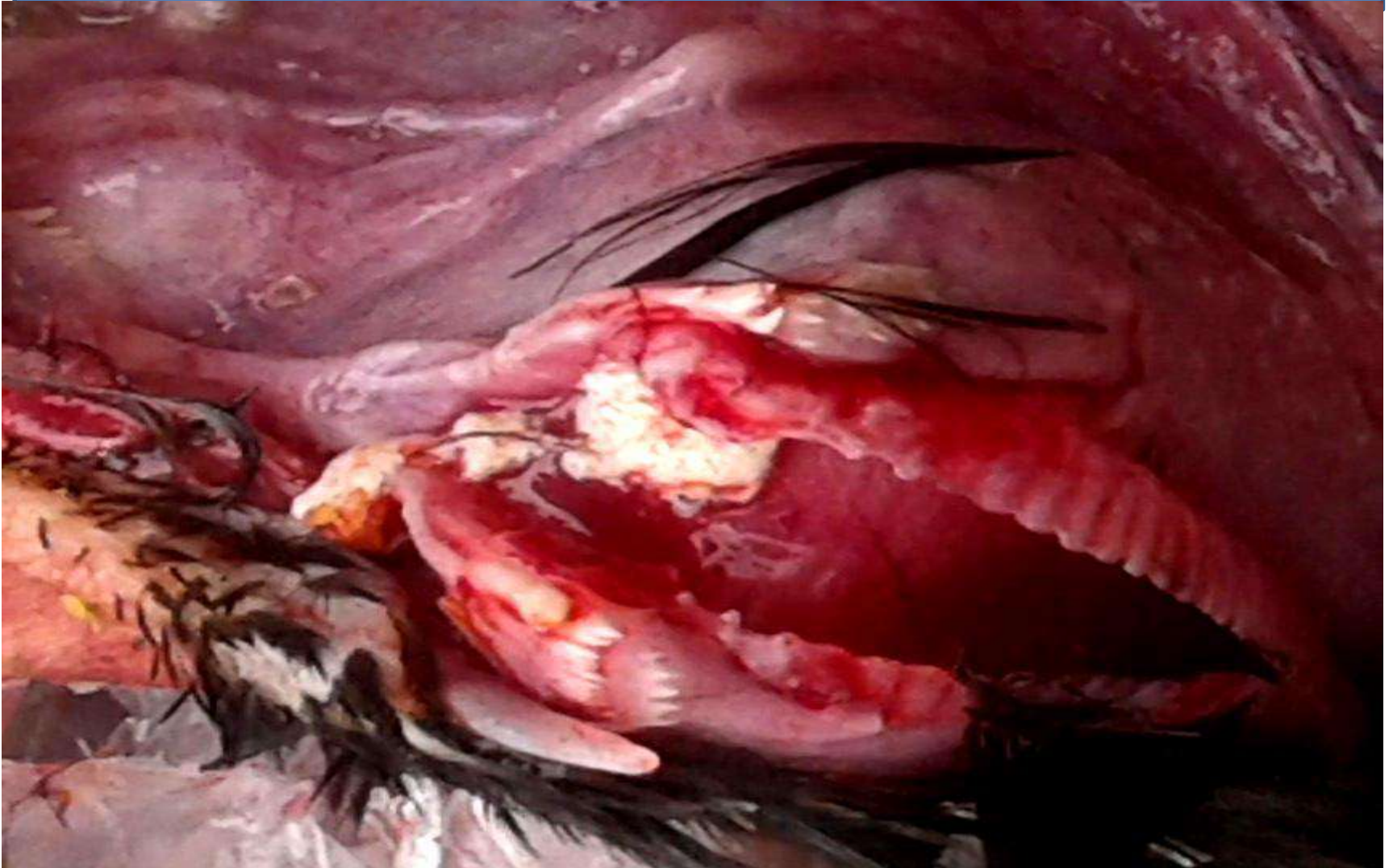


# IB- gout





# ILT



# ILT



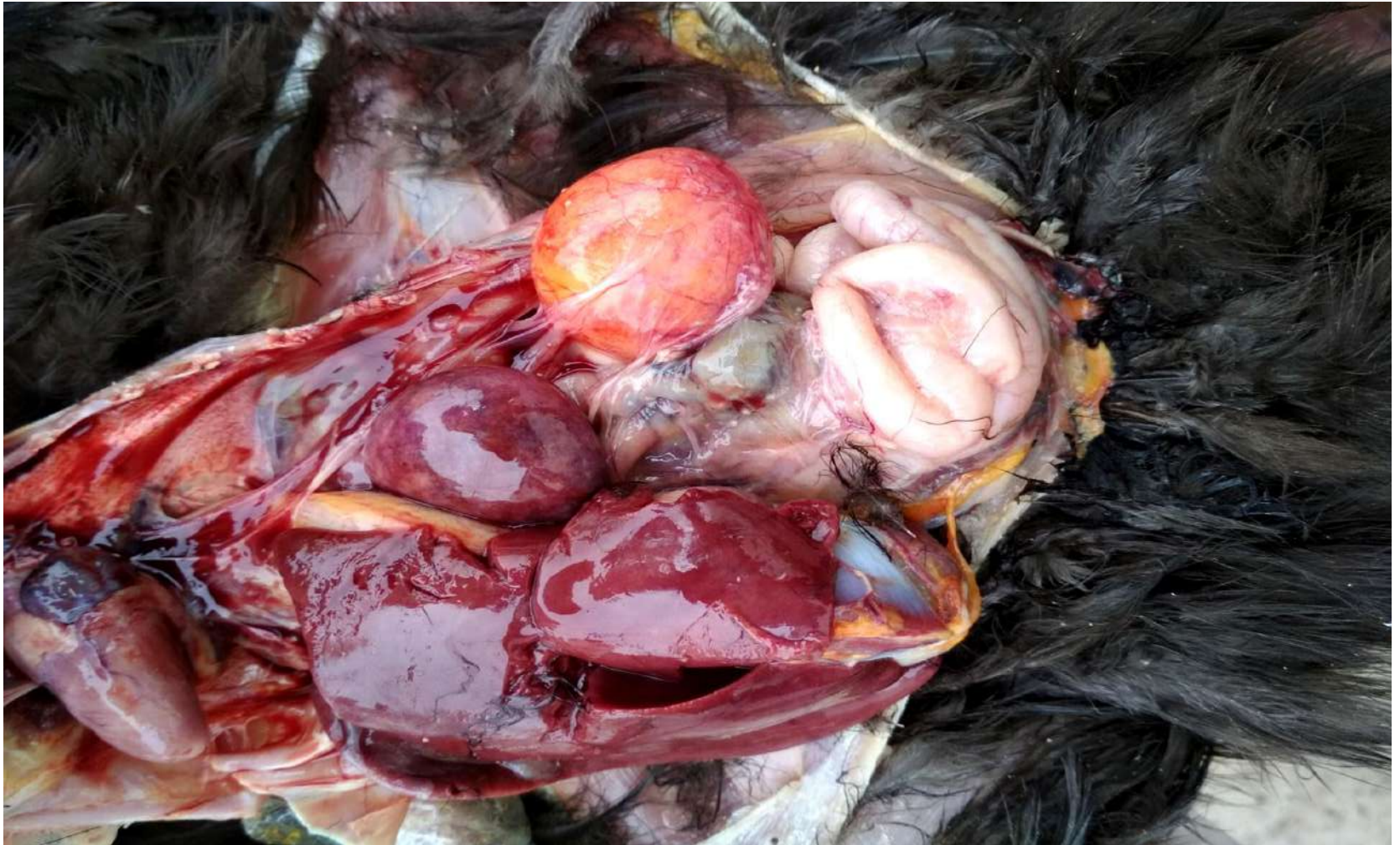
# Pox



MD



# ALC



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**Thank you**