

**MJF COLLEGE OF VETERINARY AND ANIMAL SCIENCE,
CHOMU, JAIPUR**



DEPARTMENT OF VETERINARY PATHOLOGY

CBPP

Contagious Bovine Pleuropneumonia

- OIE listed diseases
- CBPP is a disease of ruminants caused by *Mycoplasma mycoides* subsp. *mycoides* SC, characterized by respiratory signs and pneumonia and pleurisy

- *Mycoplasma mycoides* subsp. *mycoides* “small colony”
- Smallest self-replicating organisms
- Gram-negative
- Lack a true cell wall, pleomorphic, nonmotile

- Cattle
- Asian buffalo
- Captive bison
- Yak



- Quickly inactivated in environment – so required close contact
- Aerosol (close contact)
- Direct contact
 - Saliva, urine, fetal membranes, uterine discharges
 - Transplacental
- Introduction of carrier animal
 - Most common cause of outbreaks

- Pathogenic mechanisms are poorly understood
- No toxin production or Invasive or No Blood borne Infection
- Hypothesis
- Mycoplasma enter in body → enter in to the lungs → phagocytosed by alveolar macrophages → Spread to BALT → Mycoplasma replication → Kill infected macrophages → Release mycoplasma in alveolar and bronchial interstitium → **Galactan in the mucus capsule** is correlated with virulence, and lead to the contraction of blood vessels resulting in thrombosis, pulmonary edema, induces necrosis, inflammation
- Infected macrophages spread infection to joints – Polyarthritits

Incubation period: 21 to 180 days

- Initial signs
 - Lethargy, anorexia, fever, cough
 - Extended head/neck –
- Later signs
 - Thoracic pain, reluctance to move, coughing
 - Snoring/ Moaning sound during expiration
 - Increased respiratory rate
 - **Unusual posture**
 - **Neck forward, Legs far apart, Elbows turned out**

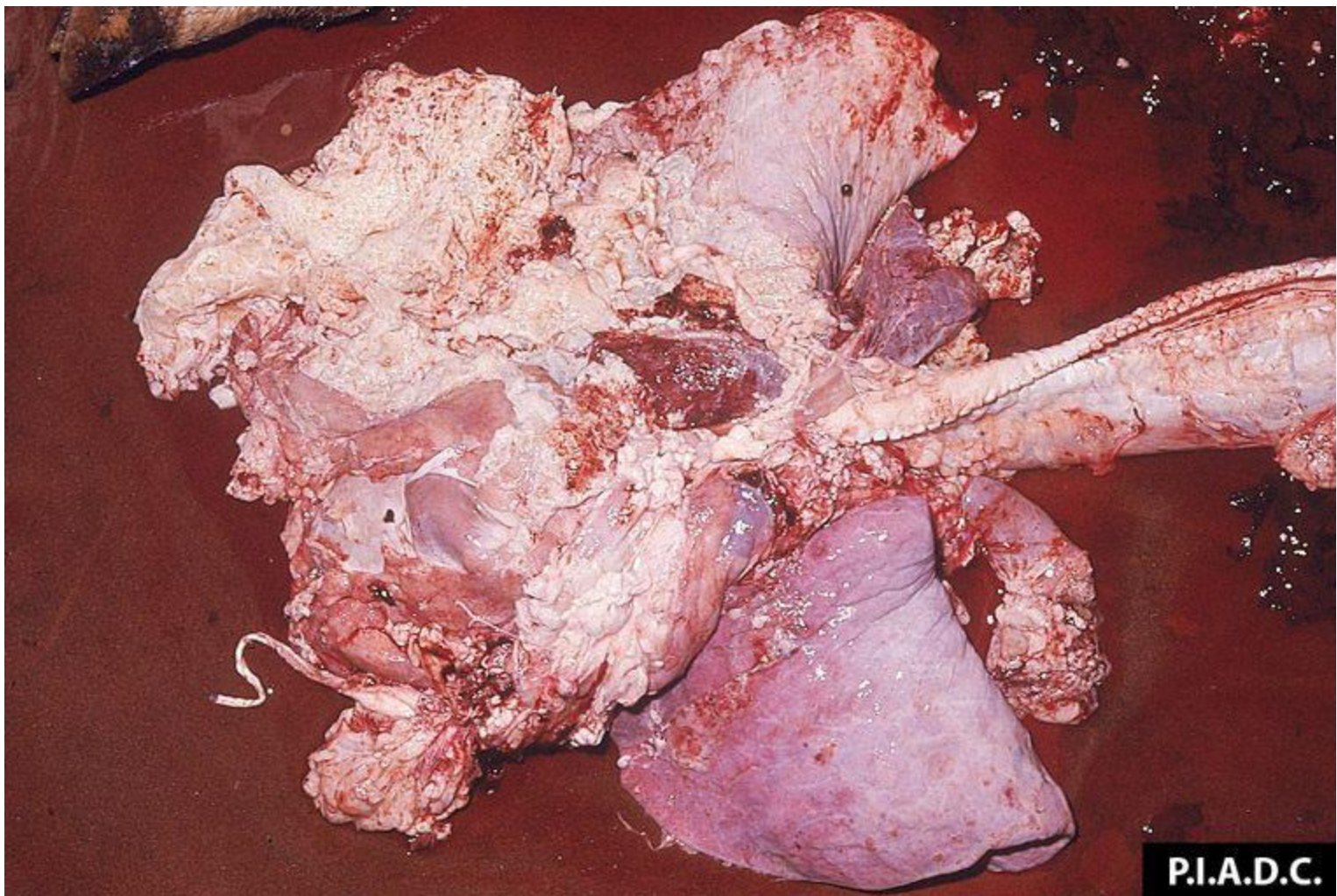
- Less obvious signs of pneumonia
- Coughing with exercise
- Emaciation
- Recurrent mild fever
- Appear to recover after several weeks
- **Calves (less than 6 months)**
 - **Polyarthrititis +/- pneumonia**
- Subclinical cases can be carriers

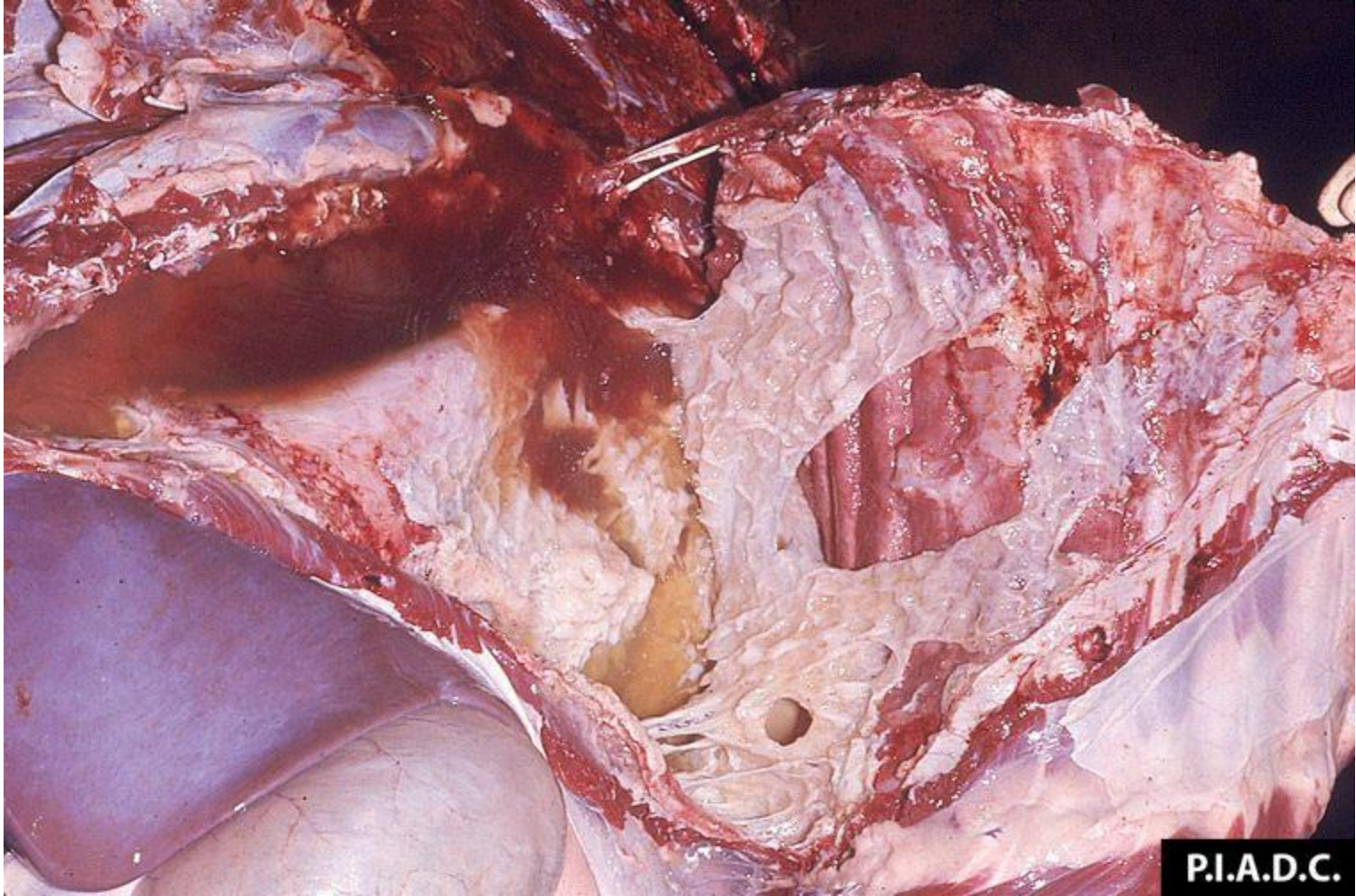


- **Lesions often unilateral and restricted to the caudal lung lobes**
- Extensive fibrin deposition and abundant straw colored fluid in the thoracic cavity.
- Interlobular septa are remarkably distended with serous fluid, and the lobules vary from normal to consolidated and red - characteristic marbled appearance to the lung.
- Focal areas of necrosis increase in size over time, and eventually develop into sequestra

Chronic

- Sequestrum formation and fibrous thickening of the pleura with adhesions to the ribs
- Pericarditis, peritonitis, and polysynovitis occur infrequently in adult cattle





P.I.A.D.C.



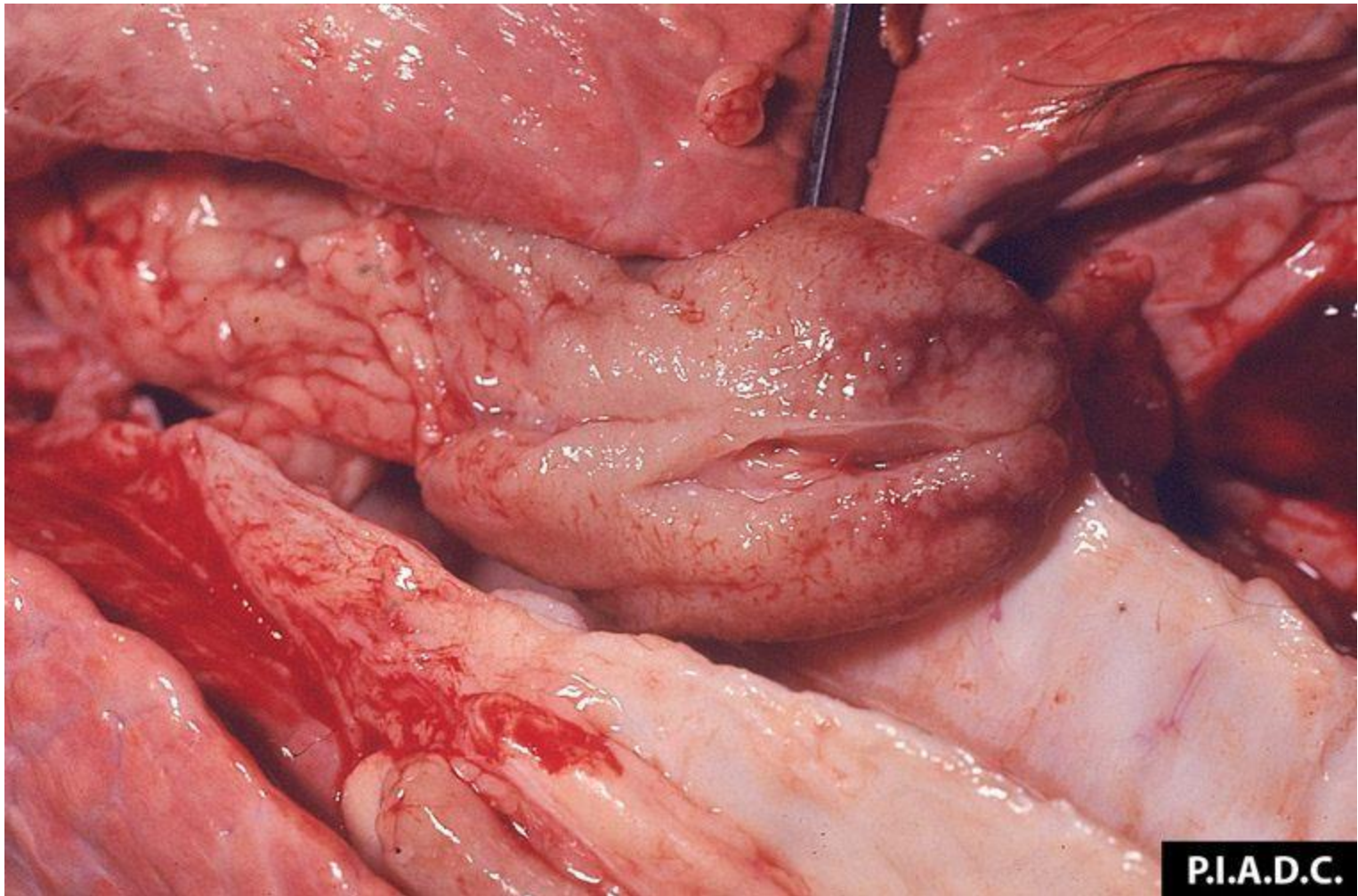
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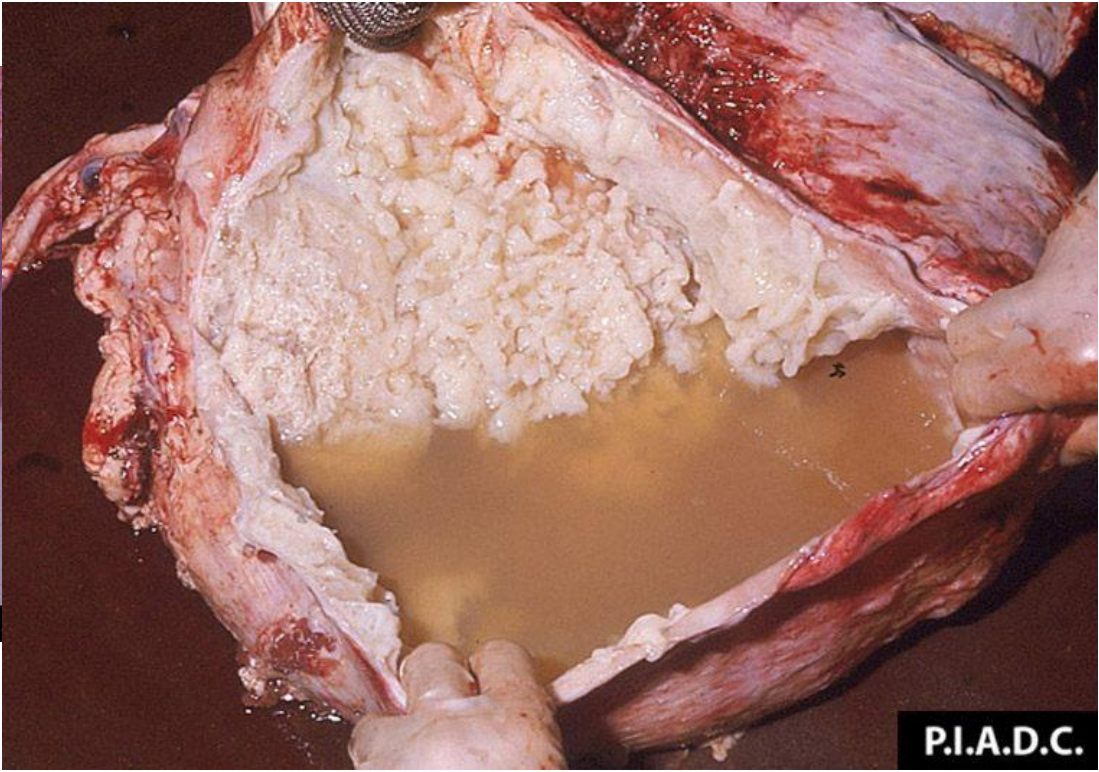
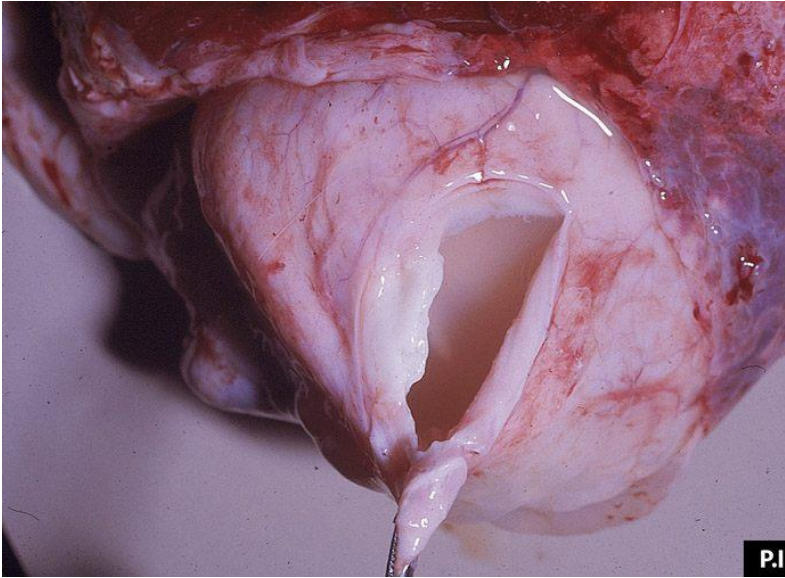
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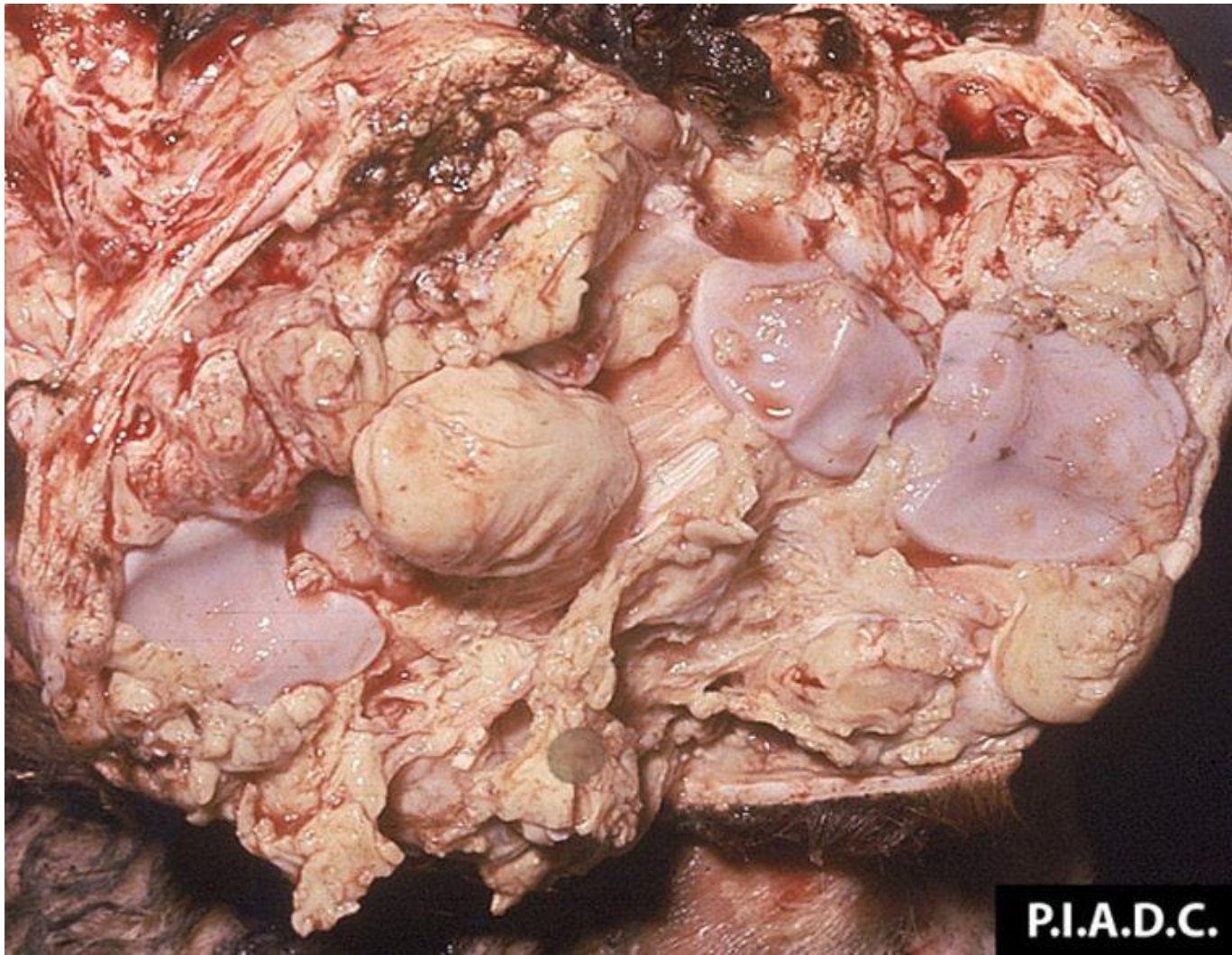






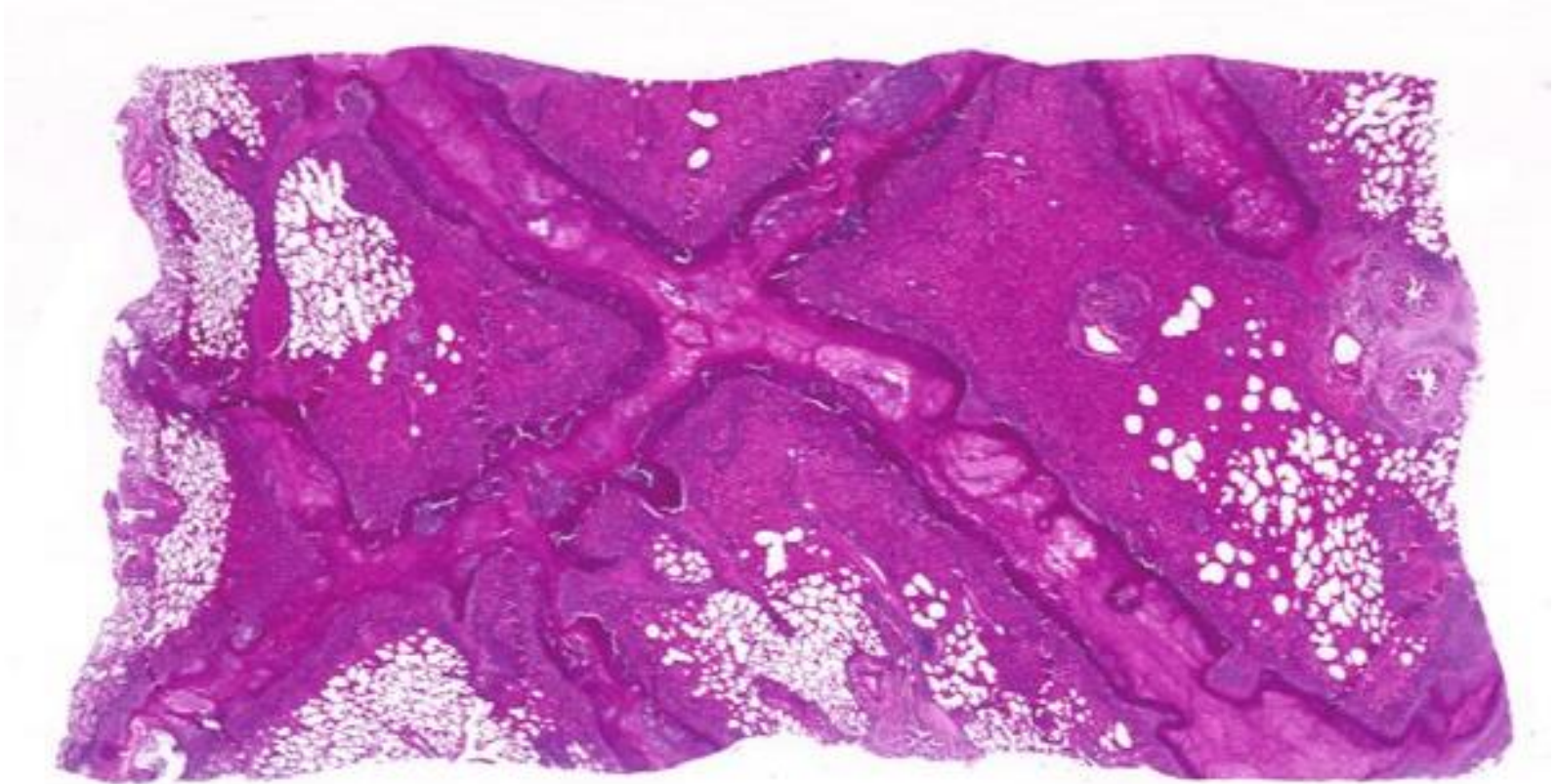
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P.I.A.D.C.

- Serofibrinous or suppurative exudates with necrosis of neutrophils in bronchioles and alveoli
- Multifocal areas of coagulative necrosis in the lung parenchyma
- Interlobular septa are expanded by edema and fibrin, and interlobular lymphatics contain fibrin
- Thrombosis
- Non suppurative arteritis may be present.
- Lymphoid hyperplasia



Lung:- Interlobular septa are greatly expanded

- Clinical signs & Pathology
- Culture
- PCR
- Serology
 - Complement fixation
 - Competitive ELISA
 - Immunoblot
 - Latex agglutination



CCPP

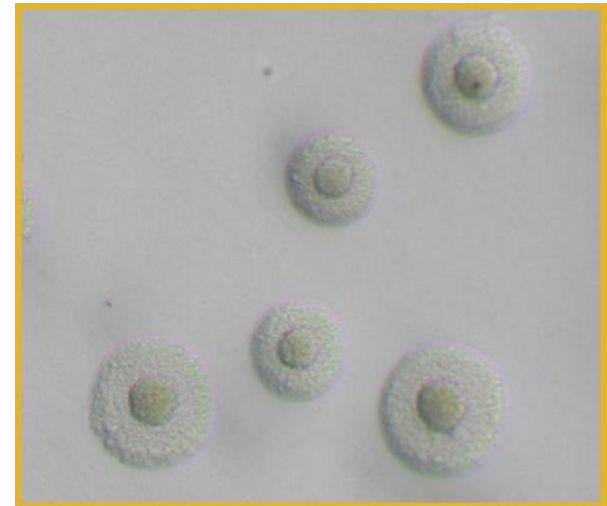
Contagious Caprine Pleuropneumonia

- OIE listed diseases

- Synonym
 - Pleuropneumonie contagieuse caprine (France)
 - Bou-frida (Algeria)
 - Abu-nini (Sudan)

- CCPP is a severe disease of goats caused by *Mycoplasma capricolum* subsp. *capripneumoniae* characterized by unilateral sero-fibrinous pleuropneumonia with severe pleural effusion

- *Mycoplasma capricolum* subsp. *capripneumoniae*
- Difficult to isolate in culture
- Formerly known as biotype F38
- Smallest self-replicating organisms
- Gram-negative
- Lack a true cell wall
- Pleomorphic



- Goat

- Highly contagious
- Direct contact
 - Inhalation of infectious respiratory droplets
- Carrier animals may exist

- Pathogenic mechanisms are poorly understood
- No toxin production or Invasive or Blood - borne Infection
- May be similar to CBPP

Incubation period: 6 to 10 days

- Respiratory symptoms
- Peracute
 - Minimal or no clinical signs
- Acute
 - High fever, anorexia, productive cough, wide stance, extended neck
- Chronic
 - Cough, nasal charge, debilitation



- Lesions often **unilateral** but may be bilateral
- Pleura covered by a thick layer of fibrin
- Pleura contained serous fluid
- Diffuse or focal area of consolidation in lungs
 - May contain extensive areas of necrosis
- Fibrinous pericarditis
- Chronic cases develop focal nodules of necrosis and mineralization with a fibrous capsule, or lung abscesses
- Squestra and interlobular edema like CBPP is **not**
present



- Serofibrinous or suppurative exudates with necrosis of neutrophils in bronchioles and alveoli
- Multifocal areas of coagulative necrosis in the lung parenchyma
- Thrombosis
- Vasculitis may be present
- Lymphoid hyperplasia

- Clinical signs & Pathology
- Culture
- PCR
- Serology
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