

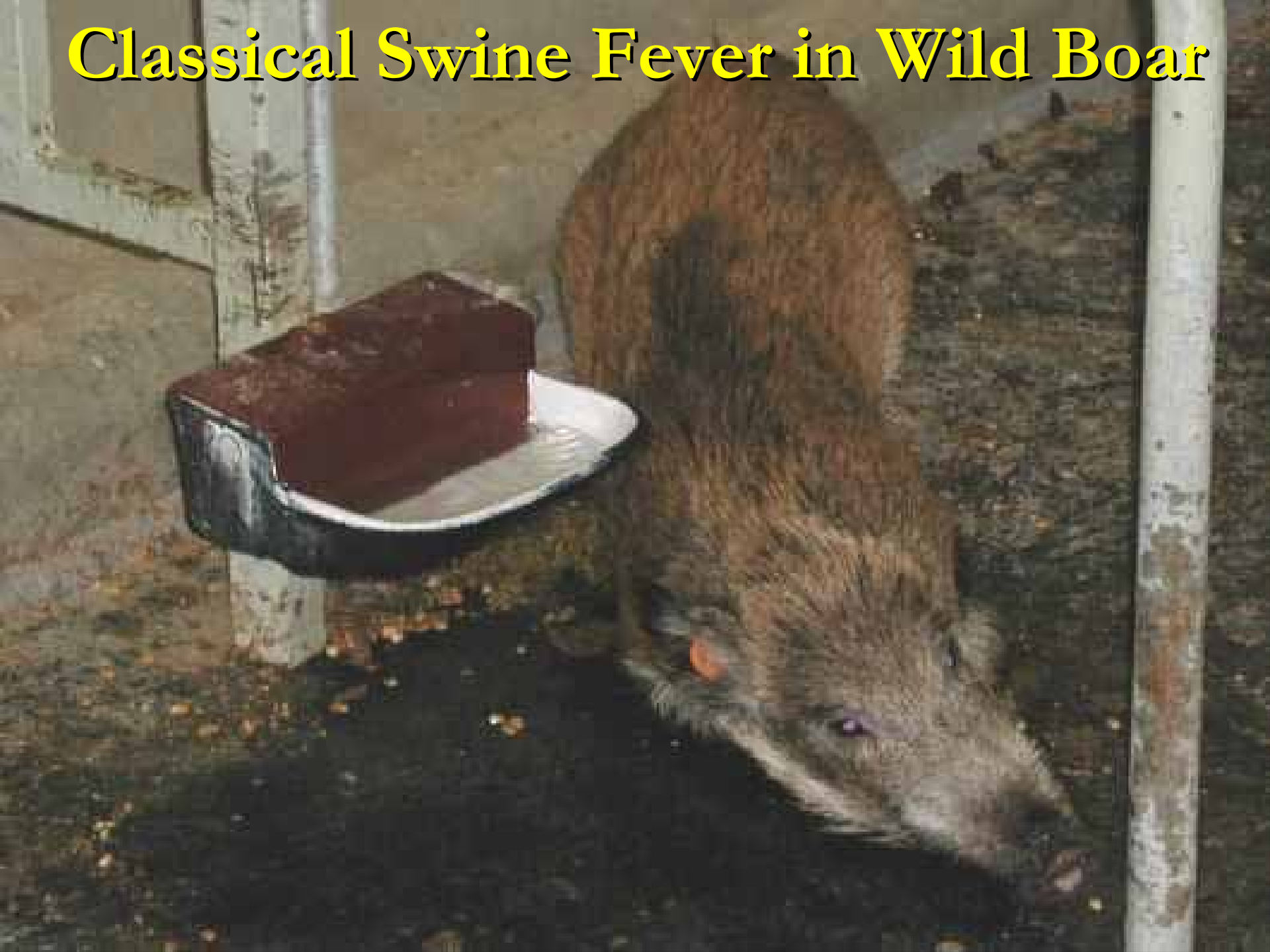




**CSF**



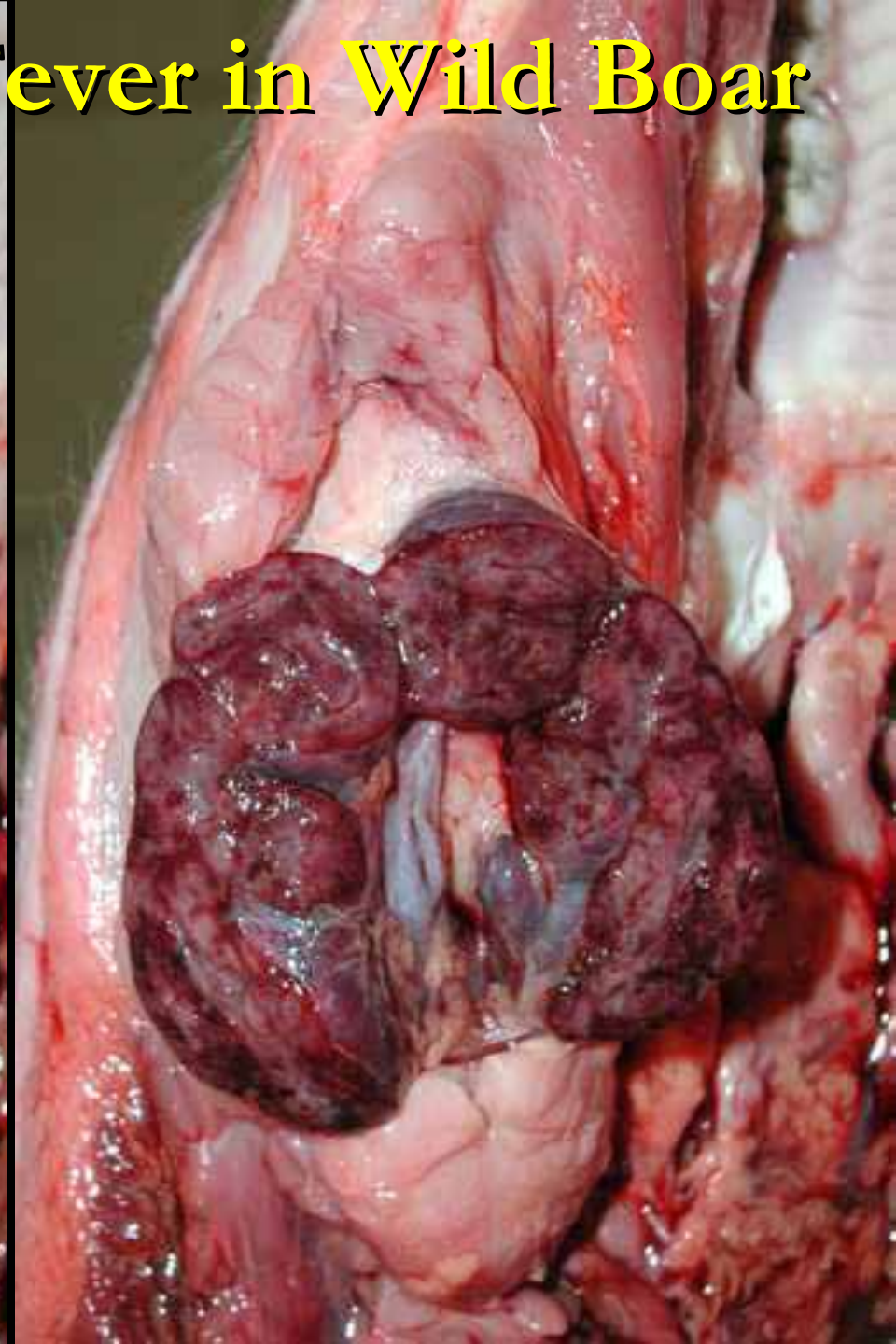
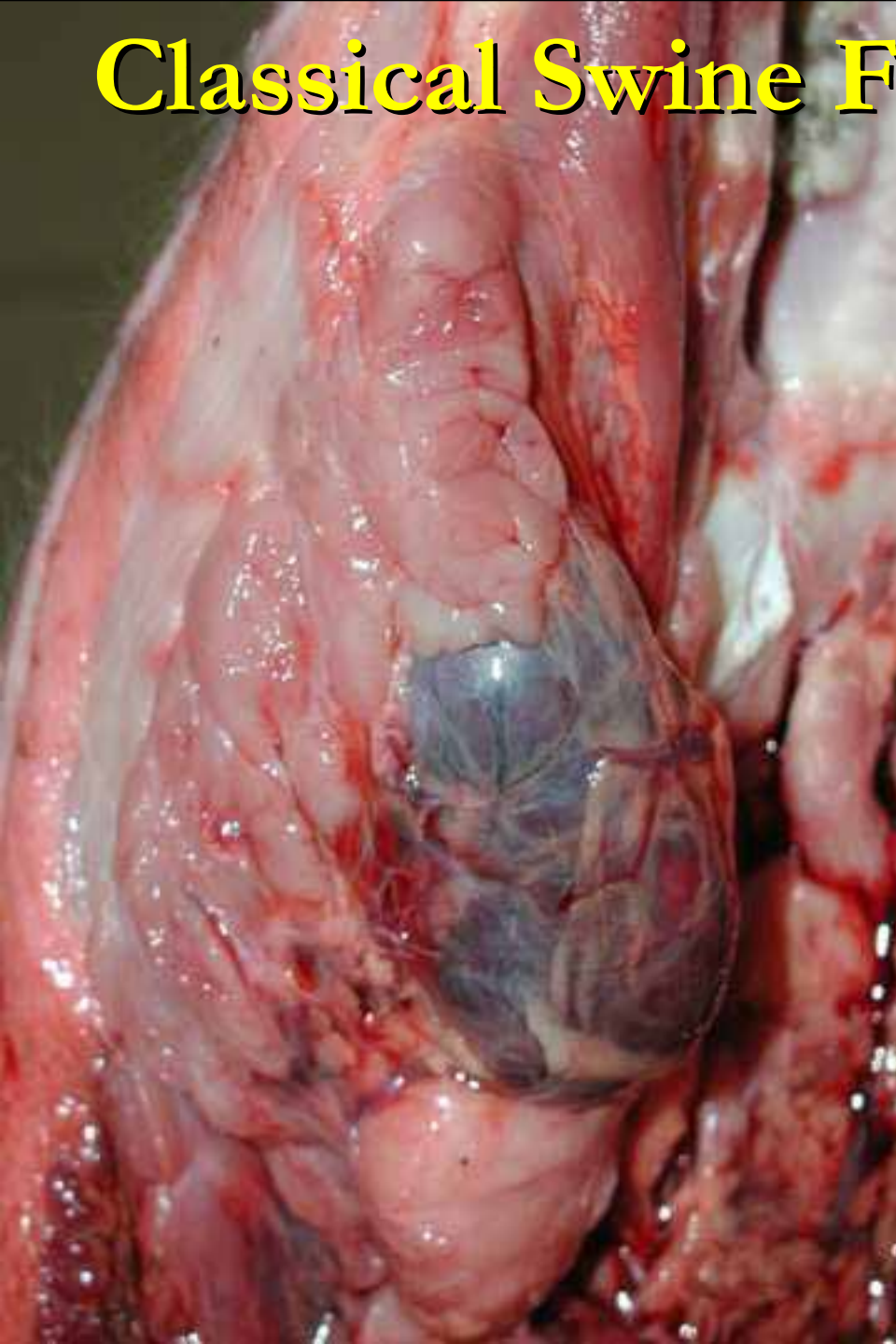
# Classical Swine Fever in Wild Boar



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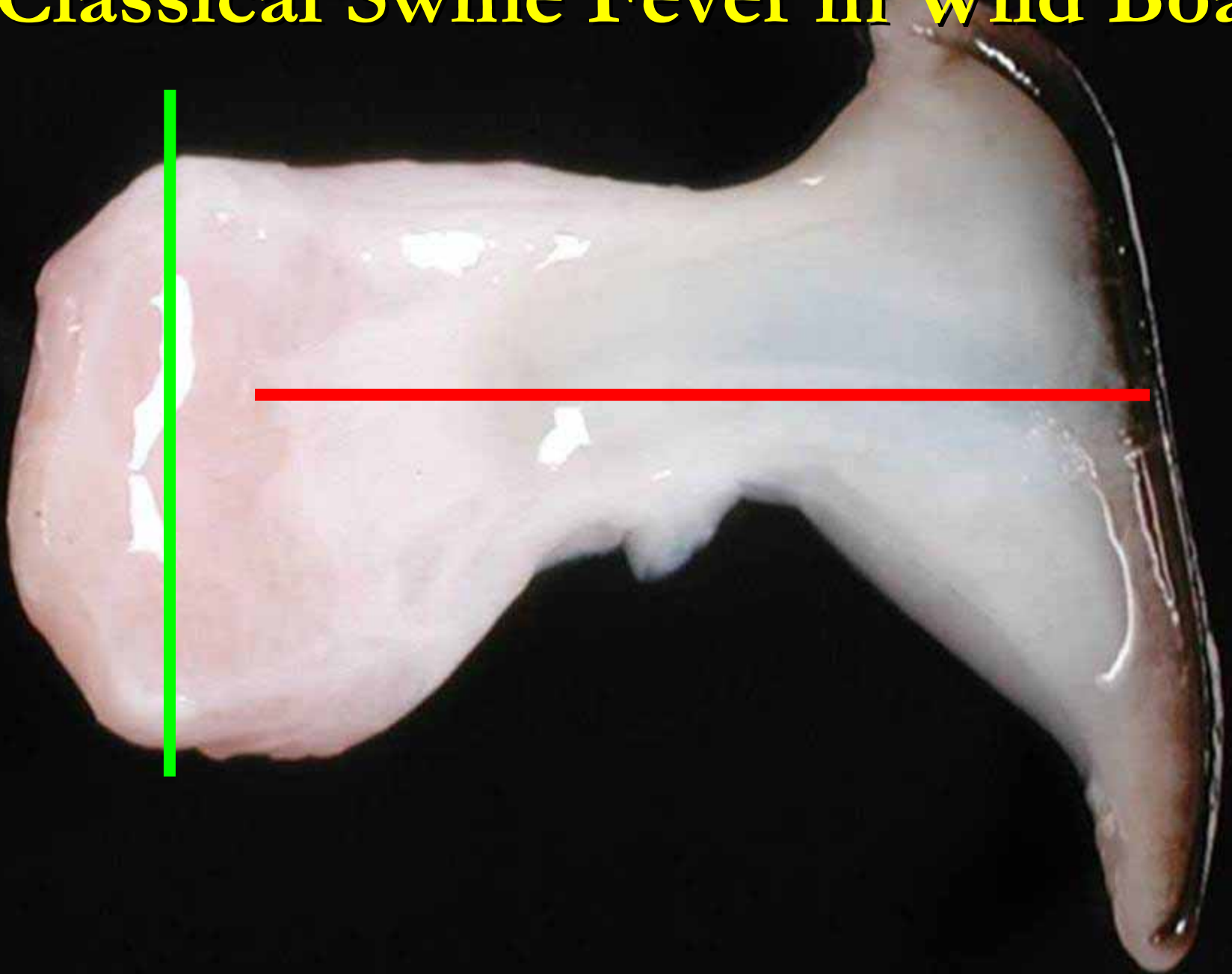
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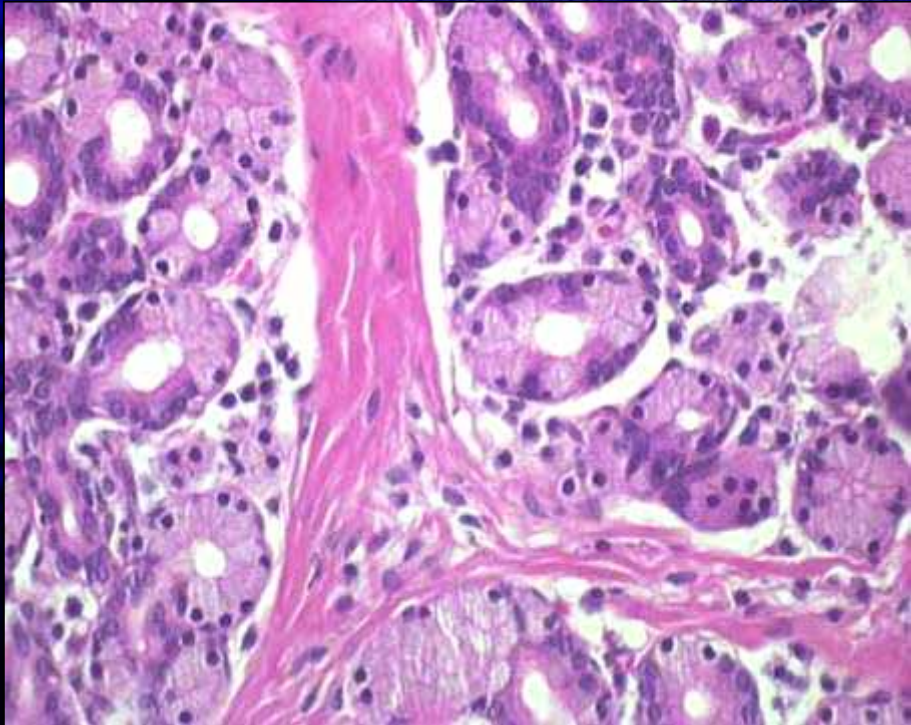
# Classical Swine Fever in Wild Boar



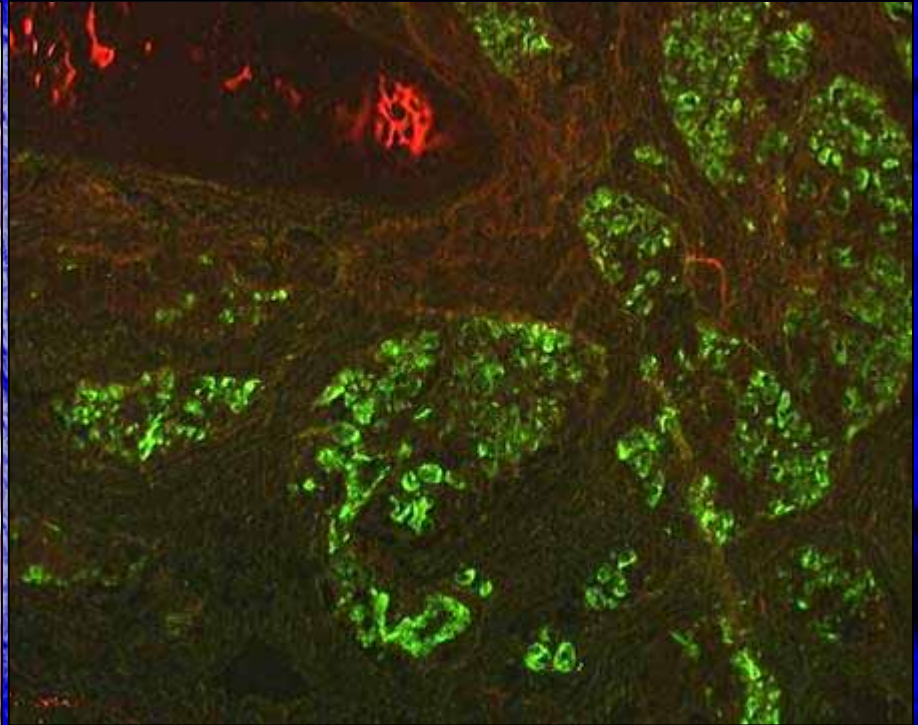
# Classical Swine Fever in Wild Boar



# Classical Swine Fever

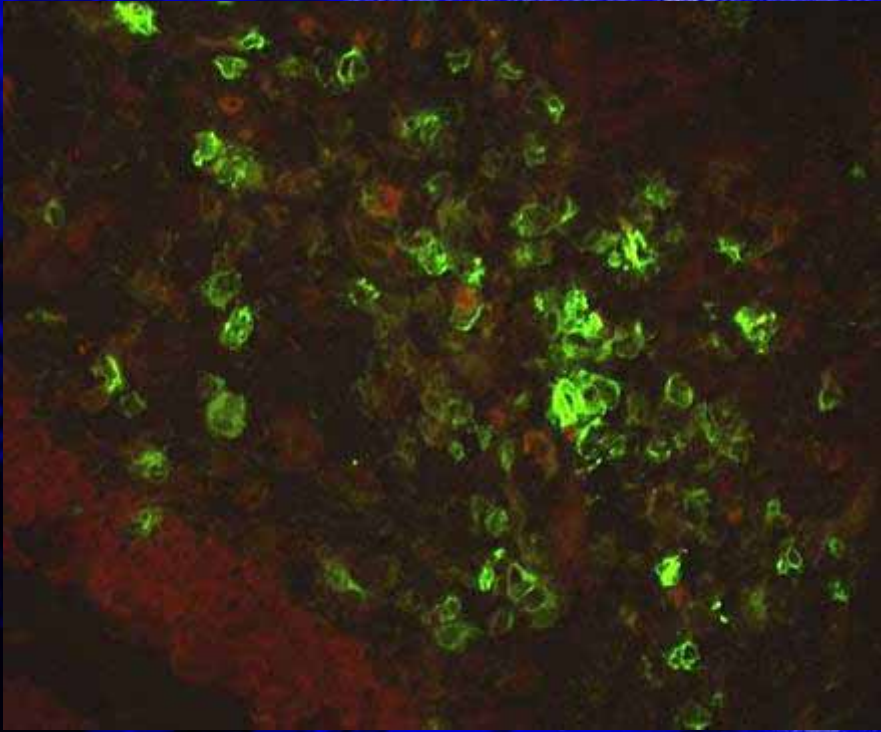


Nictitating membrane: Moderate diffuse infiltration with lymphocytes and plasma cells

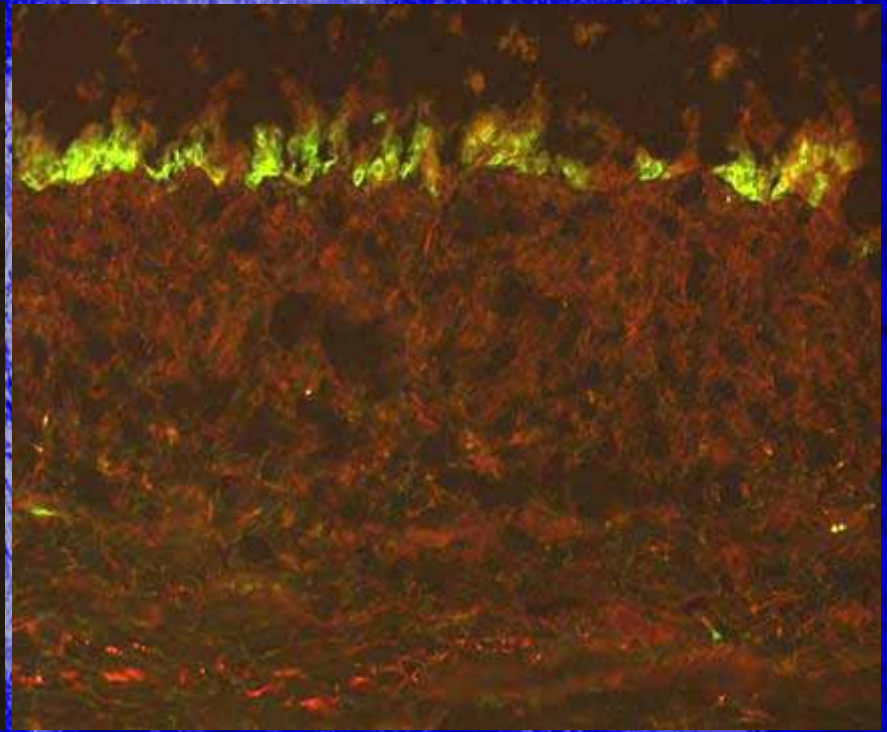


A large number of **glandular epithelial** cells with fluorescence specific for CSFV-antigen

# Classical Swine Fever in Wild Boar



Within **lymphatic follicles** of NM a large number of cells shows CSFV-specific fluorescence.



Cells of the **surface epithelium** are diffusely positive for CSFV-antigen. In addition there is yellow autofluorescence due to necrosis.

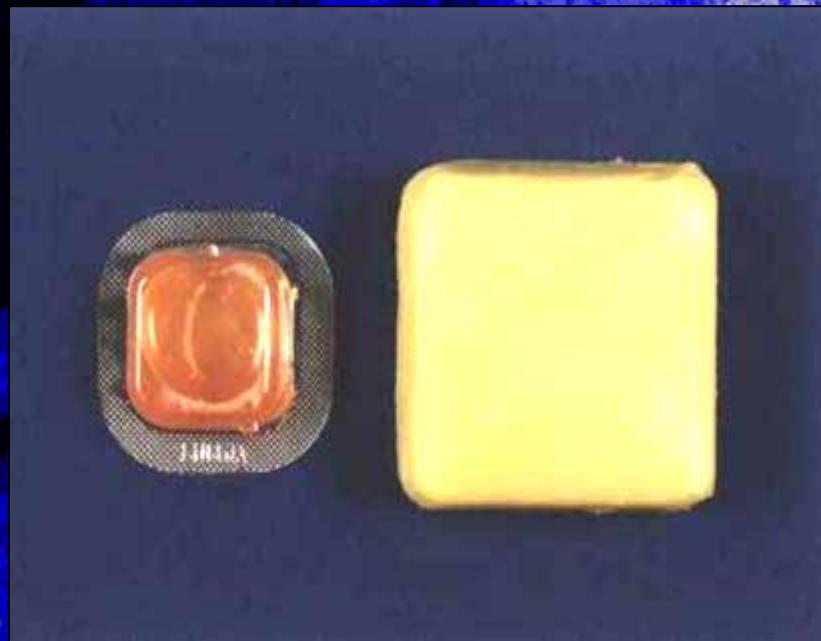
# Bait Immunization Against Classical Swine Fever in Wild Boar

## Vaccine

attenuated live  
vaccine (C-  
strain)  
1.6 ml per blister

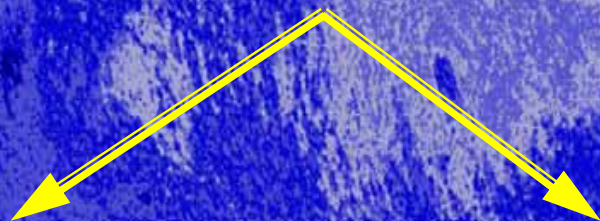
## Bait

corn, with chemical  
attractants  
size: 4 x 4 x 1.5 cm



# Bait Immunization Against Classical Swine Fever in Wild Boar

## Vaccine virus strains



### CSFV „C-strain“

- > 100 passages, attenuated life virus (RIEMSER CSF oral vaccine)
- Complete CSFV-genome

### BVDV-CSFV chimera

- BVDV-backbone deleted in E2 with insertion of CSFV E2 „Alfort 187“



# Classical Swine Fever

- **Structure of pig farming: traditional backyard holdings and outdoor holdings**
- **Illegal swill feeding, poor hygienic conditions**
- **Home slaughtering of pigs, illegal marketing of products**
- **Uncontrolled animal markets and animal movements with intense contact between animals of different sources**
- **Long high risk periods and silent spread of virus**
- **Low level of disease awareness**





**BONUS BUY**

FRESH PORK  
COUNTRY  
STYLE  
SAUSAGE

**\$2.99** LB

Valid thru 2/15/2008

RECALL IN  
MEXICO SAUJICO'S

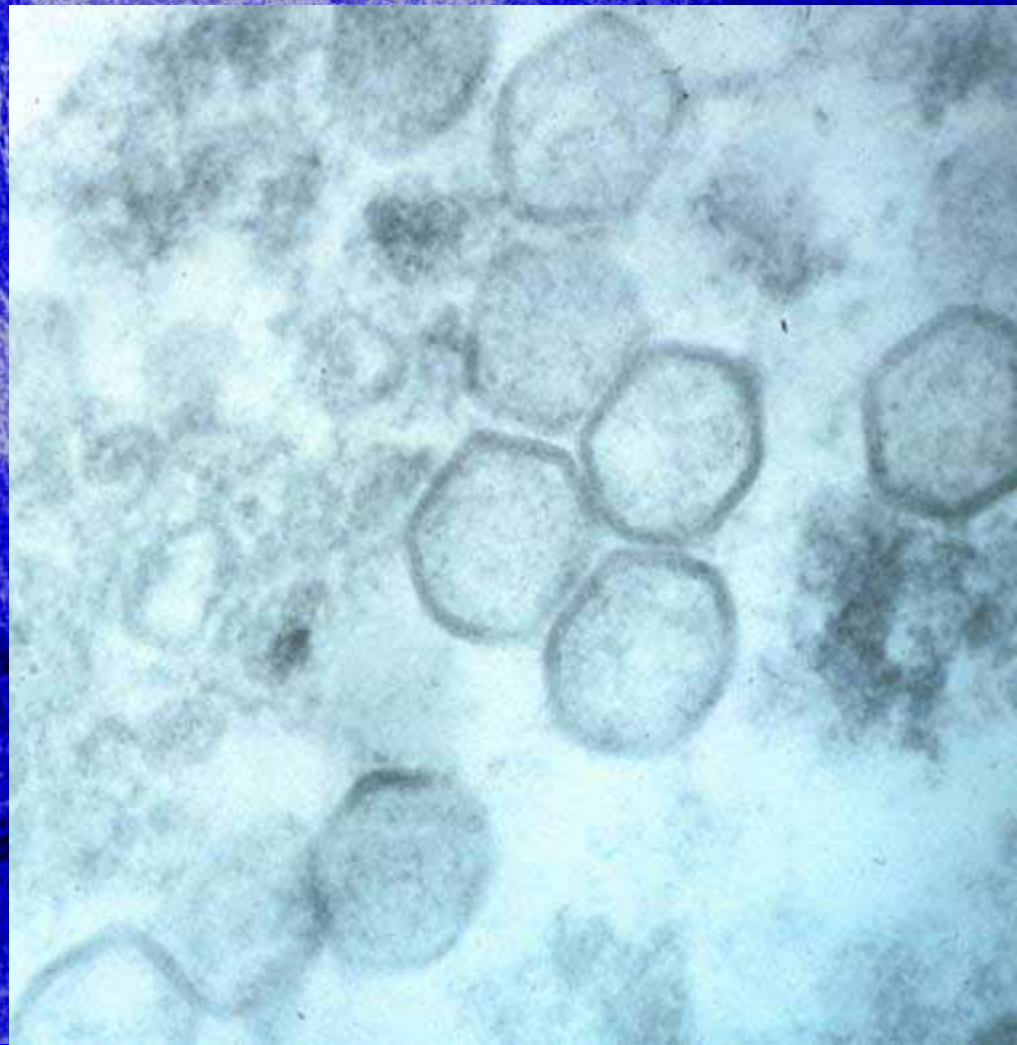
**.50** LB

**COMPARISON OF SYMPTOMS AND LESIONS CAUSED BY  
SALMONELLA CHOLERAESUIS (SC) AND CLASSICAL SWINE FEVER (CSF)**

<b>Symptom or Lesion</b>	<b>Sc</b>	<b>CSF</b>
<b>Fever, lethargy, anorexia, reddening or purpling of skin of ventral abdomen and extremities</b>	<b>+</b>	<b>+</b>
<b>Watery yellow diarrhea, occasional tremors or convulsions</b>	<b>+</b>	<b>+</b>
<b>Conjunctivitis</b>	<b>–</b>	<b>+</b>
<b>Birth of litters composed of mummified, stillborn, malformed, weak or trembling pigs. Malformations of the head and limbs or cerebellar or pulmonary hypoplasia are common.</b>	<b>–</b>	<b>+</b>
<b>Consistent labored breathing or coughing</b>	<b>+</b>	<b>–</b>
<b>Renal cortical hemorrhages, “marbled” lymph nodes, splenic enlargement and button ulcers in colon</b>	<b>+</b>	<b>+</b>
<b>Severe interstitial pneumonia with hemorrhagic interlobular edema</b>	<b>+</b>	<b>–</b>
<b>Severe fibrinonecrotic enterocolitis and ischemic necrosis of skin on ears</b>	<b>+</b>	<b>–</b>
<b>Splenic infarcts, tonsillar necrosis, mucosal hemorrhages in the urinary bladder</b>	<b>–</b>	<b>+</b>
<b>Characteristic vascular lesions characterized by markedly swollen endothelium, mural edema, fibrinoid necrosis and perivascular hemorrhage and lymphocytic cuffing</b>	<b>–</b>	<b>+</b>
<b>Vascular lesions characterized by endothelial swelling, intimal edema, perivascular accumulations of neutrophils and macrophages</b>	<b>+</b>	<b>–</b>
<b>Multifocal hepatic necrosis</b>	<b>+</b>	<b>–</b>

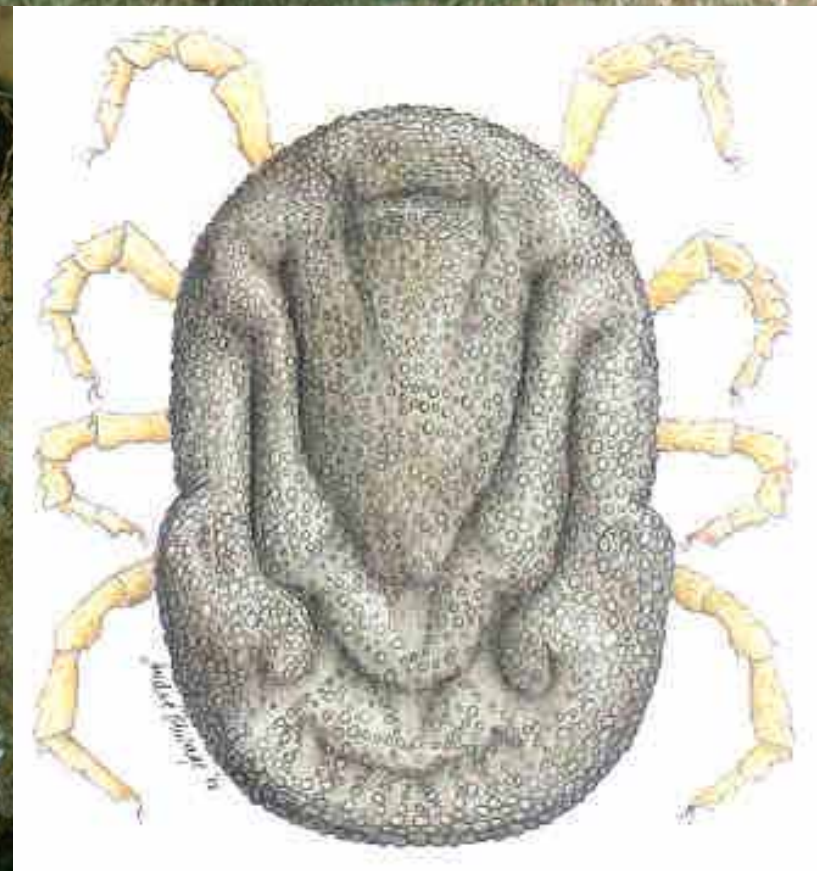
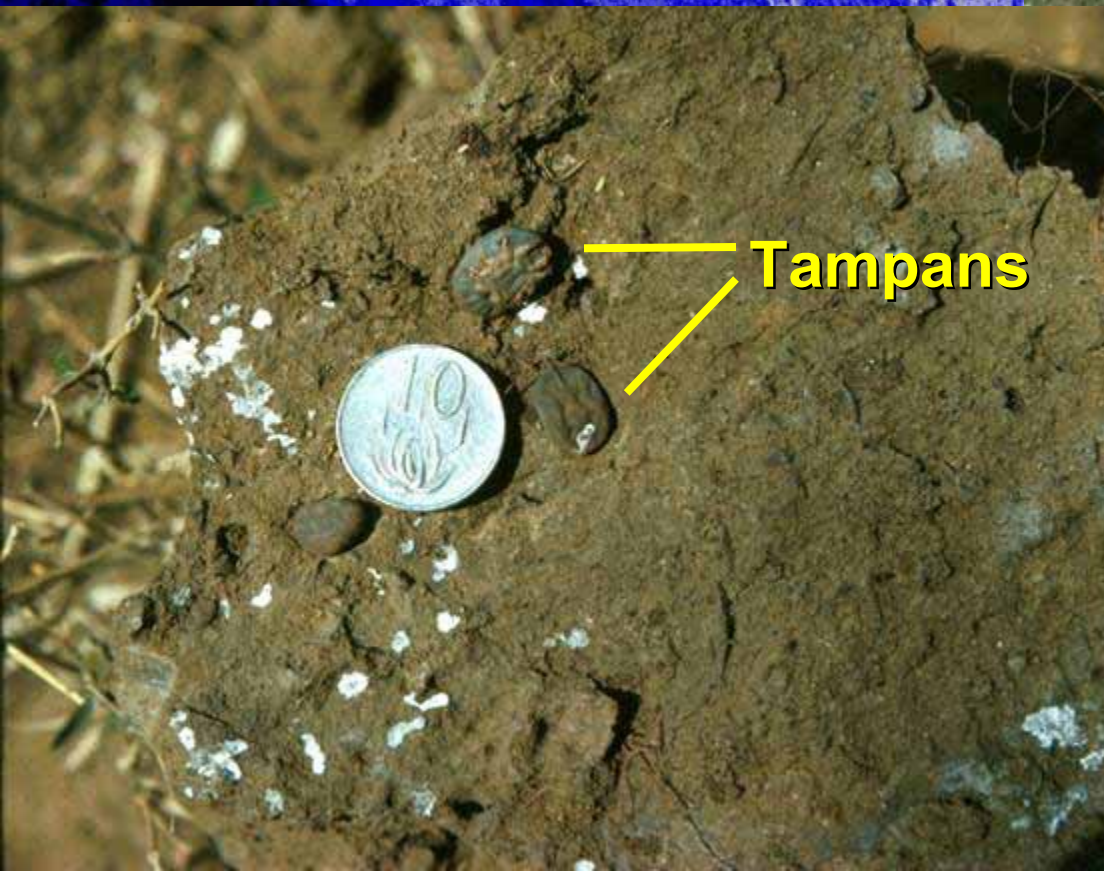
# African Swine Fever

- Icosahedral, enveloped, double-stranded DNA
- Only DNA arbovirus
- 200 nm
- No known serotypes
- Occurs in sub-Saharan Africa, South-West Europe, Caribbean, Brazil
- Eradicated outside of Africa, except Sardinia
- Outbreak in Georgia/Russia in 2008



# Host / Reservoir

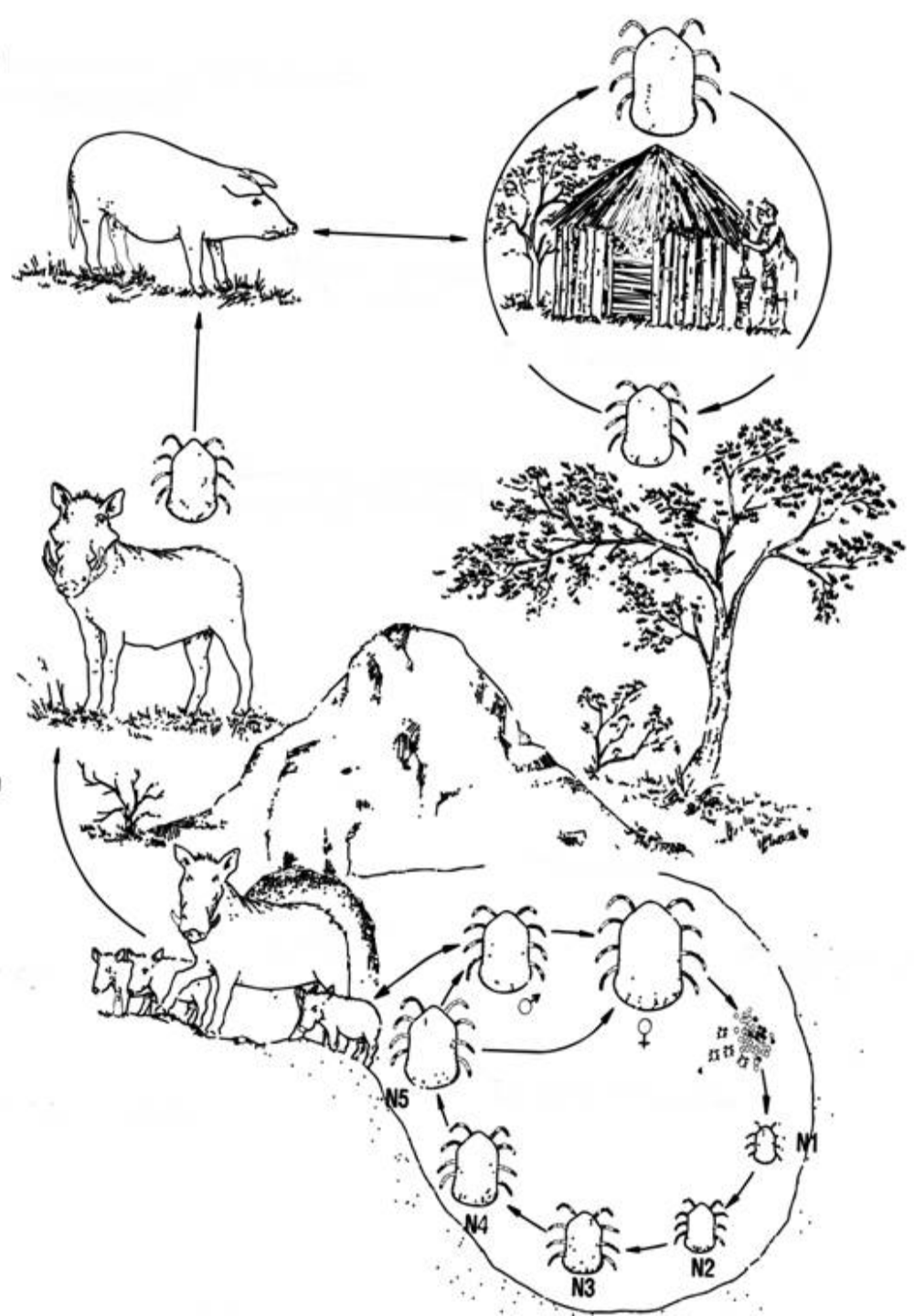
- Affects pigs
- Domestic pigs and warthogs
- **Reservoir: ticks**  
(*Ornithodoros moubata*)





# Transmission

- Life cycle involving ticks and warthogs
- Infection of neonatal warthogs
- **Only mild disease**
- Persistent low level viremia (lymph nodes)
- **Ticks transported by warthogs**
- Transmitted between domestic pigs in secretions and meat
- Iatrogenic spread



# Transmission



Pig 'khola'



# Socio-Economics

- Explosive spread and high mortality can devastate swine industry

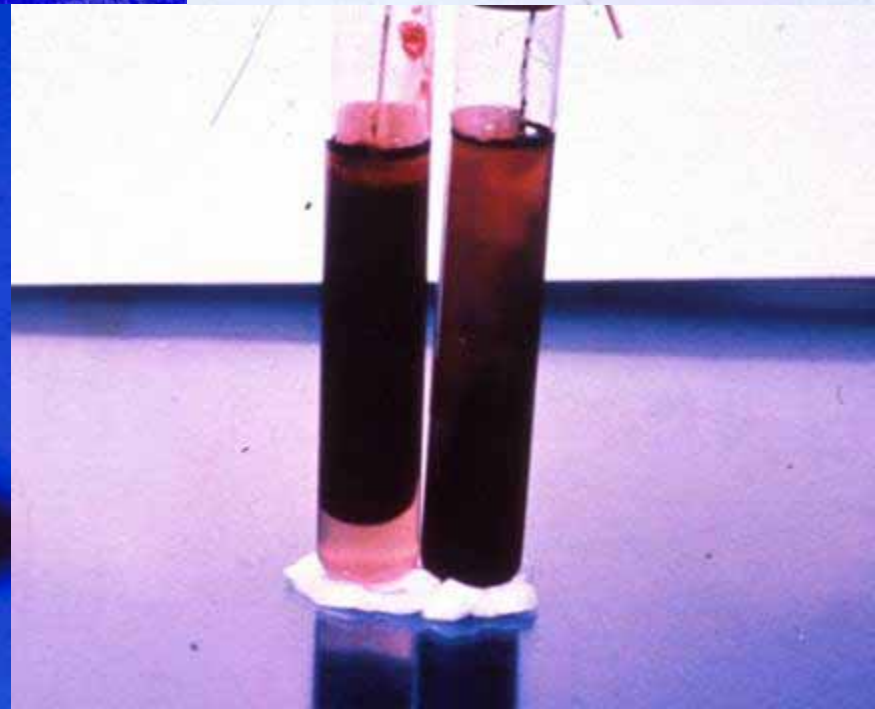
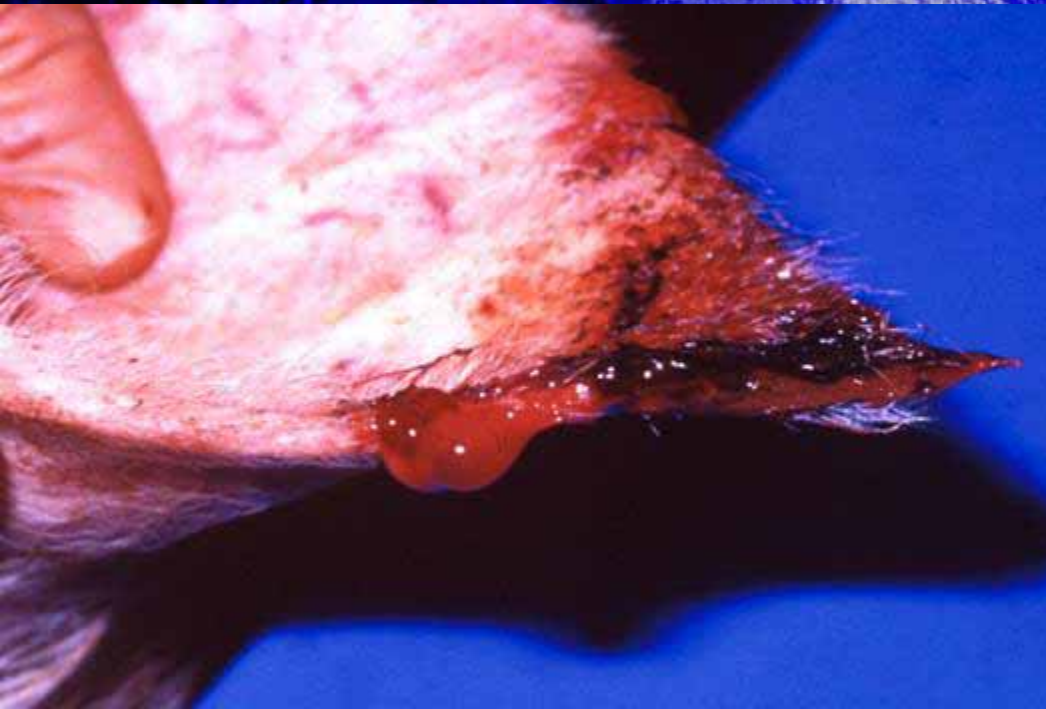


- Stamping-out of disease



# Pathogenesis

- Oro-nasal infection → regional lymph nodes → viremia
- Phagocytic cells of lympho-reticular system: necrosis
- Thrombocytopenia



# African Swine Fever

- **Forms:** acute, subacute, chronic
- **Acute form:** Incubation period: 5-15 days, rectal temperature - 42 °C, high mortality, fever, listlessness, incoordination, anorexia, convulsions, paresis, cutaneous cyanosis, vomiting, bloody stool, abortion, death within a few days. Consistent lesions include hemorrhage and necrosis of lymphoid organs, hemorrhages on serosal surfaces, renal cortical, medullary and pelvic hemorrhage, hydropericardium and hydrothorax.
- **Subacute form:** Duration: 3-4 weeks, lower mortality, intermittent fever, anorexia, wasting, emaciation, hemorrhagic lymph nodes, spleen and kidneys
- **Chronic form:** Lymphoid hyperplasia, fibrous pleuritis and pneumonia causing coughing, cardiac insufficiency due to pericarditis and hydropericardium, lameness due to swollen joints



**ASF**



**ASF**



**ASF**

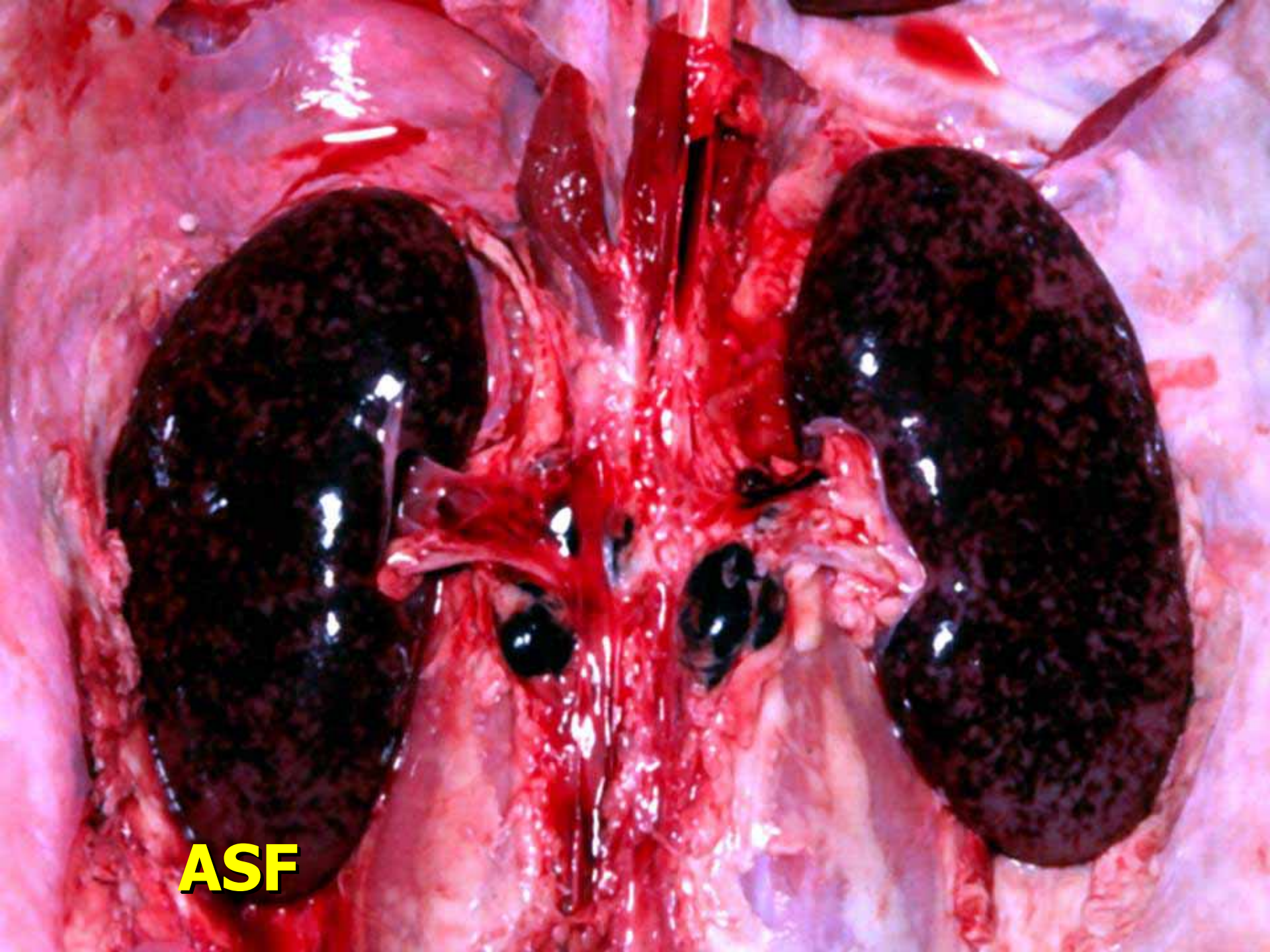


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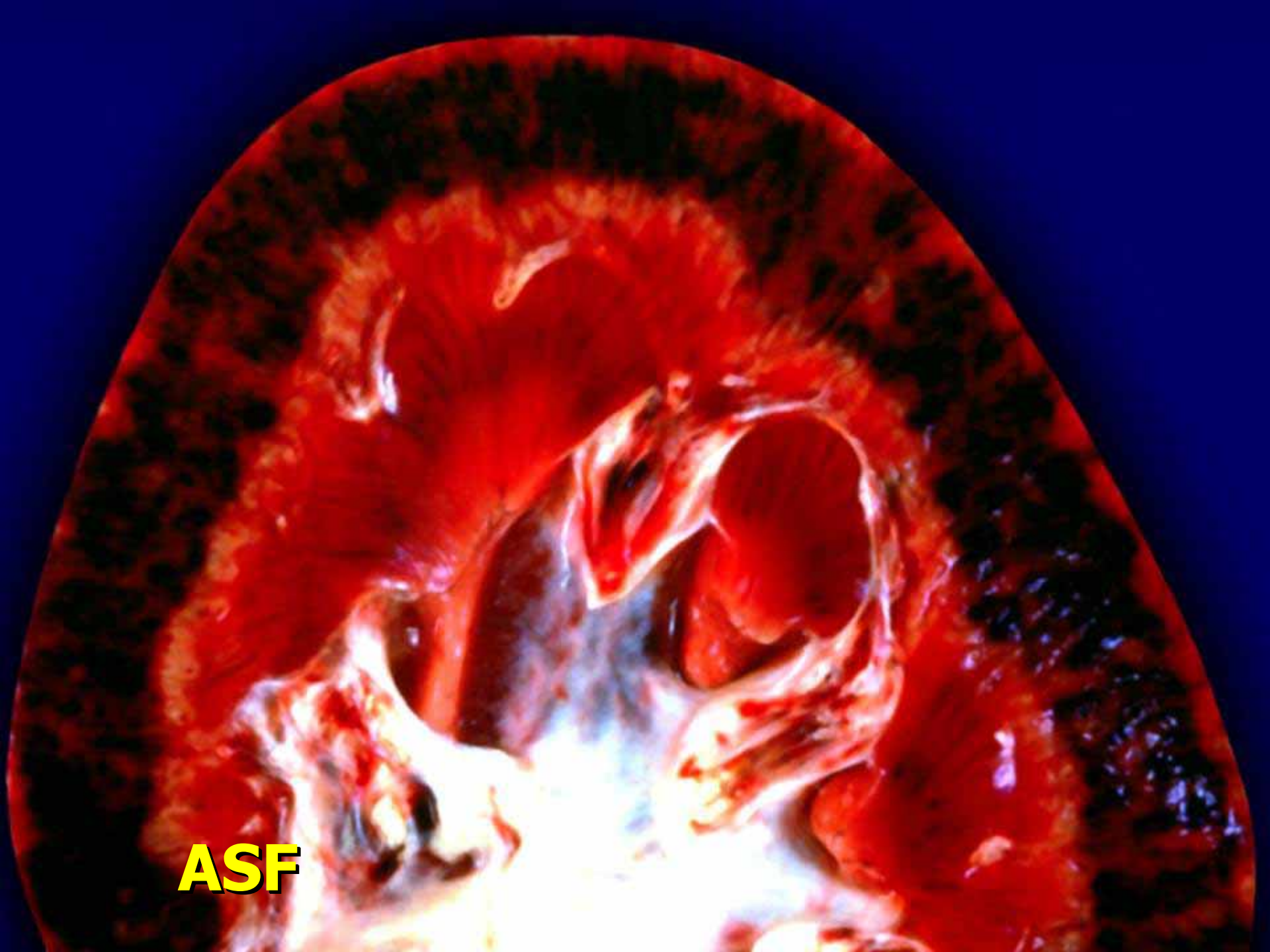


**ASF**





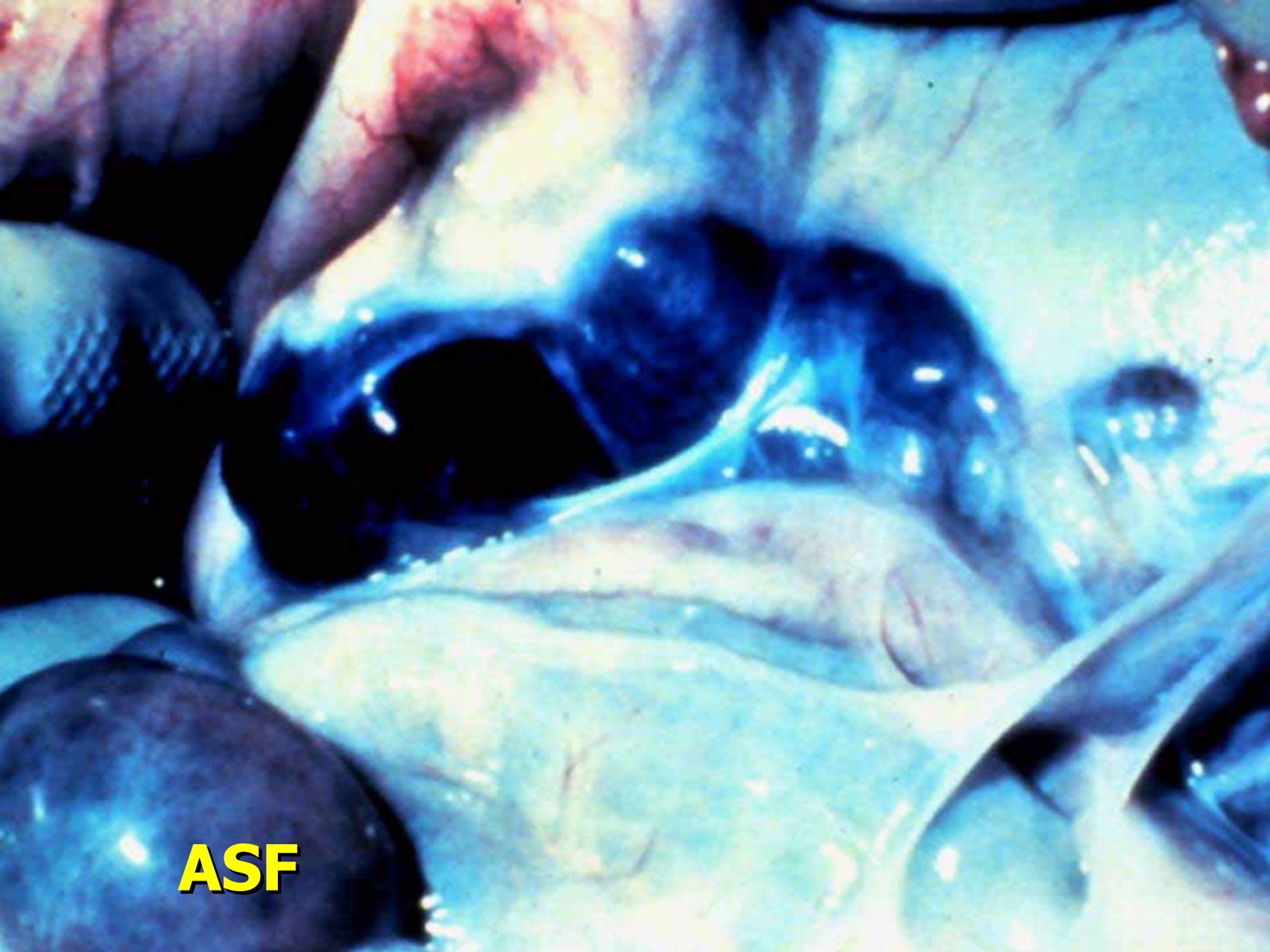
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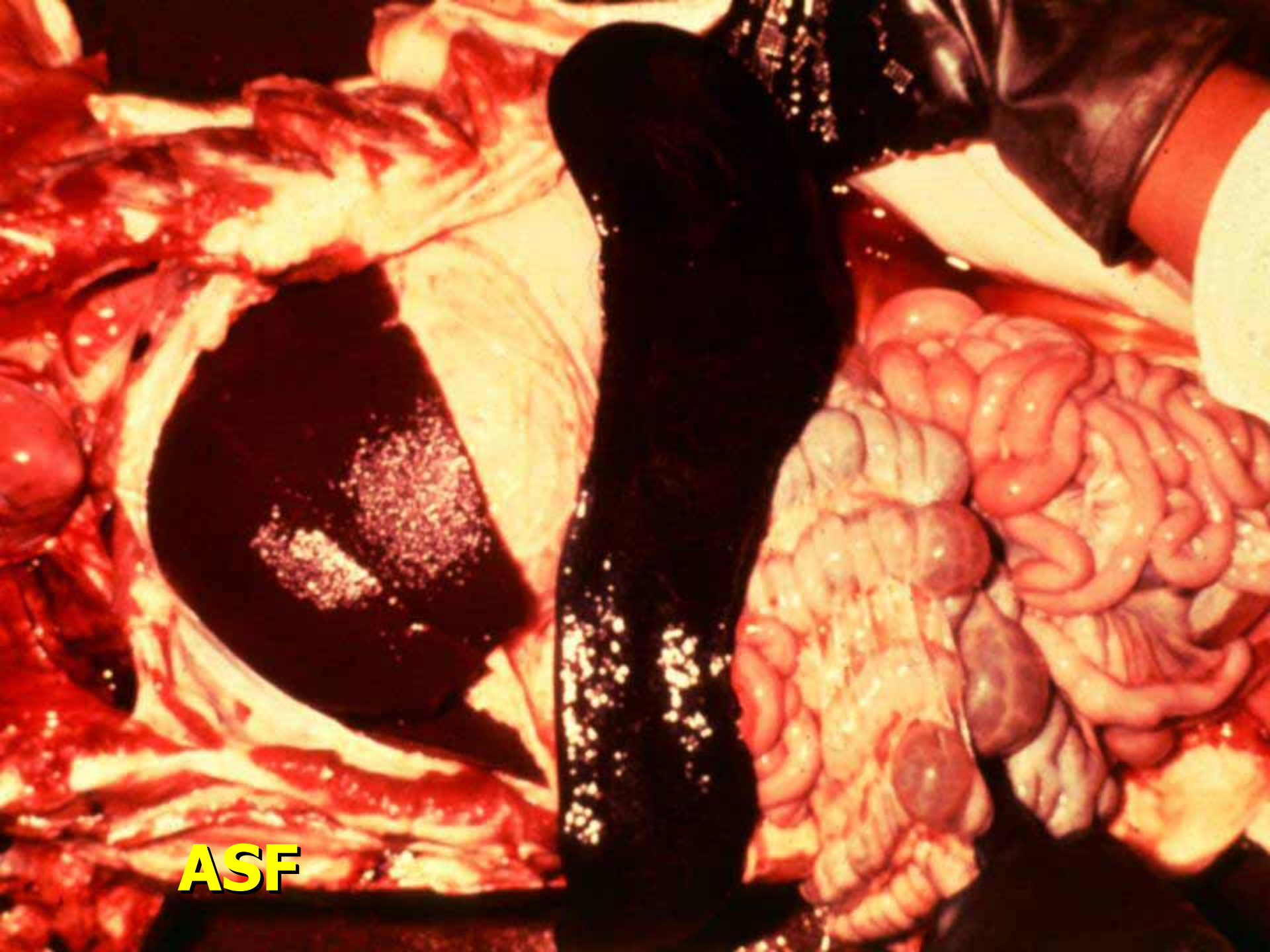
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**ASF**



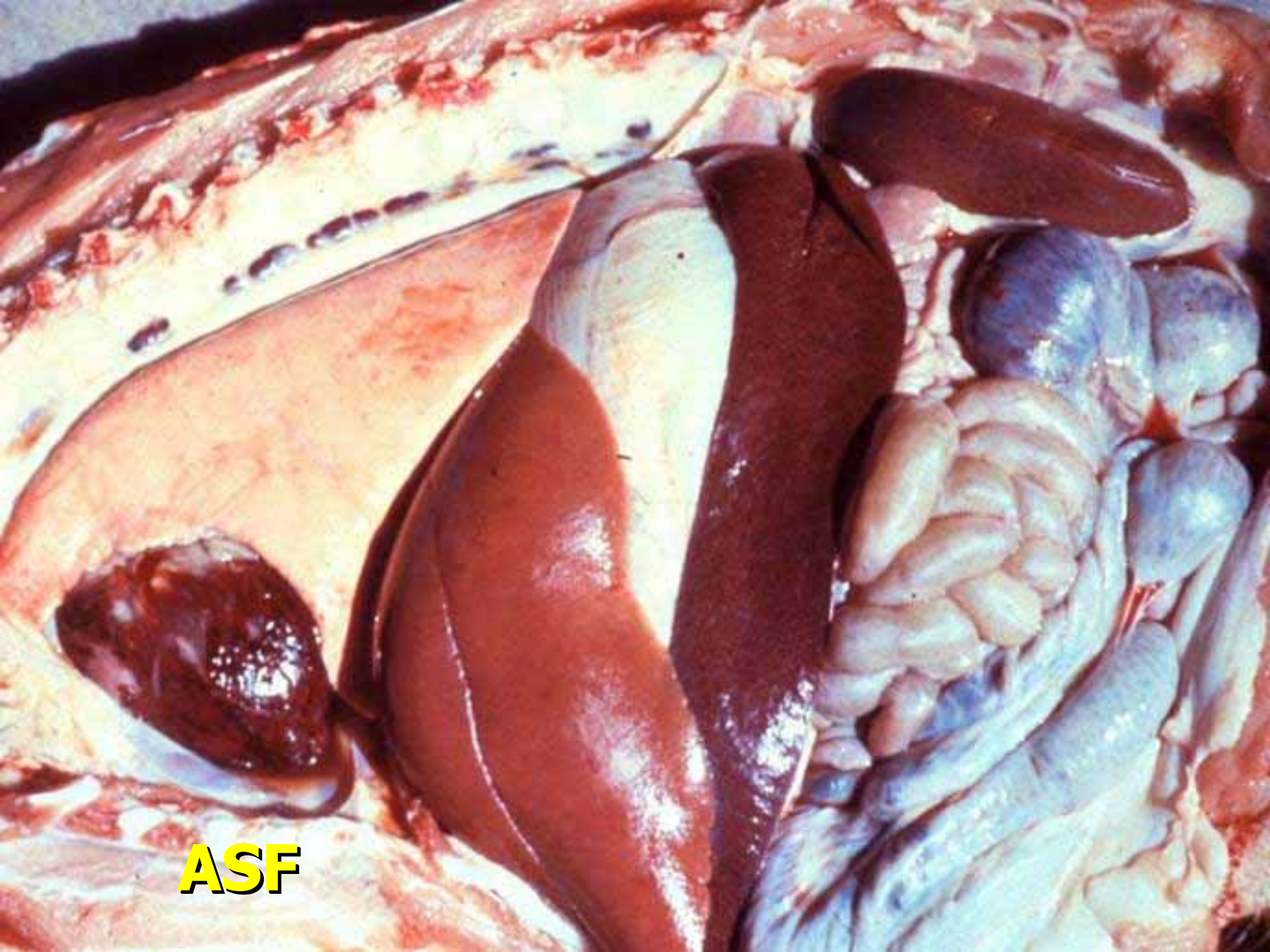
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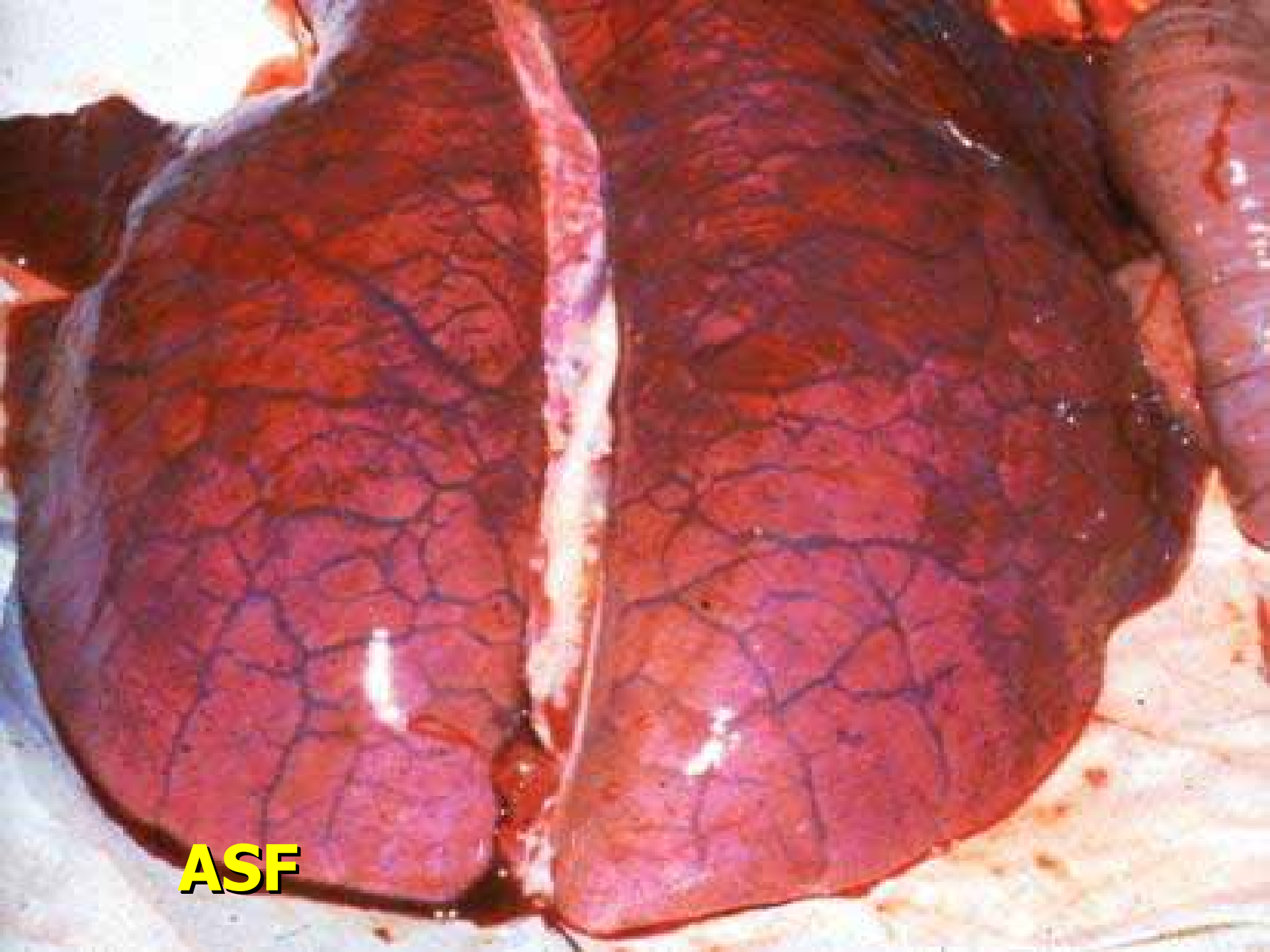
**ASF**



**ASF**

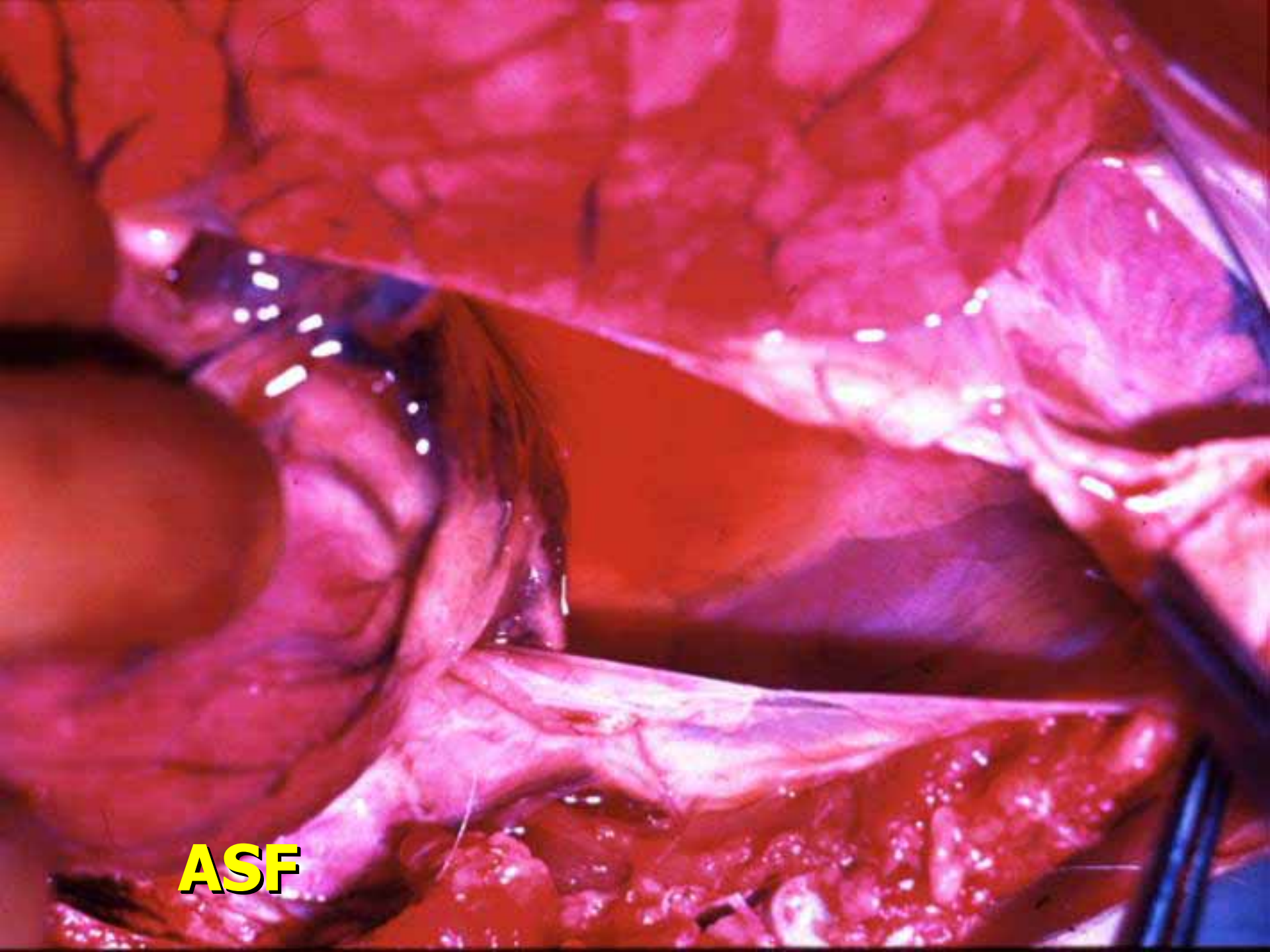


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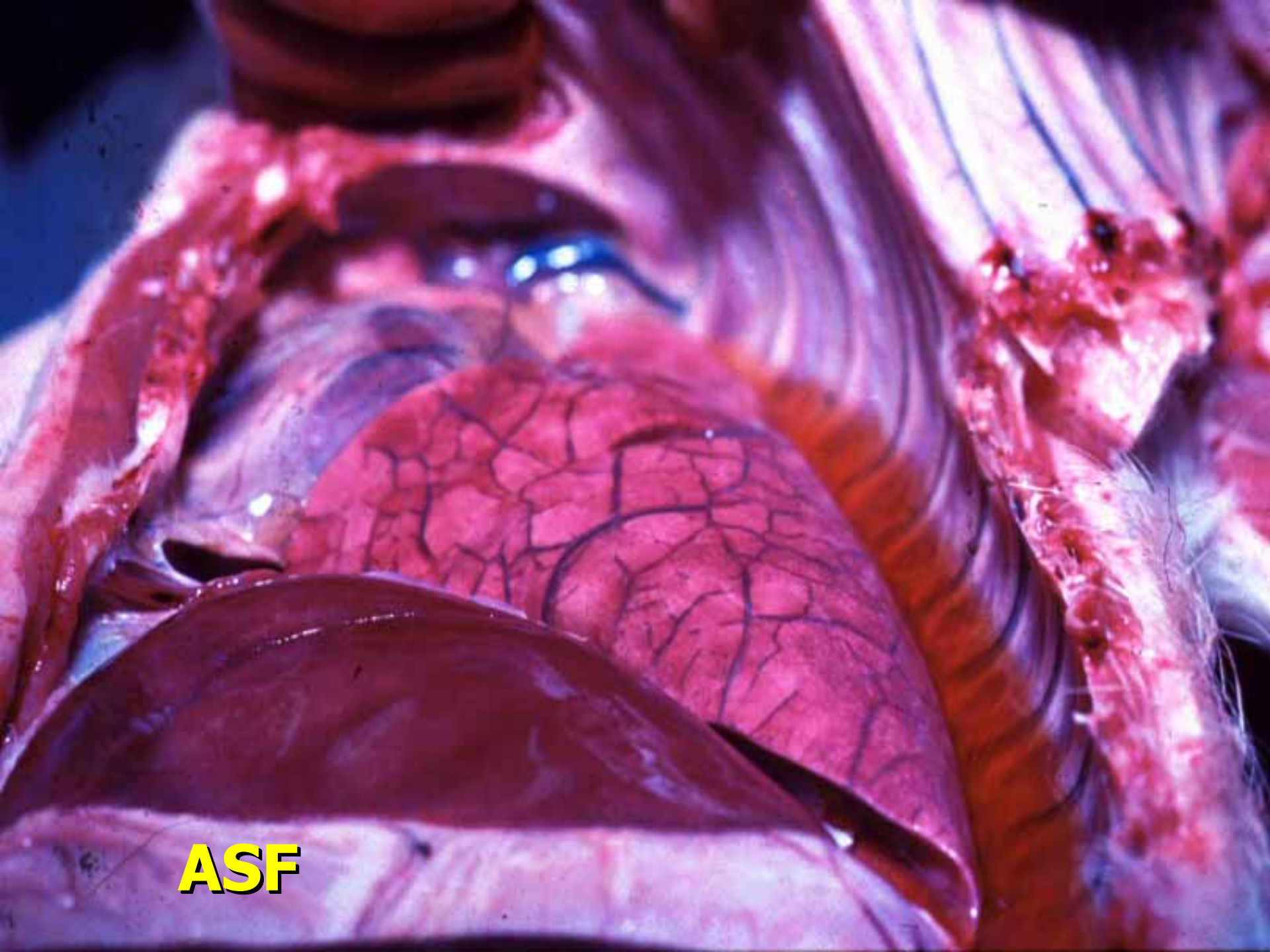


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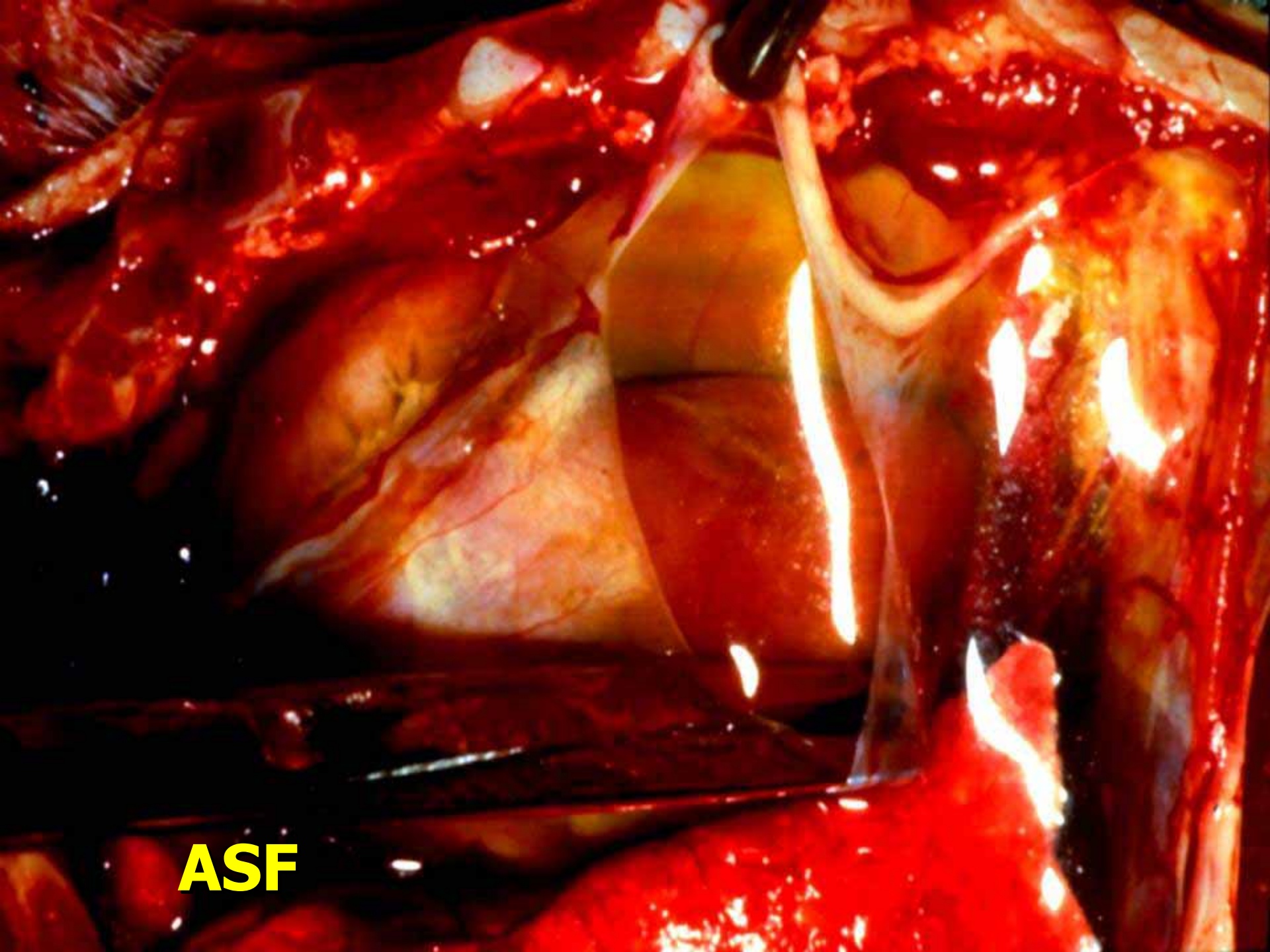




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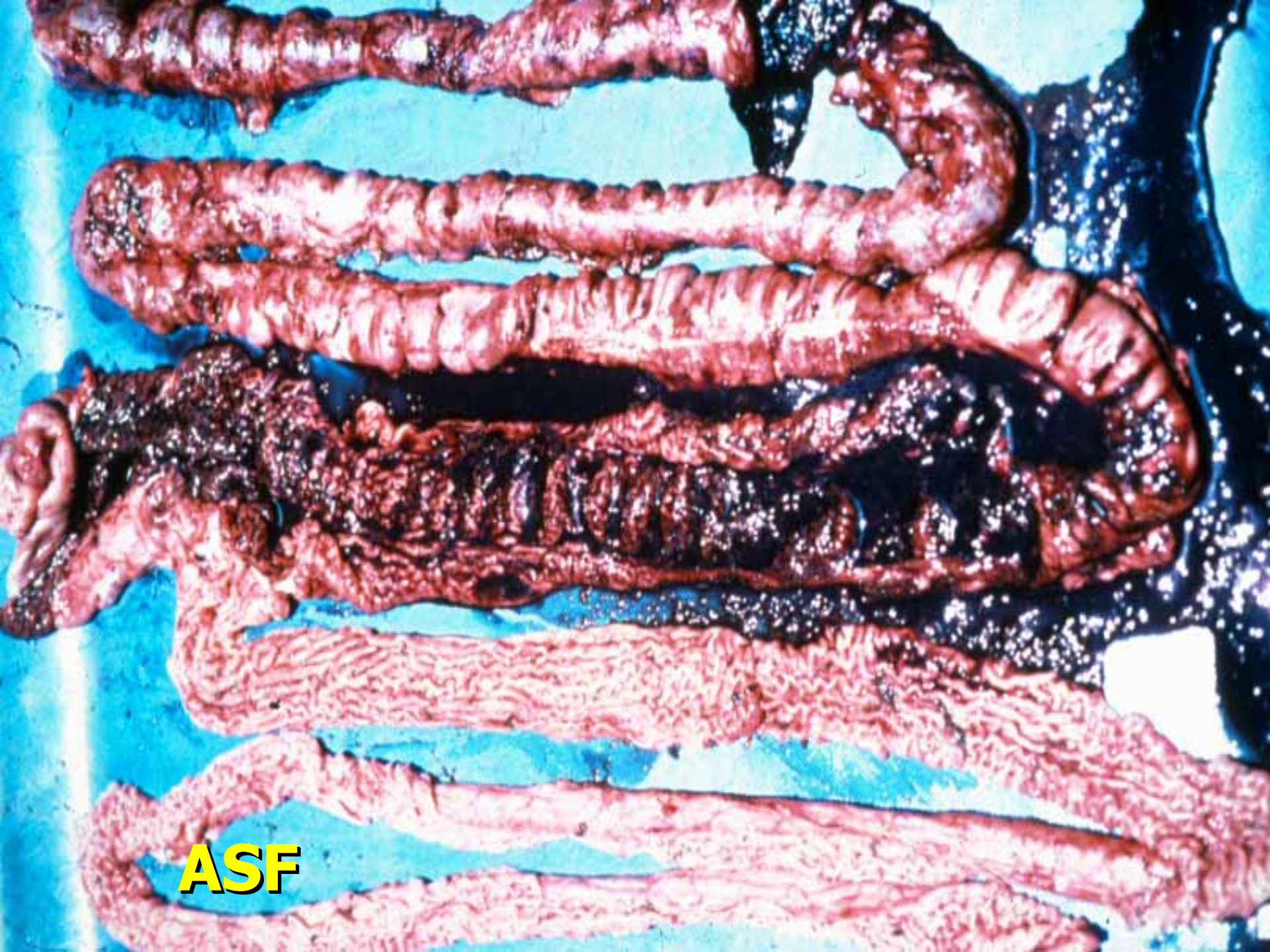
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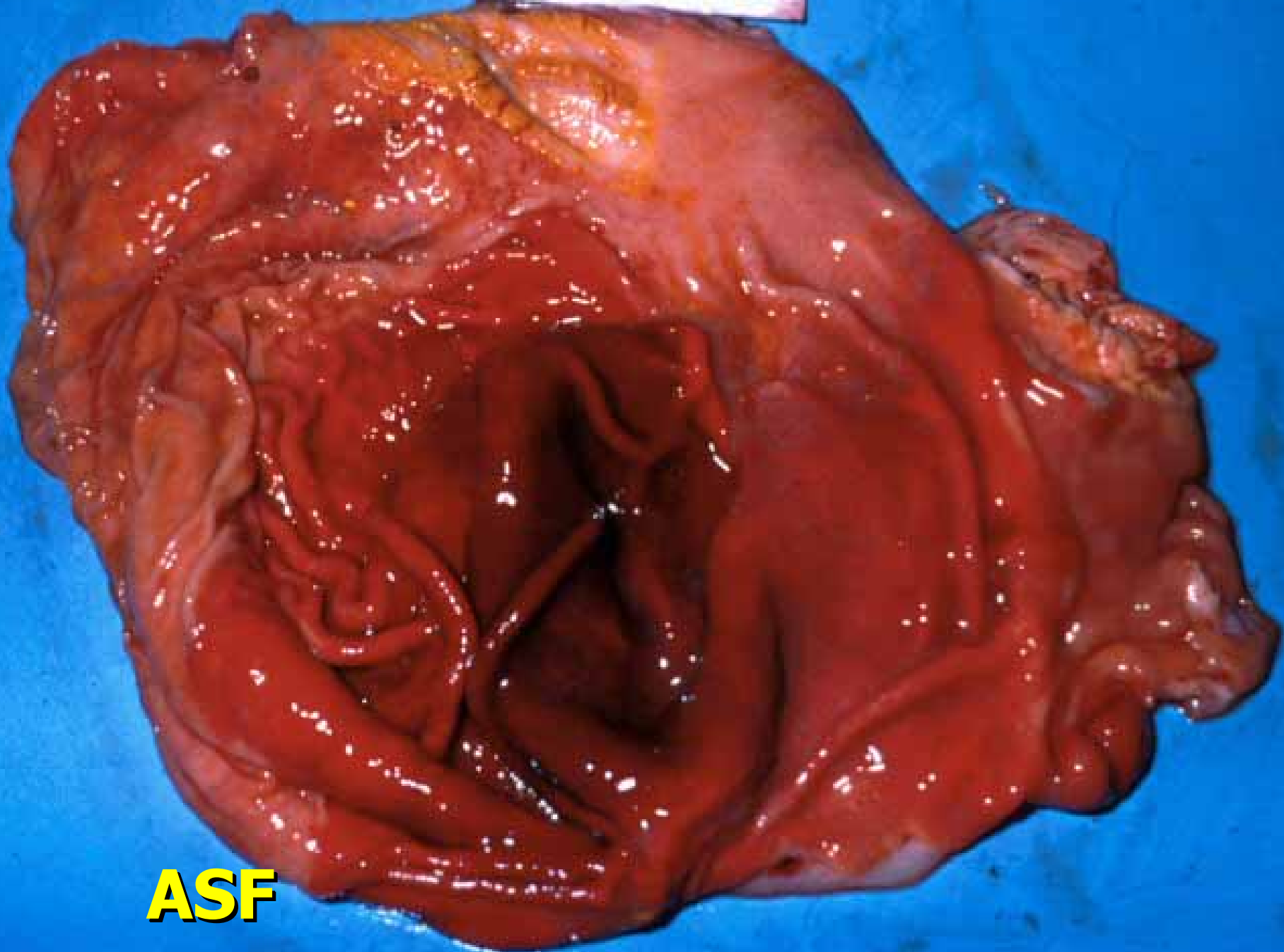
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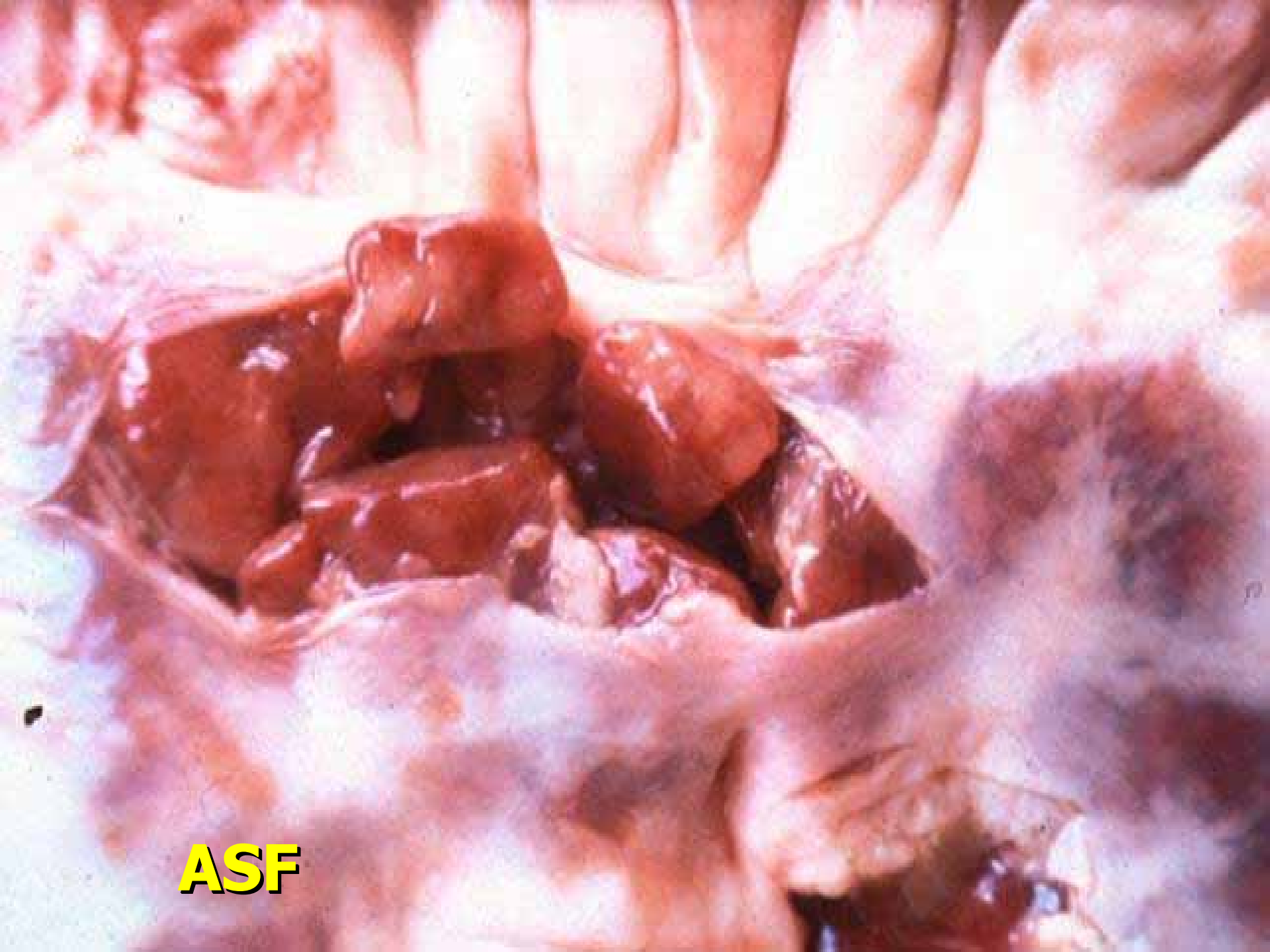
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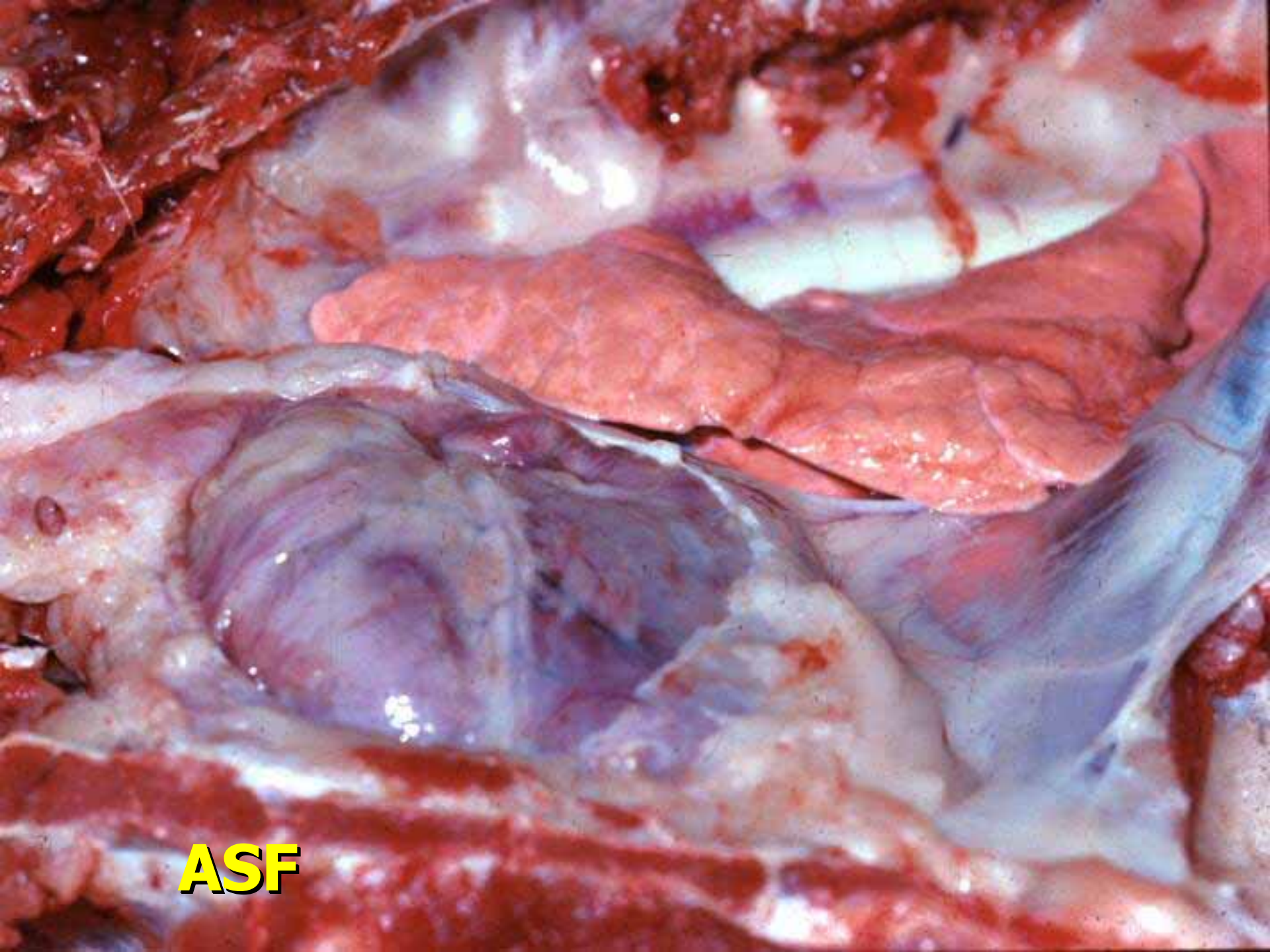


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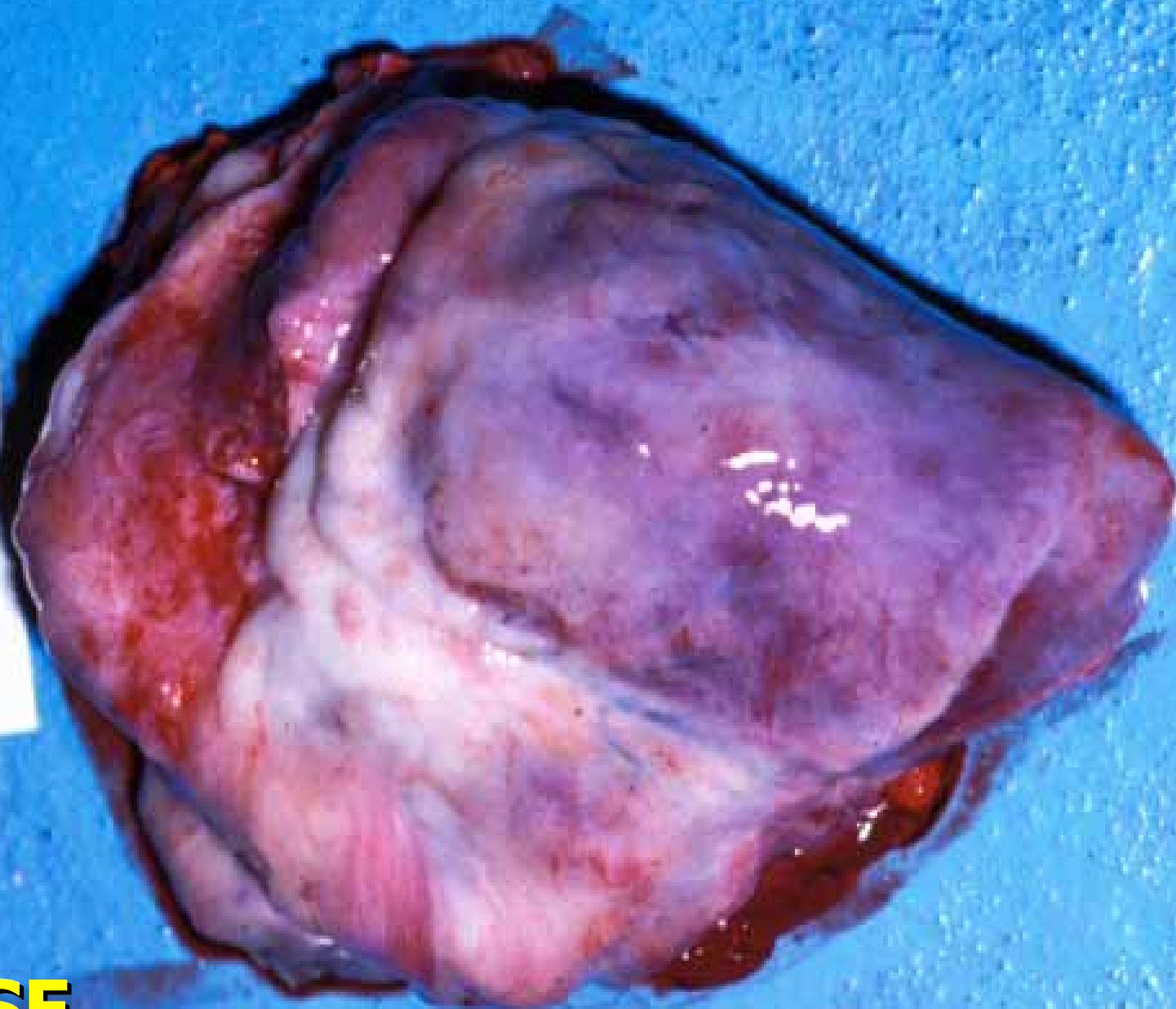




**ASF**

E3-82-55

**ASF**

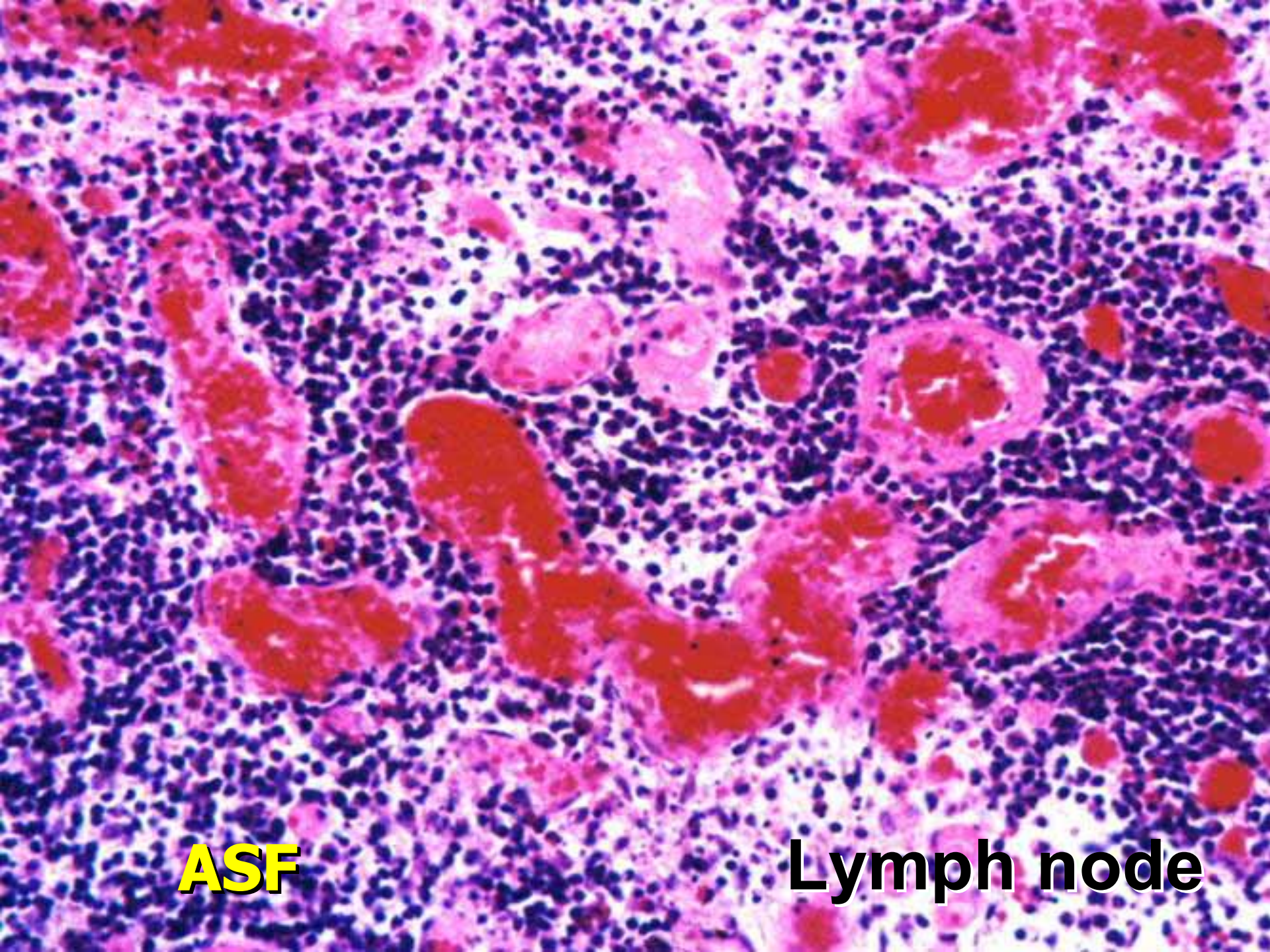




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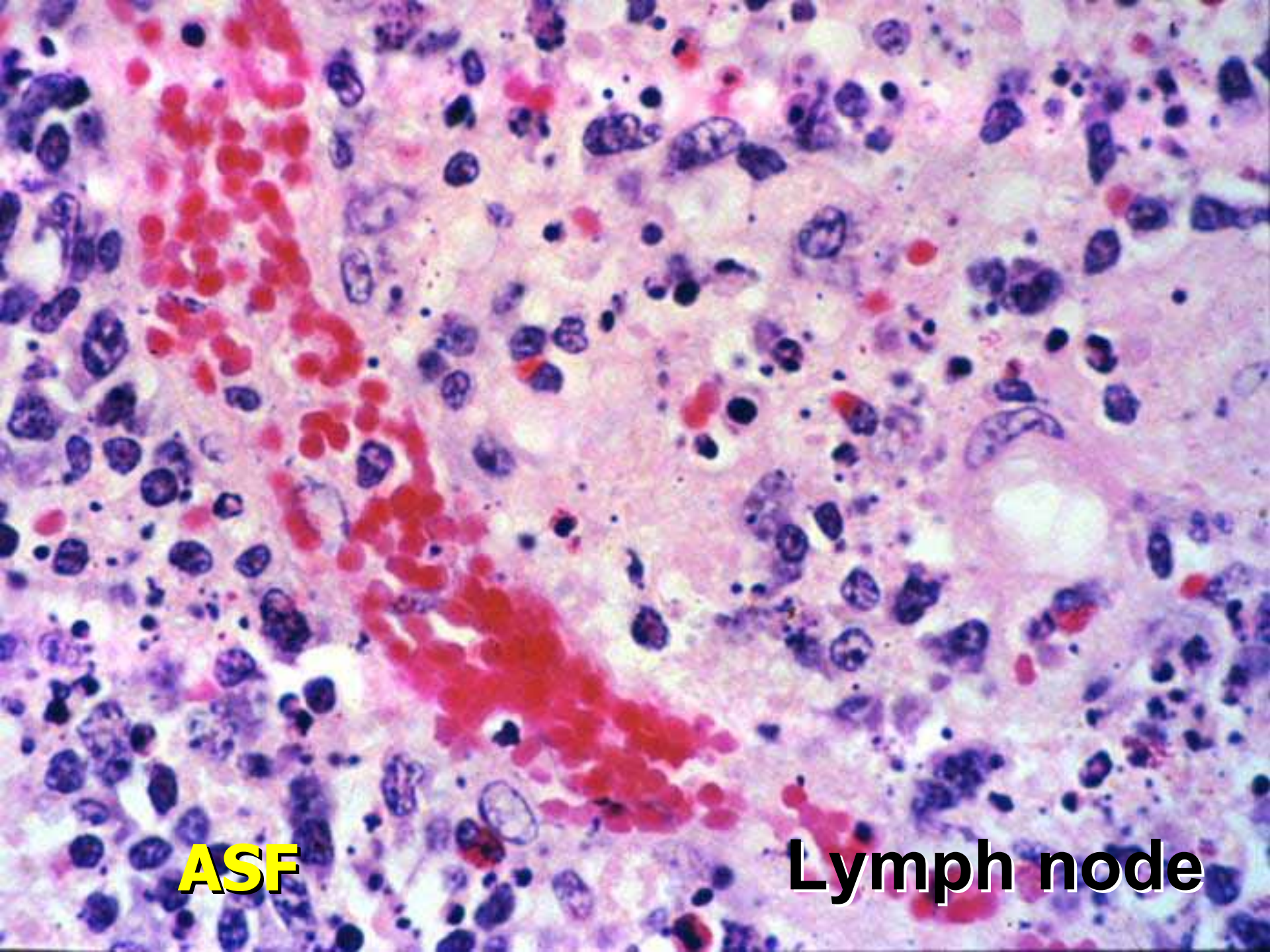


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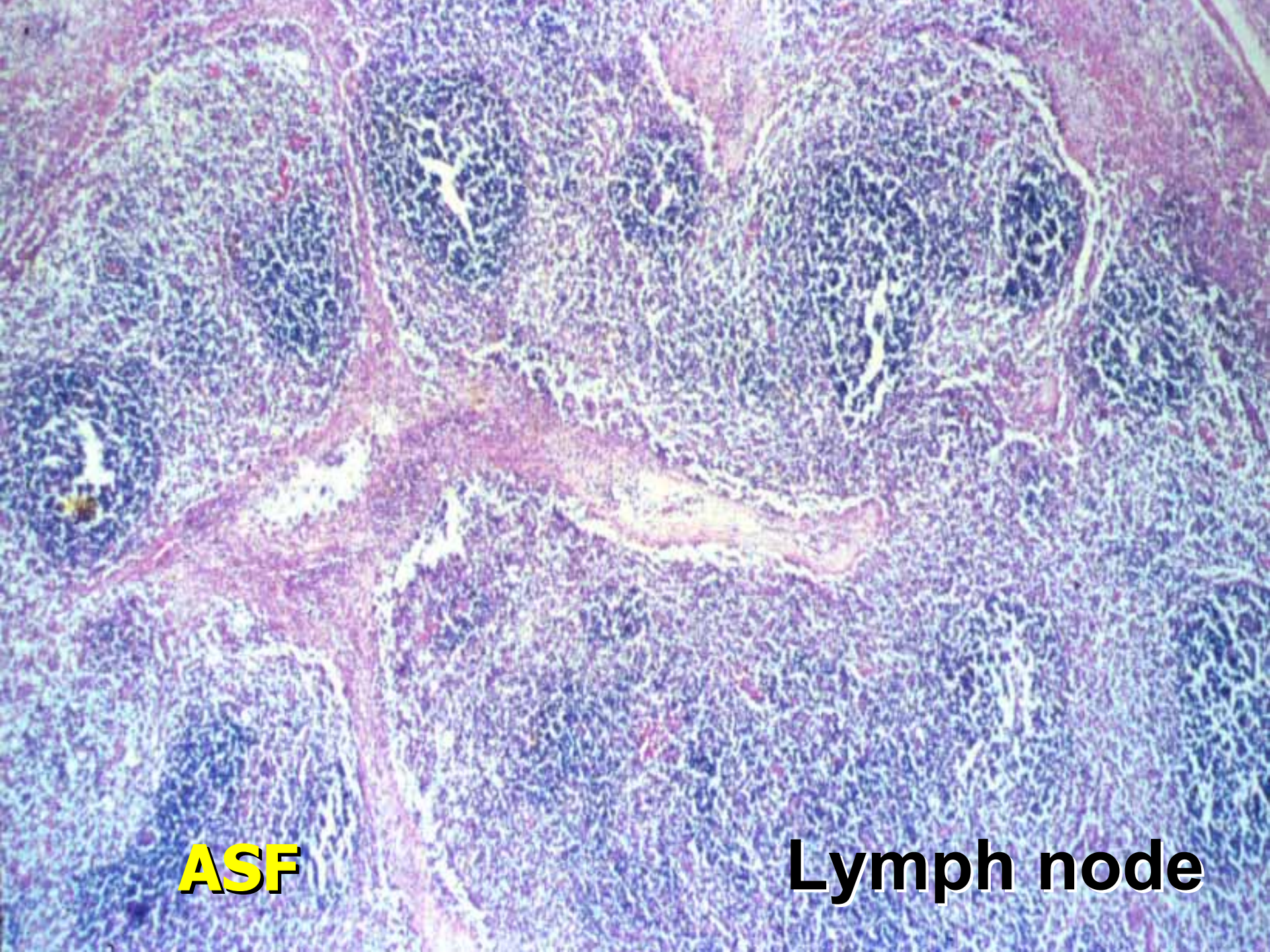
**ASF**

**Lymph node**



**ASF**

**Lymph node**

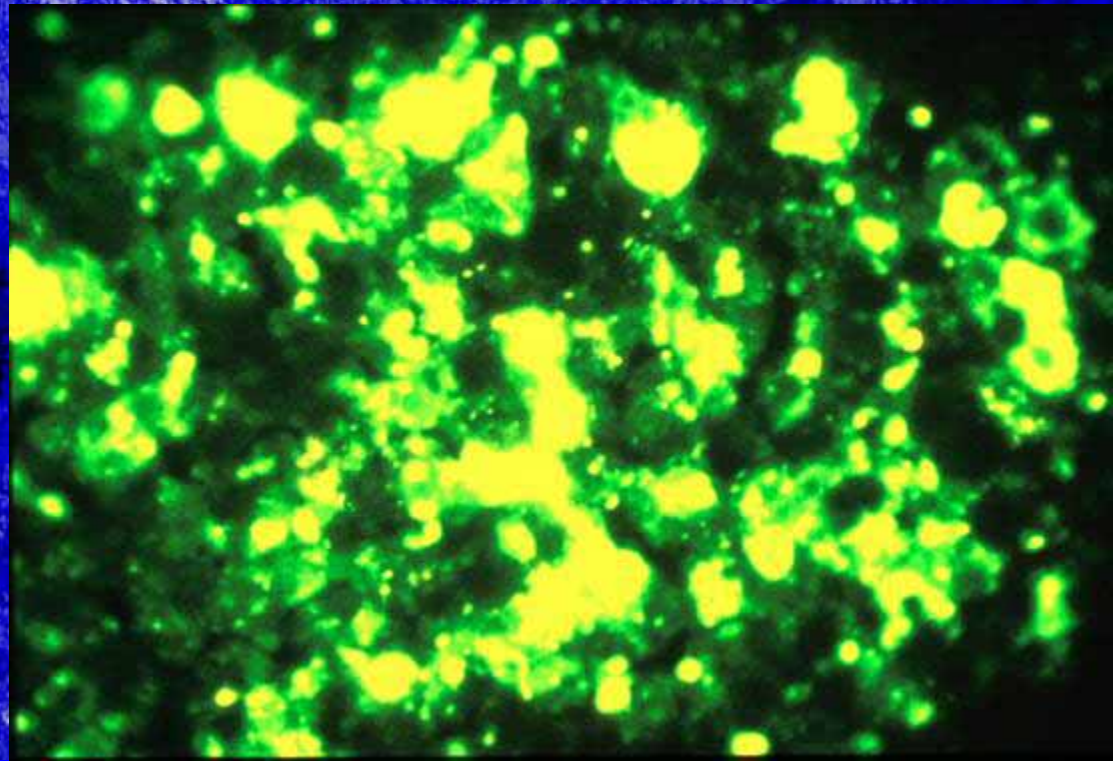


**ASF**

**Lymph node**

# Diagnosis

- **Presumptive: epidemiology, clinical signs, gross lesions (very difficult)**
- **Laboratory confirmation:**
  - antigen detection: PCR, FA, IHC, immunoblotting
  - virus isolation
  - serology: ELISA
  - histopathology





# Control / Eradication

- No vaccination
- Drastic control measures: stamping-out
- Prevention:
  - no contact with warthogs, tampons
  - strict import regulations
  - no feeding of garbage to pigs





# Eperythrozoonosis

- Haemoplasma
- *Mycoplasma suis*
- Targets red blood cells
- Cell wall-less bacteria
- Consistently pathogenic, but chronic or latent infections
- Worldwide distribution
- Anemia and jaundice in piglets
- Enlarged spleen and icterus
- Giemsa stain of blood smear
- Tetracycline

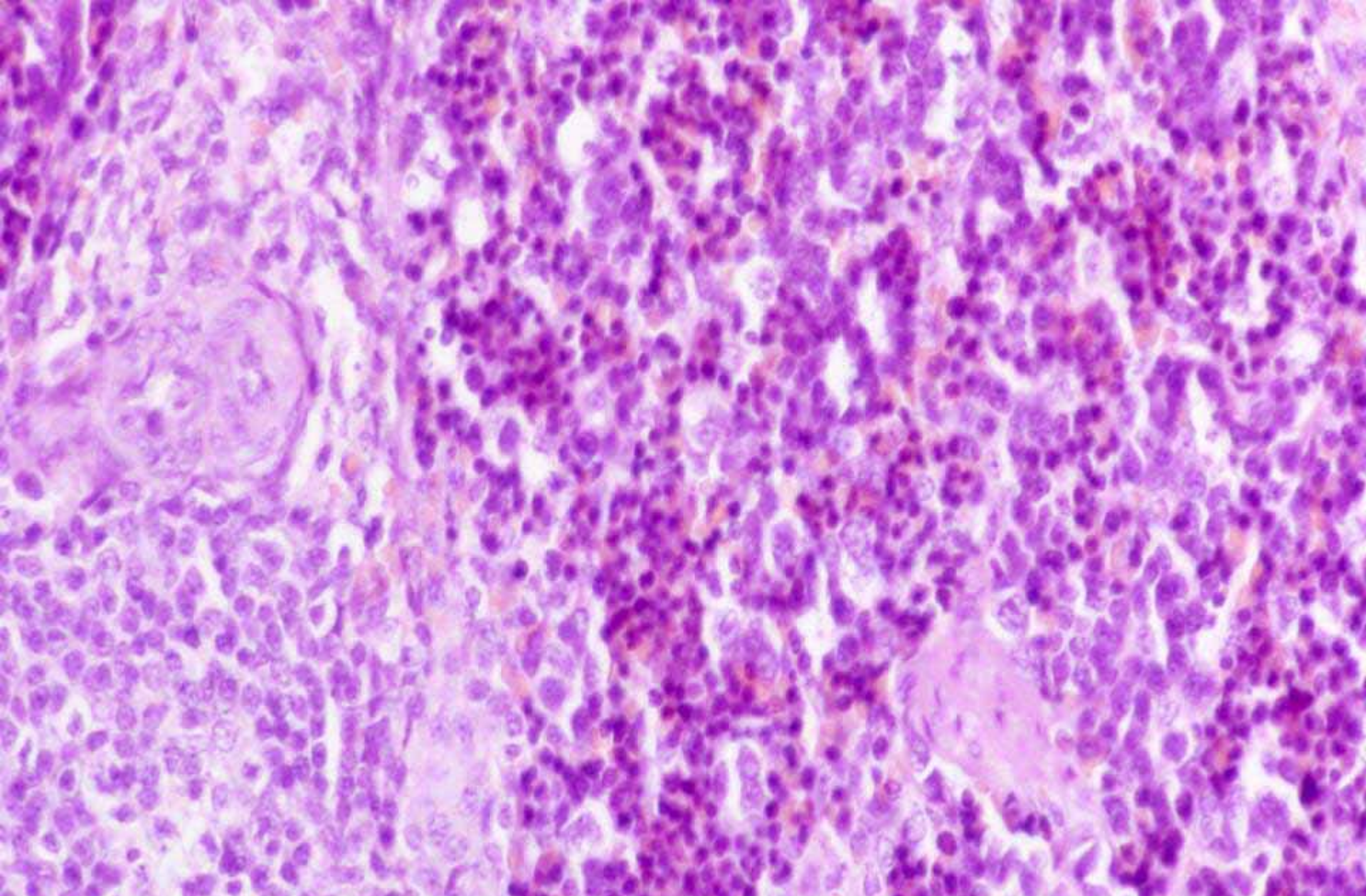


**Eperythrozoonosis**



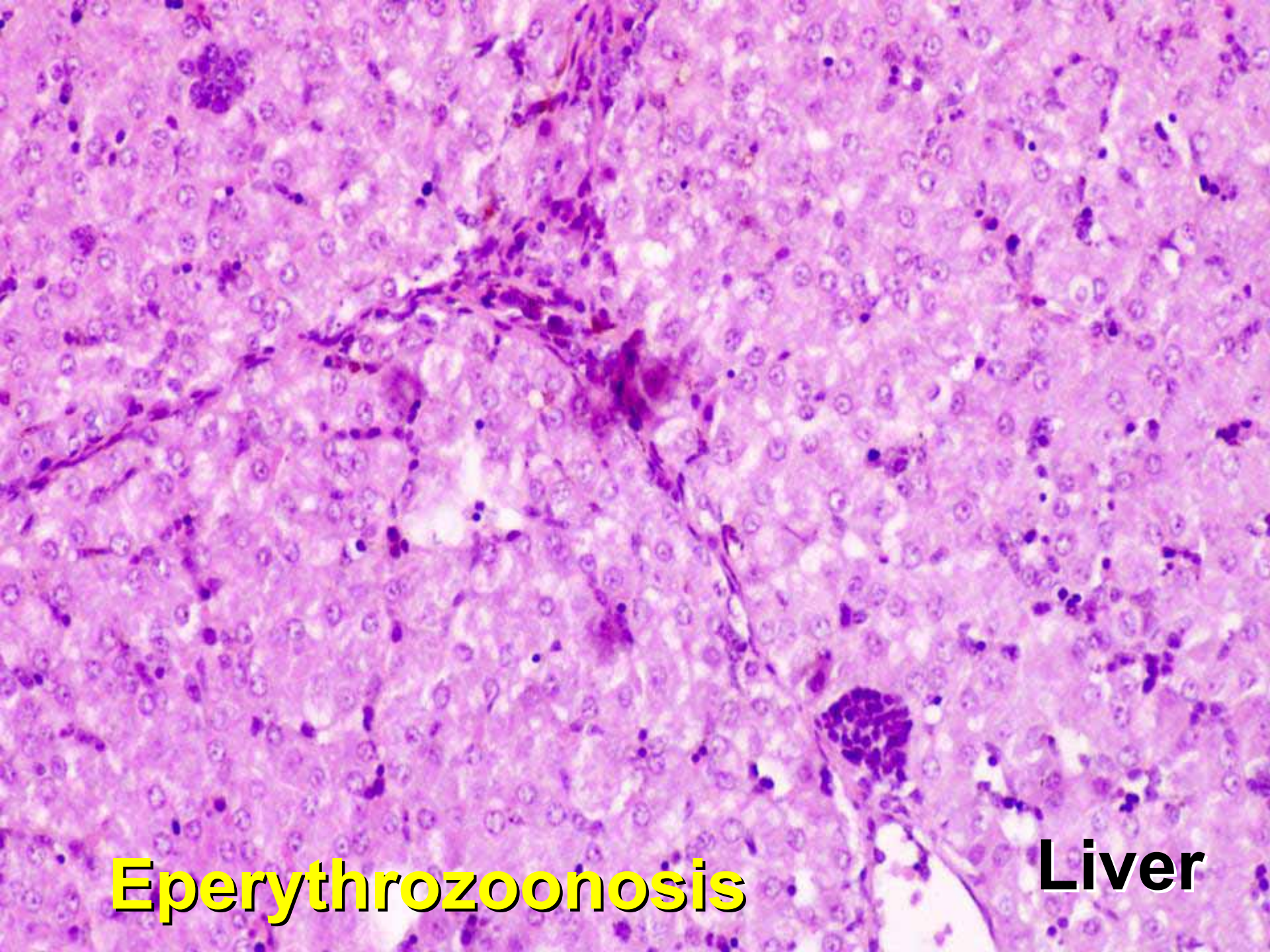
**Eperythrozoonosis**

**Spleen**



**Eperythrozoonosis**

**Spleen**



**Eperythrozoonosis**

**Liver**



**Eperythrozoonosis**

**Spleen**





**Eperythrozoonosis**

**Spleen**



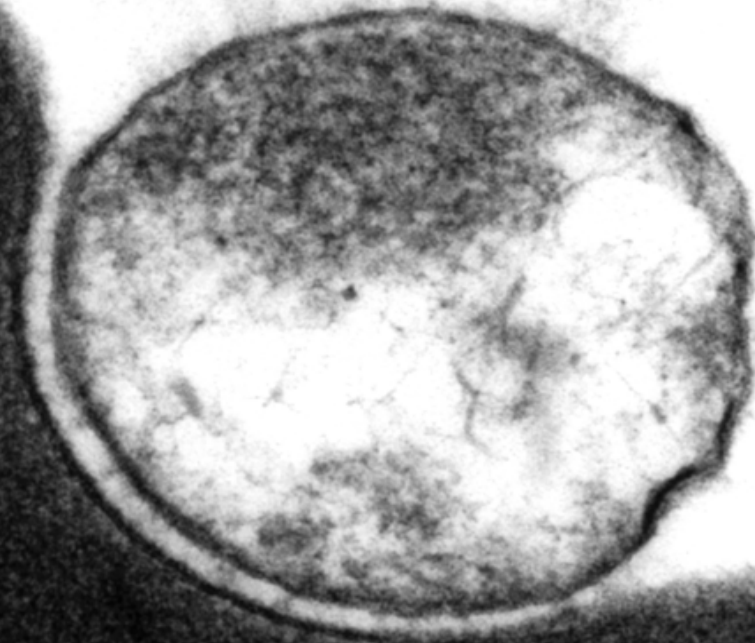
**Eperythrozoonosis**



**Eperythrozoonosis**

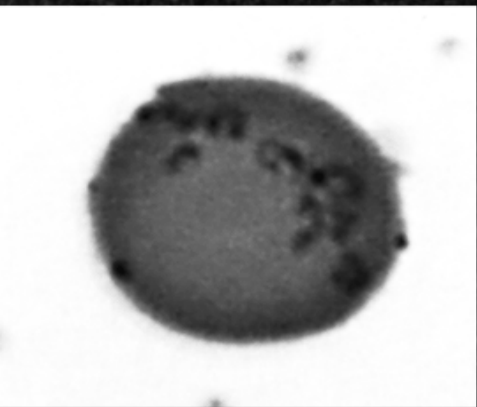


**Eperythrozoonosis**



**Haemobartonella  
parasite**

# **Eperythrozoonosis**



**Red blood cell**