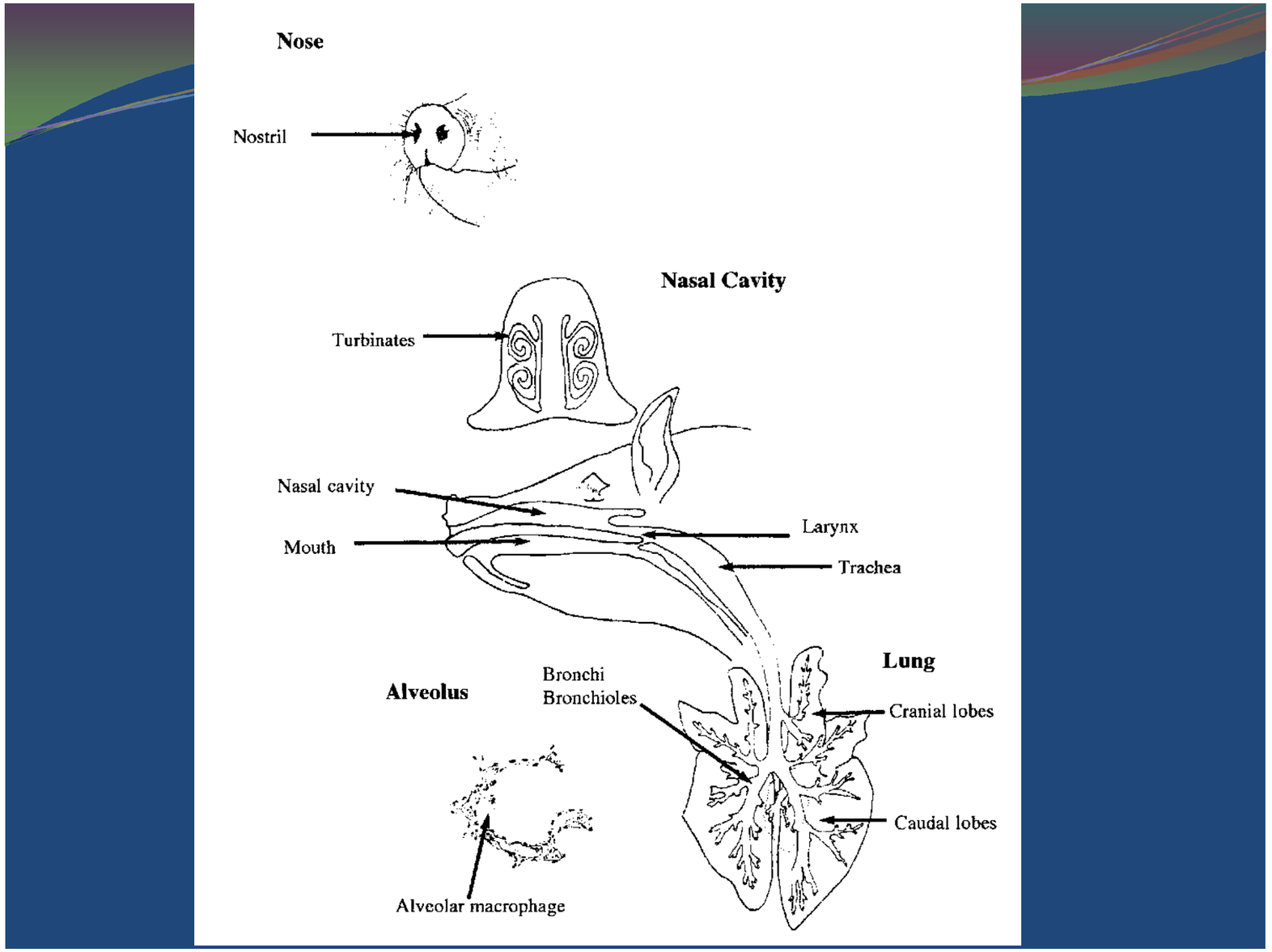
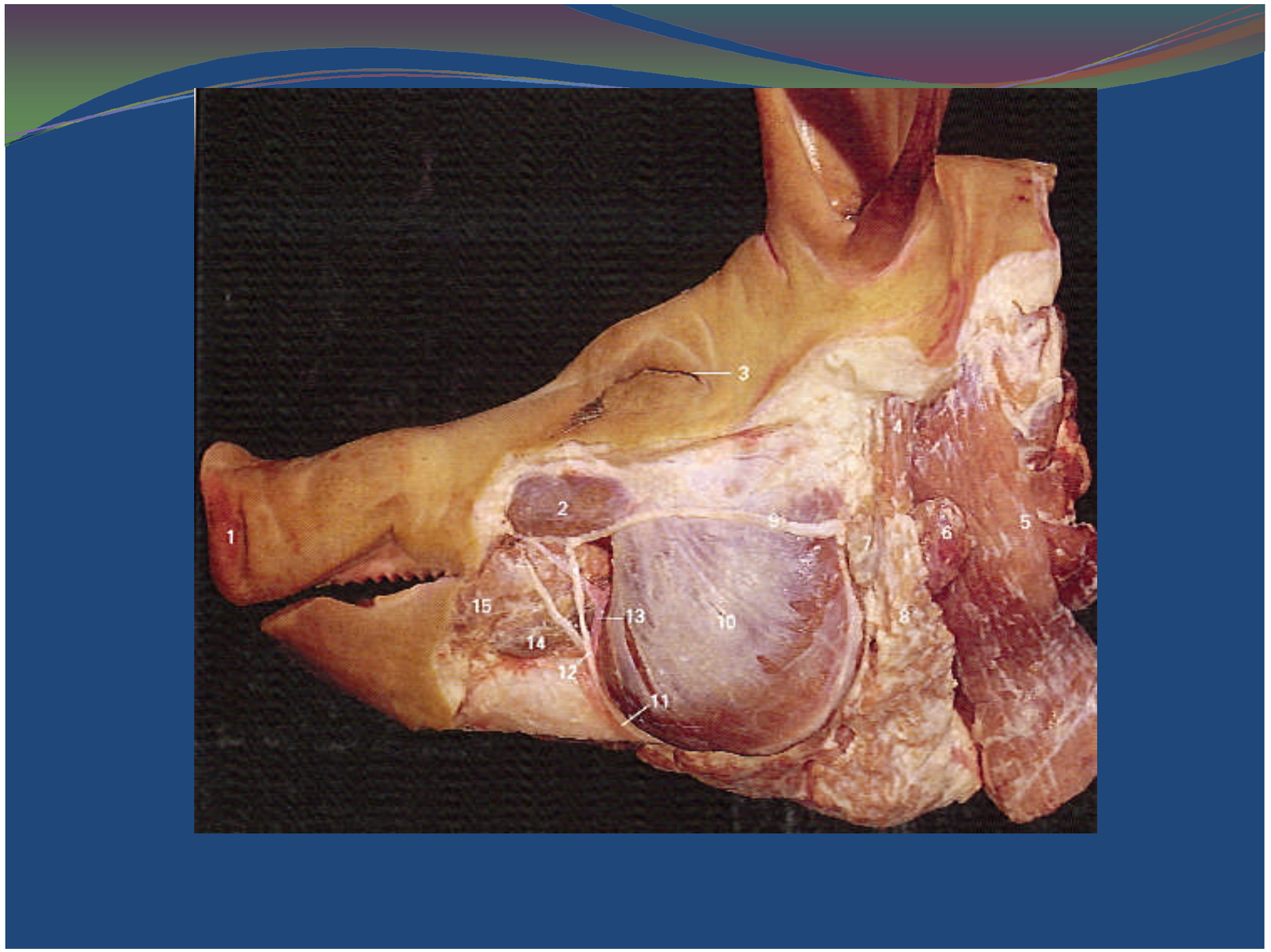
Disorders of the chest

John Carr
Murdoch University
Portec Australia


Nose
Nostril
Nasal Cavity
Turbinates
Nasal cavity
Mouth
Larynx
Trachea
Lung
Alveolus
Bronchi
Bronchioles
Cranial lobes
Caudal lobes
Alveolar macrophage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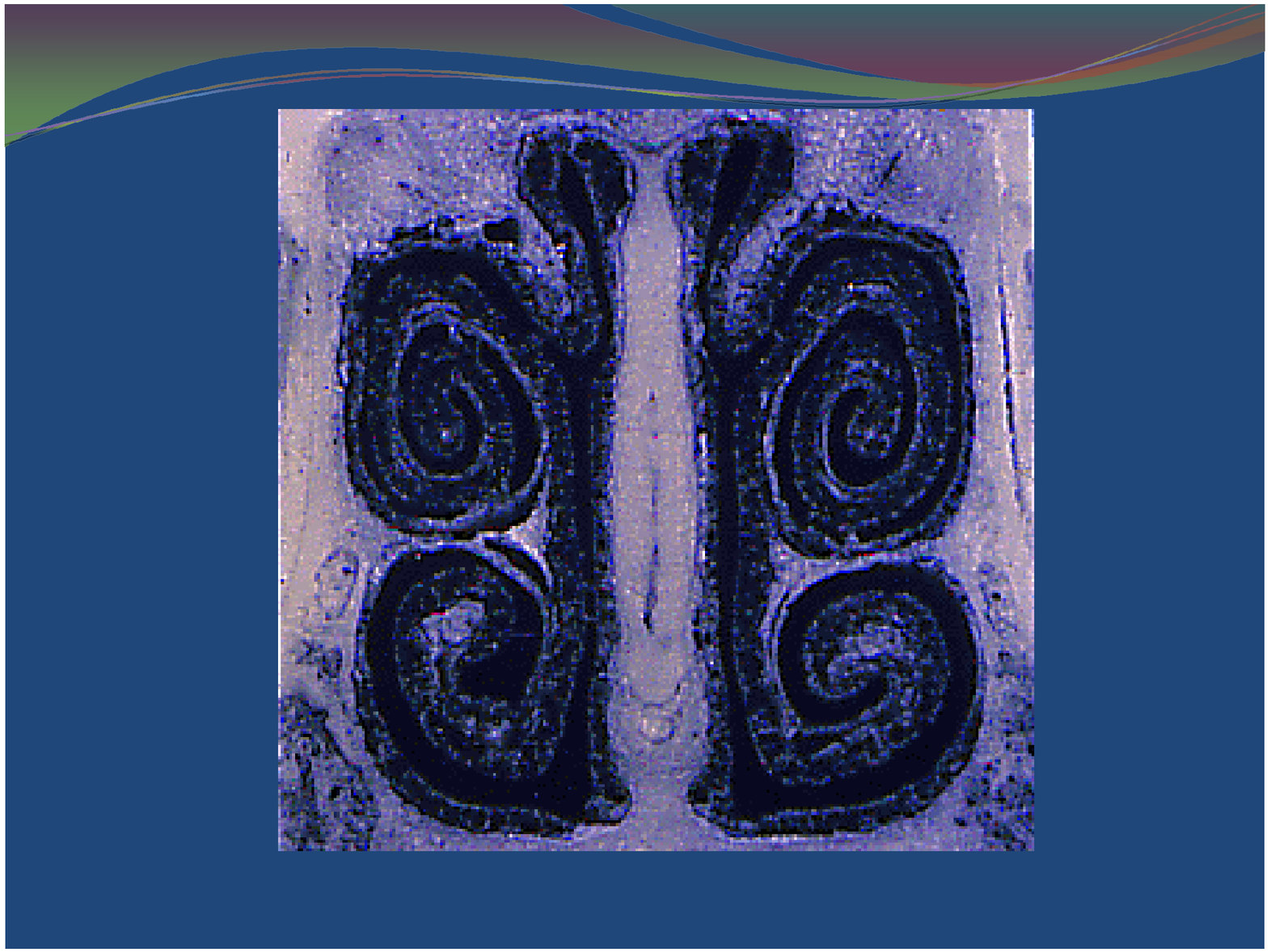

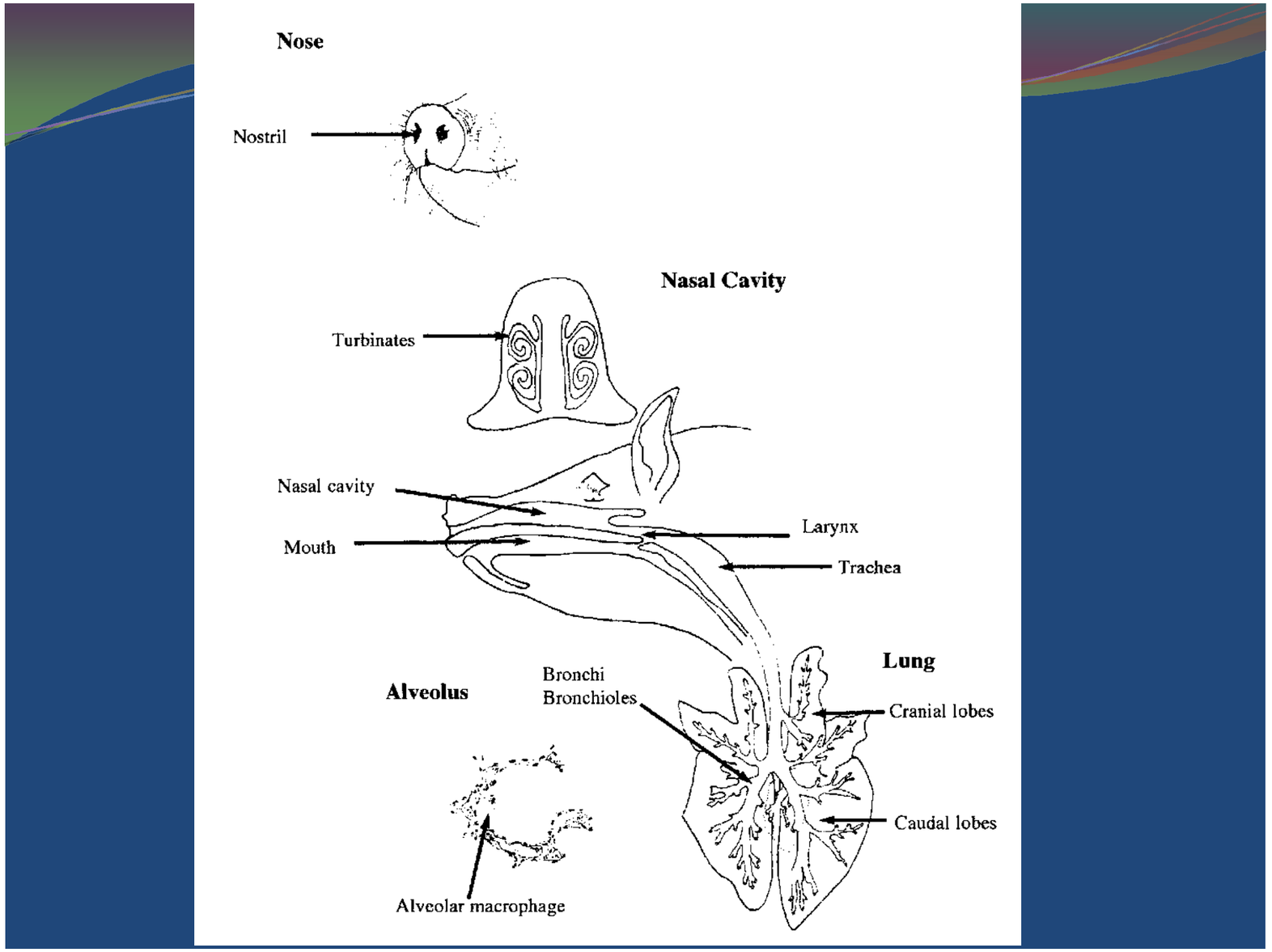
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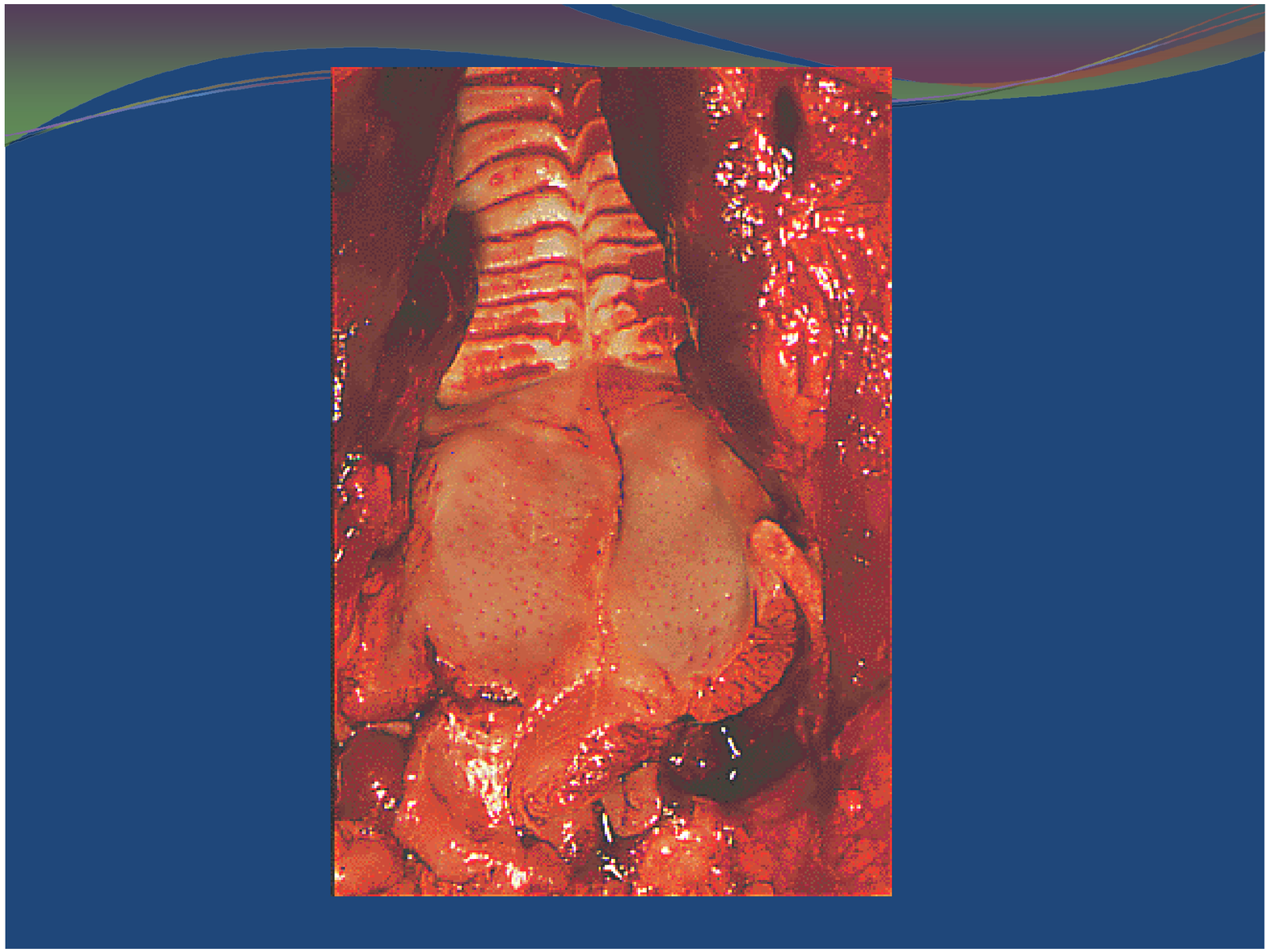
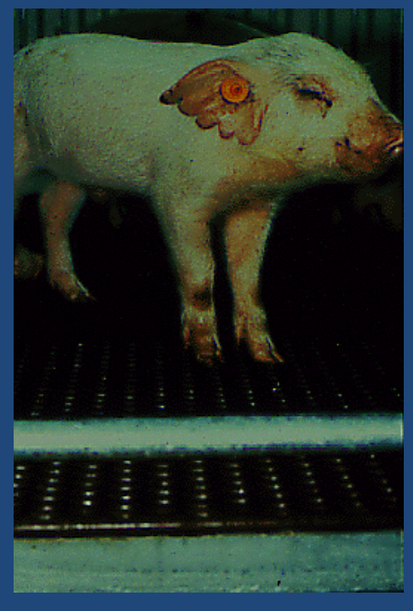


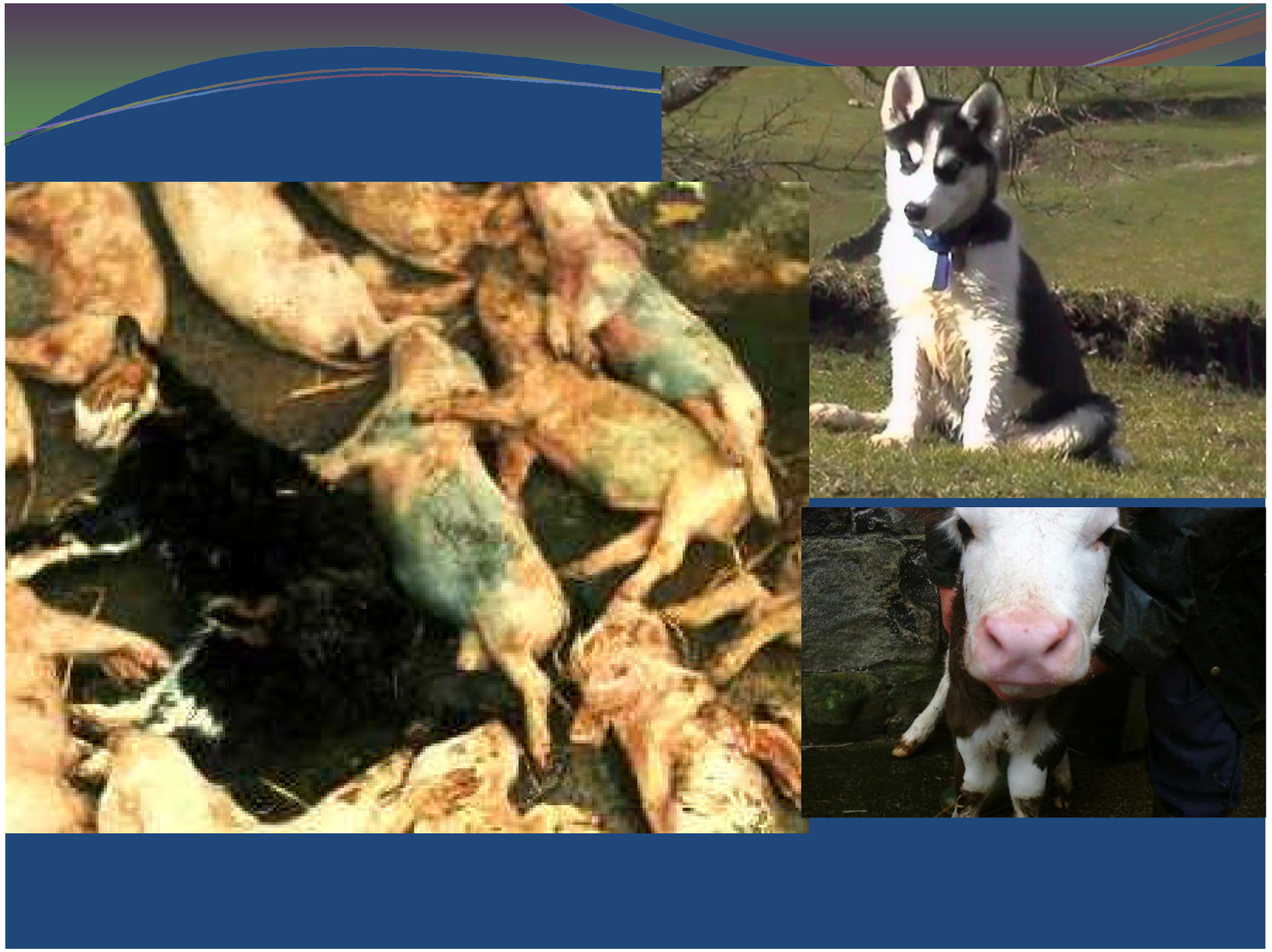
- The tonsils and the nasophararynx has a normal microflora. Some of these normal organisms can become a pathogen.

- These can include spp.:

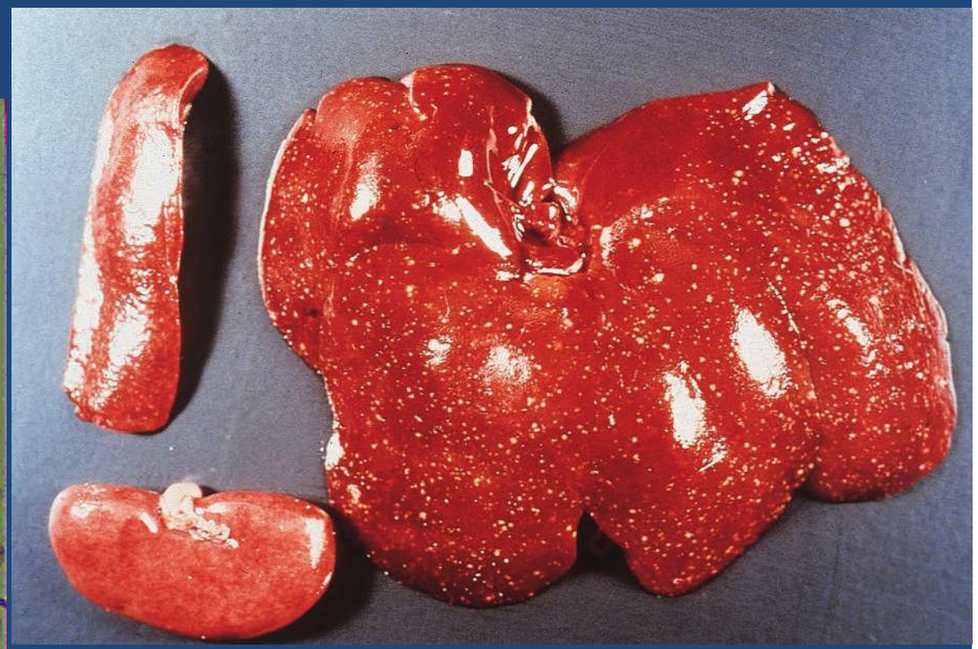
Bordetella, Pasteurella, Streptococci, Actinobacillus, Haemophilus, Mycoplasma plus lots of viruses – PCV2 for example.

Aujeszky's Disease (Pseudorabies)

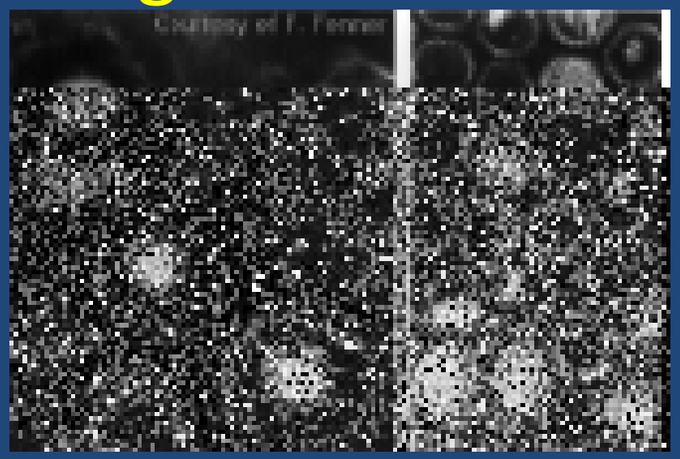




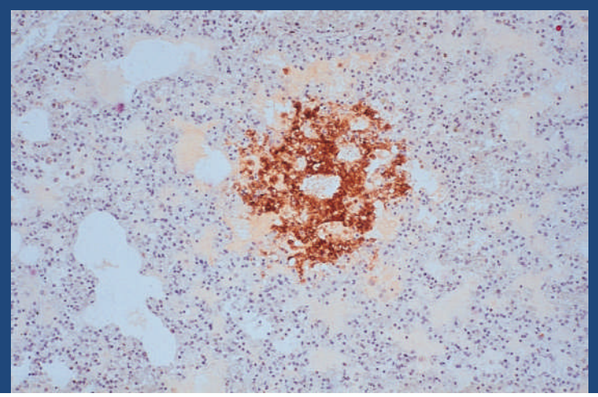
Pathology

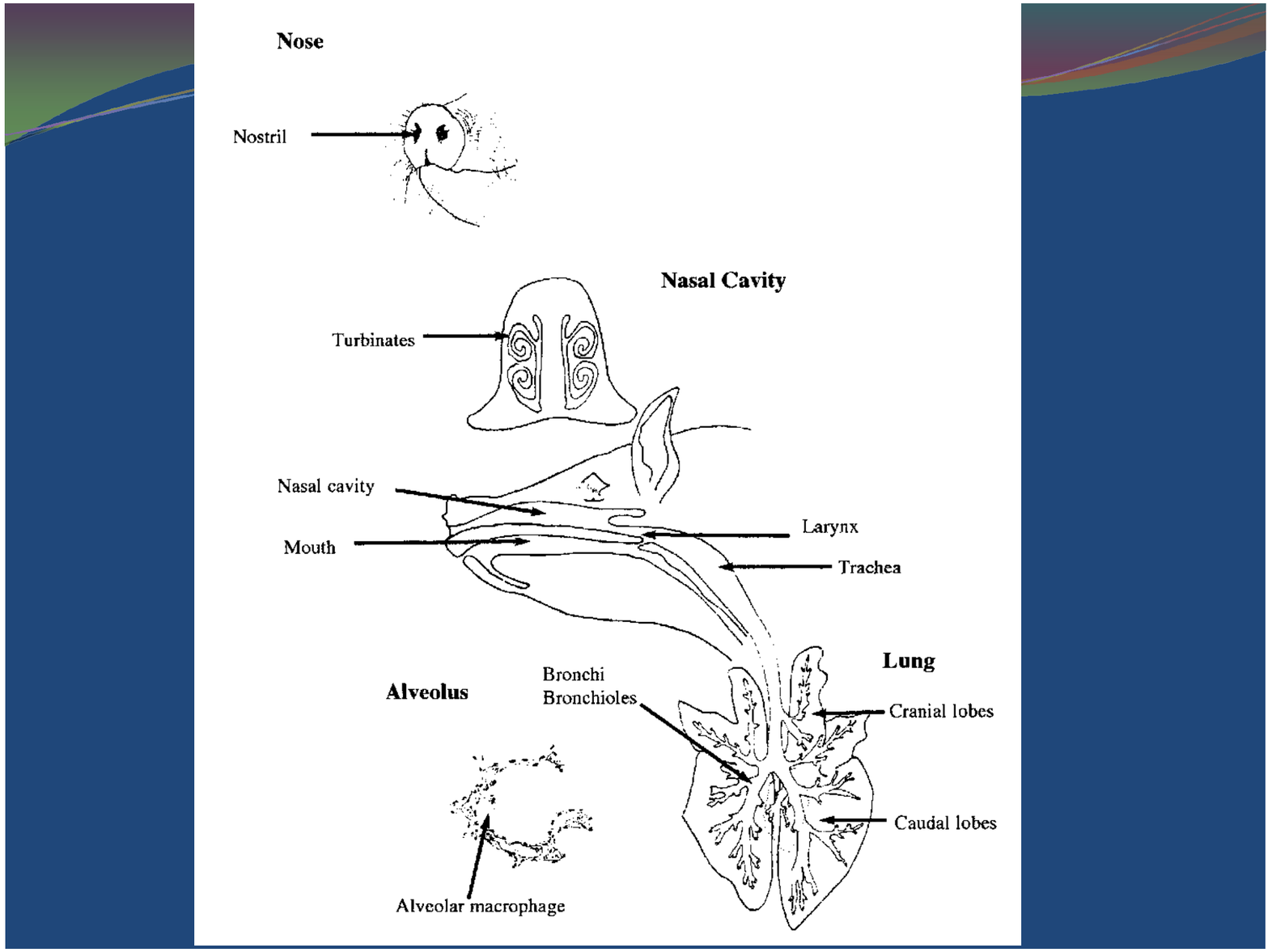


Diagnosis and treatment



- Gene deleated vaccines
- ELISA
- PCR
- IHC

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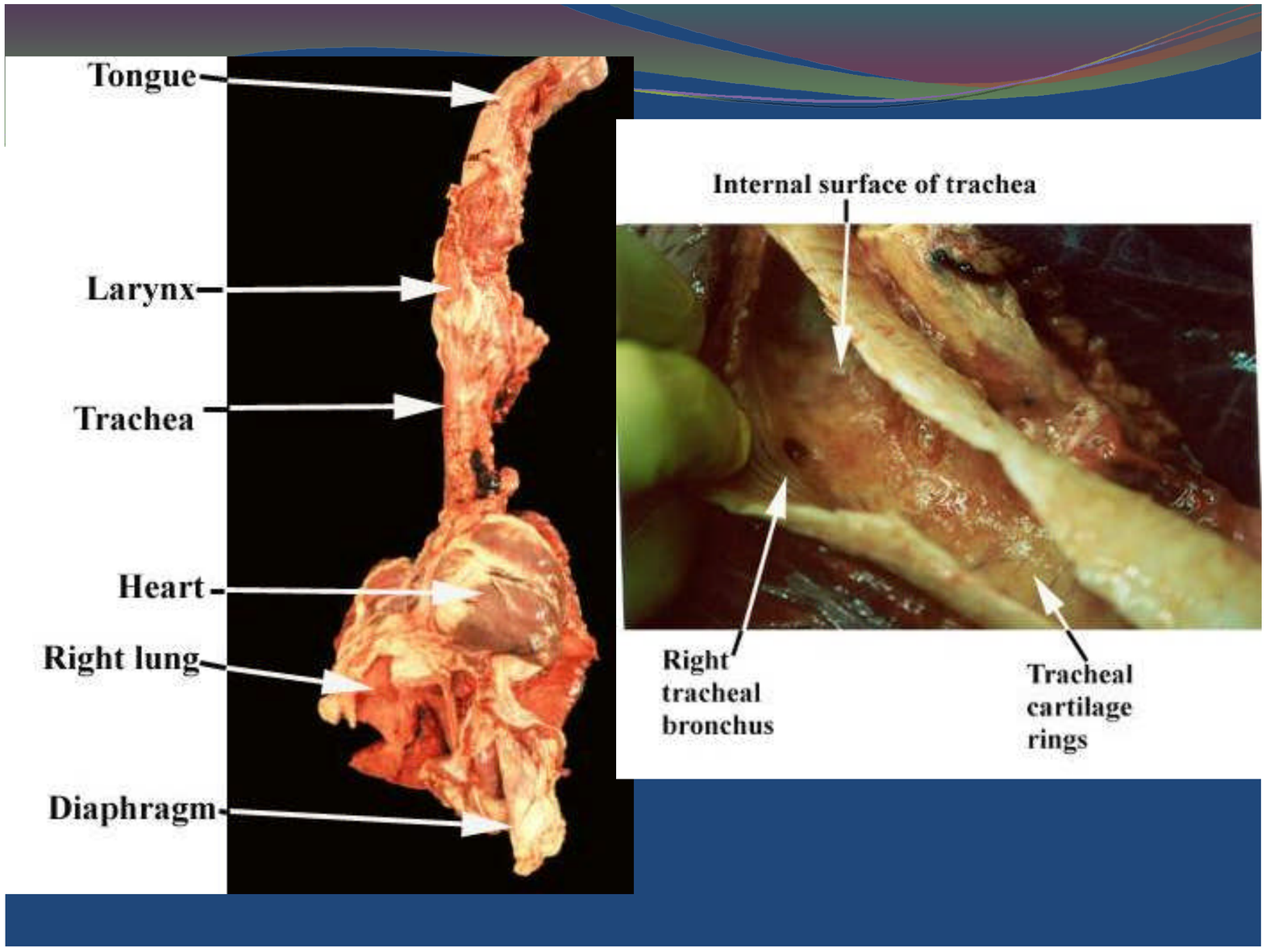
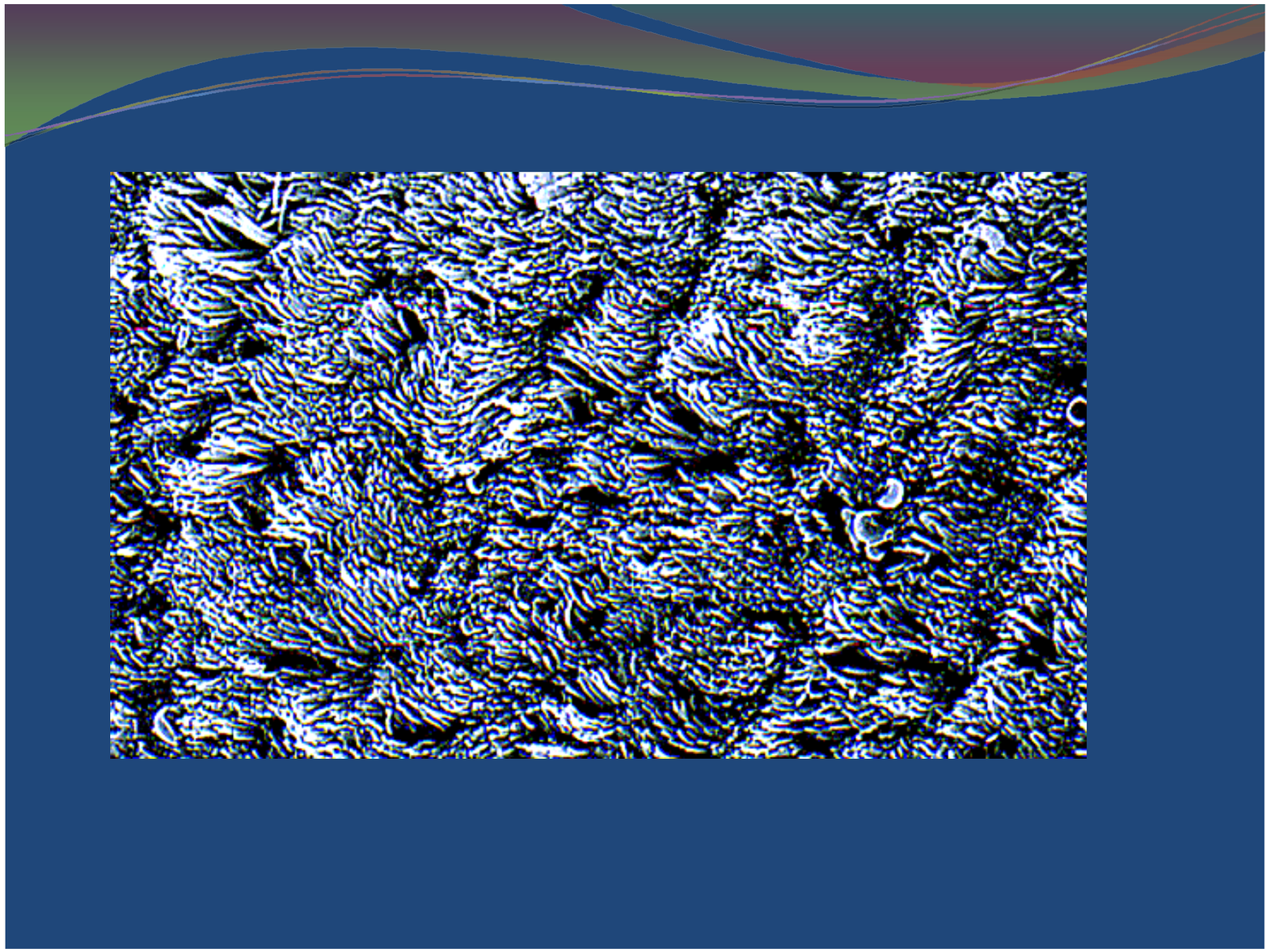
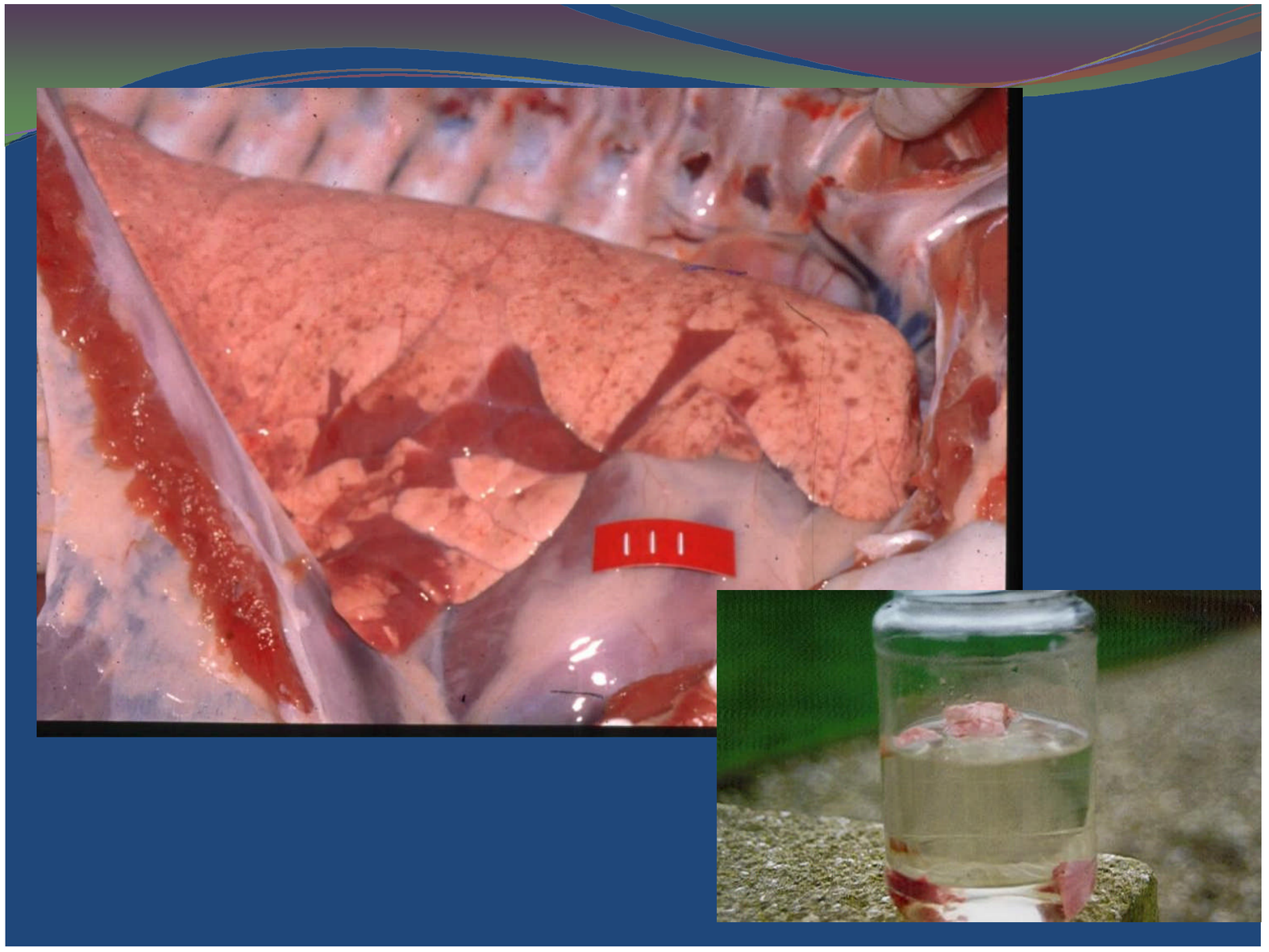
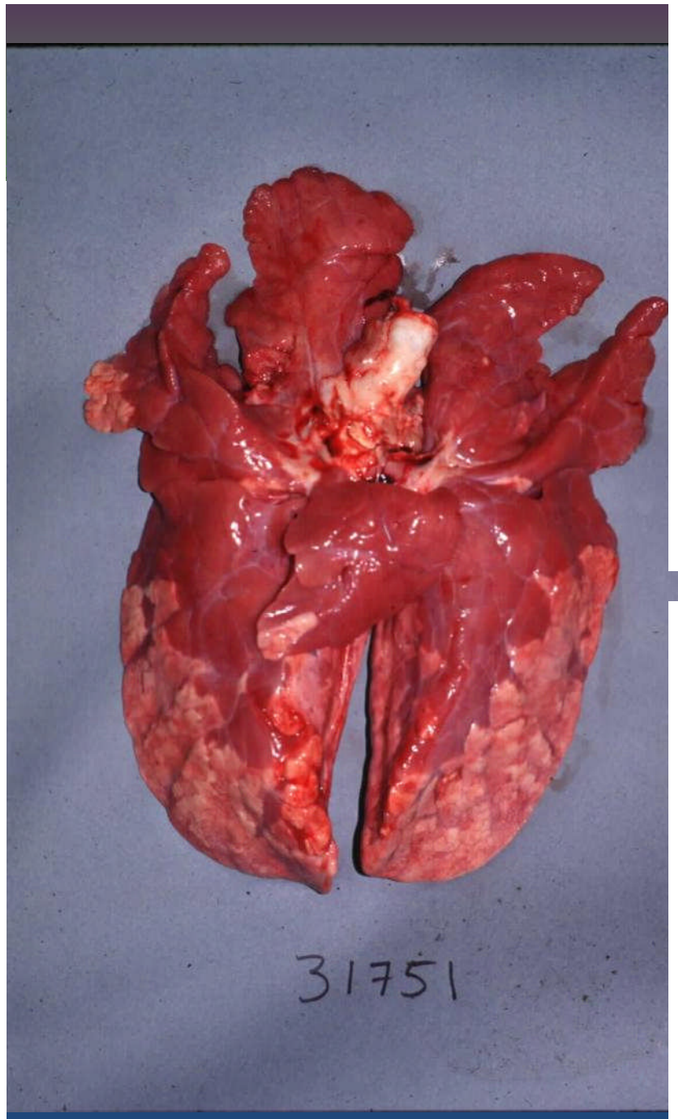

Tongue
Larynx
Trachea
Heart
Right lung
Diaphragm
Internal surface of trachea
Right tracheal bronchus
Tracheal cartilage rings



Mycoplasma (Enzootic) pneumonia

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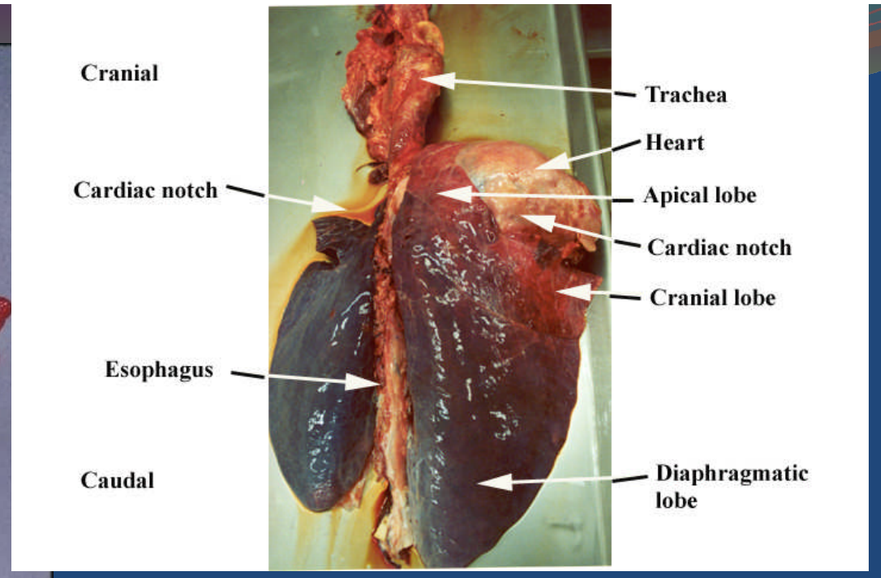
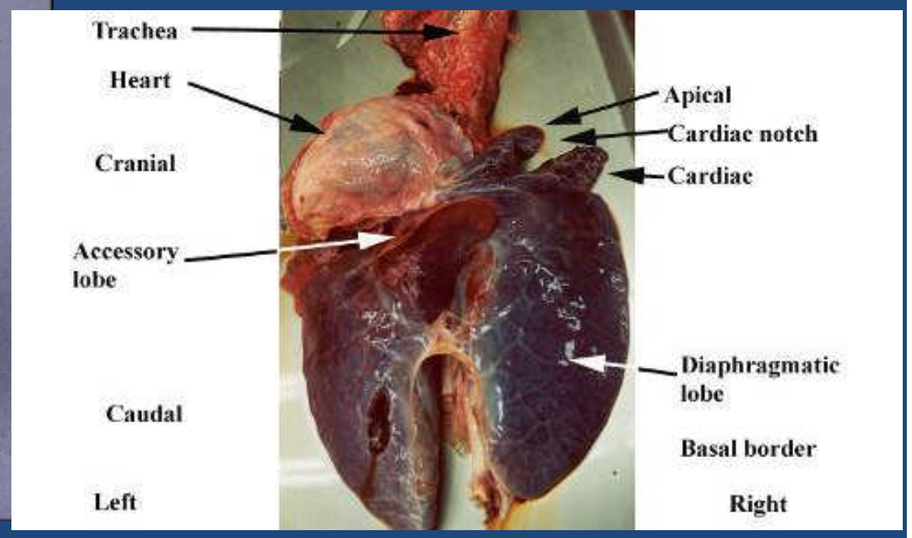
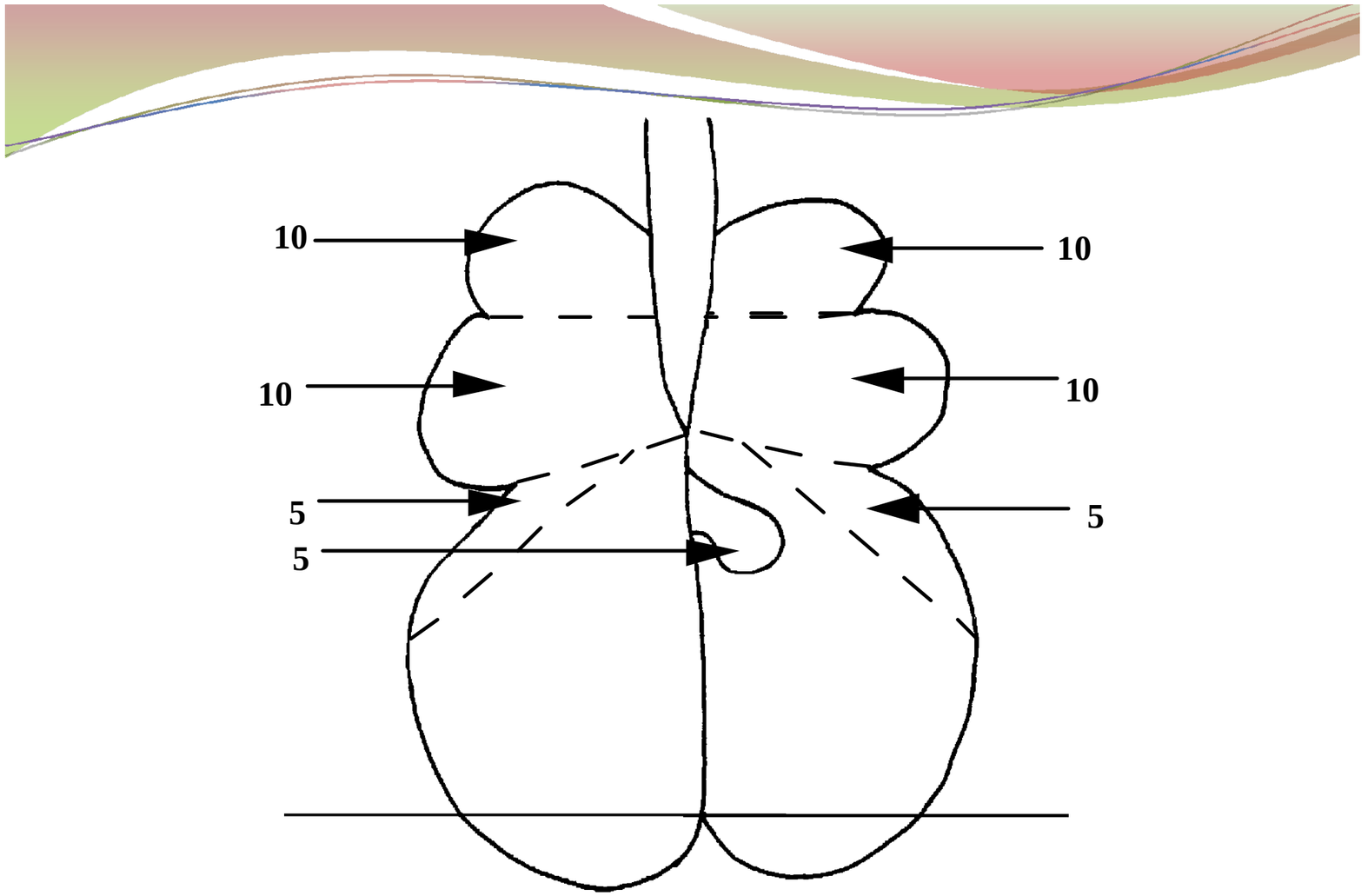

Cranial
Cardiac notch
Esophagus
Caudal
Trachea
Heart
Apical lobe
Cardiac notch
Cranial lobe
Diaphragmatic lobe


Trachea
Heart
Cranial
Accessory lobe
Caudal
Left
Apical
Cardiac notch
Cardiac
Diaphragmatic lobe
Basal border
Right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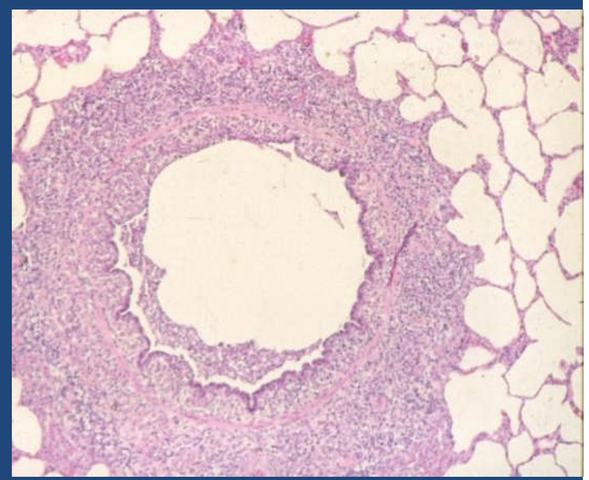
Diagnosis

Mycoplasma hyopneumoniae



It can take 6 months to grow on specific media

Histology is difficult to interpretate

ELISA, PCR and IHC most convienient

IHC

Treatment and control

- Which antimicrobial will not work?

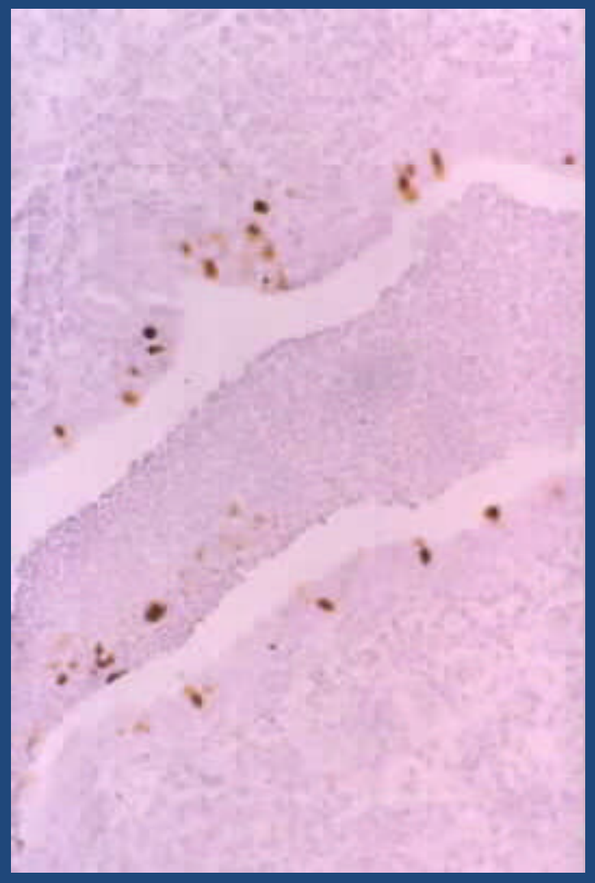
Penicillin **Mycoplasma's have no cell wall**

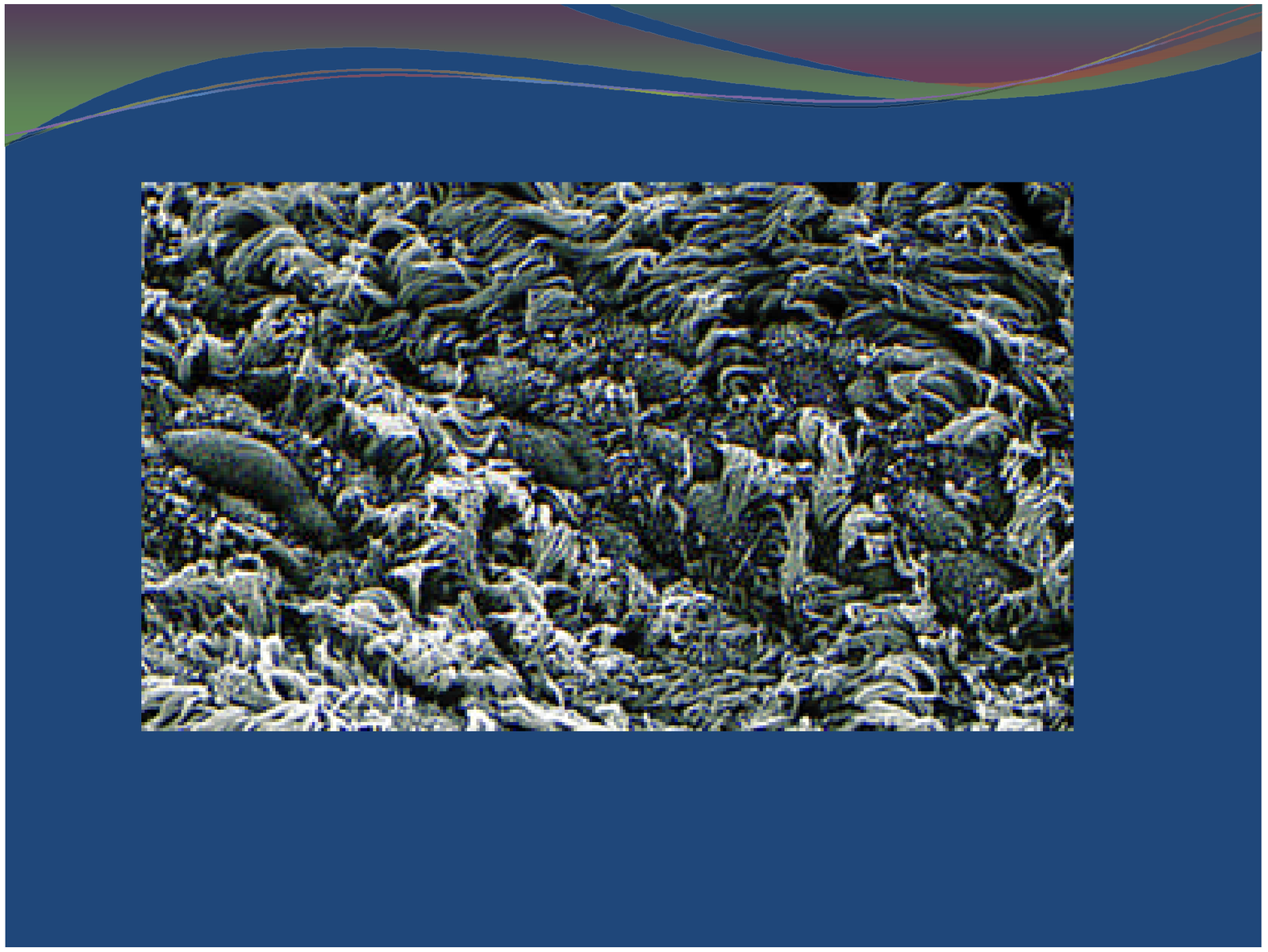
Other treatments
Tetracyclines,
Macrolides – Tylan, Tiamulin, Tilmicosin, Tulathromycin
Lincosamides

Medicated early weaning, depopulation, hysterectomy

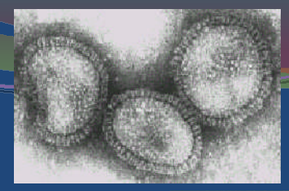
Swine Influenza

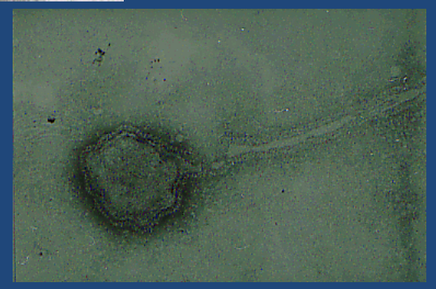
Pathological findings





Swine Influenza virus





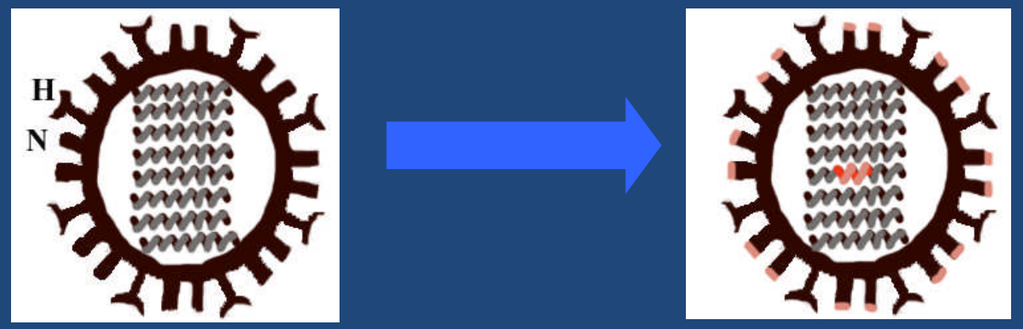
- Orthomyxoviridae virus A

- Characterised by H and N antigens
  - Haemagglutinin and Neuraminidase
- 16 H antigens and 9 N antigens

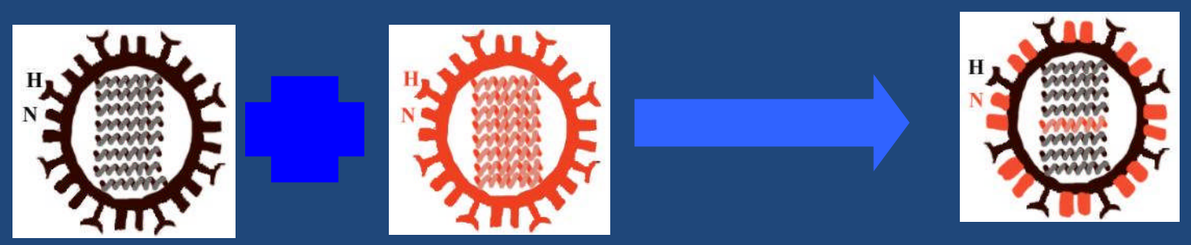
- Classic SIV – H1N1, H3N2
- H5N1 most worrying

Influenza virus genetic changes

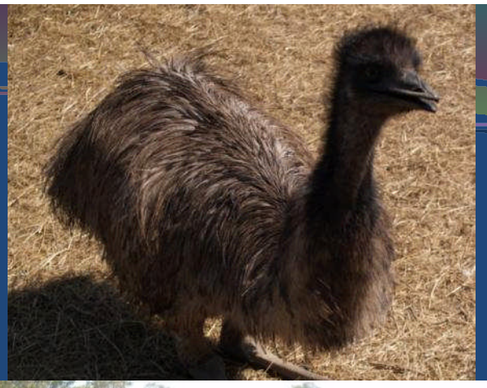
- Genetic drift

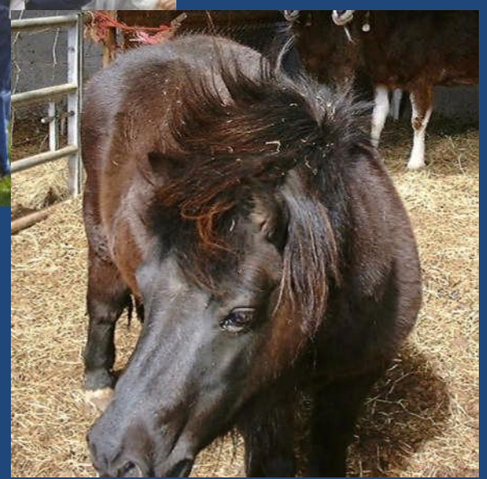


- Genetic shift – 8 chromosomes



H1N1 H3N2 H1N2

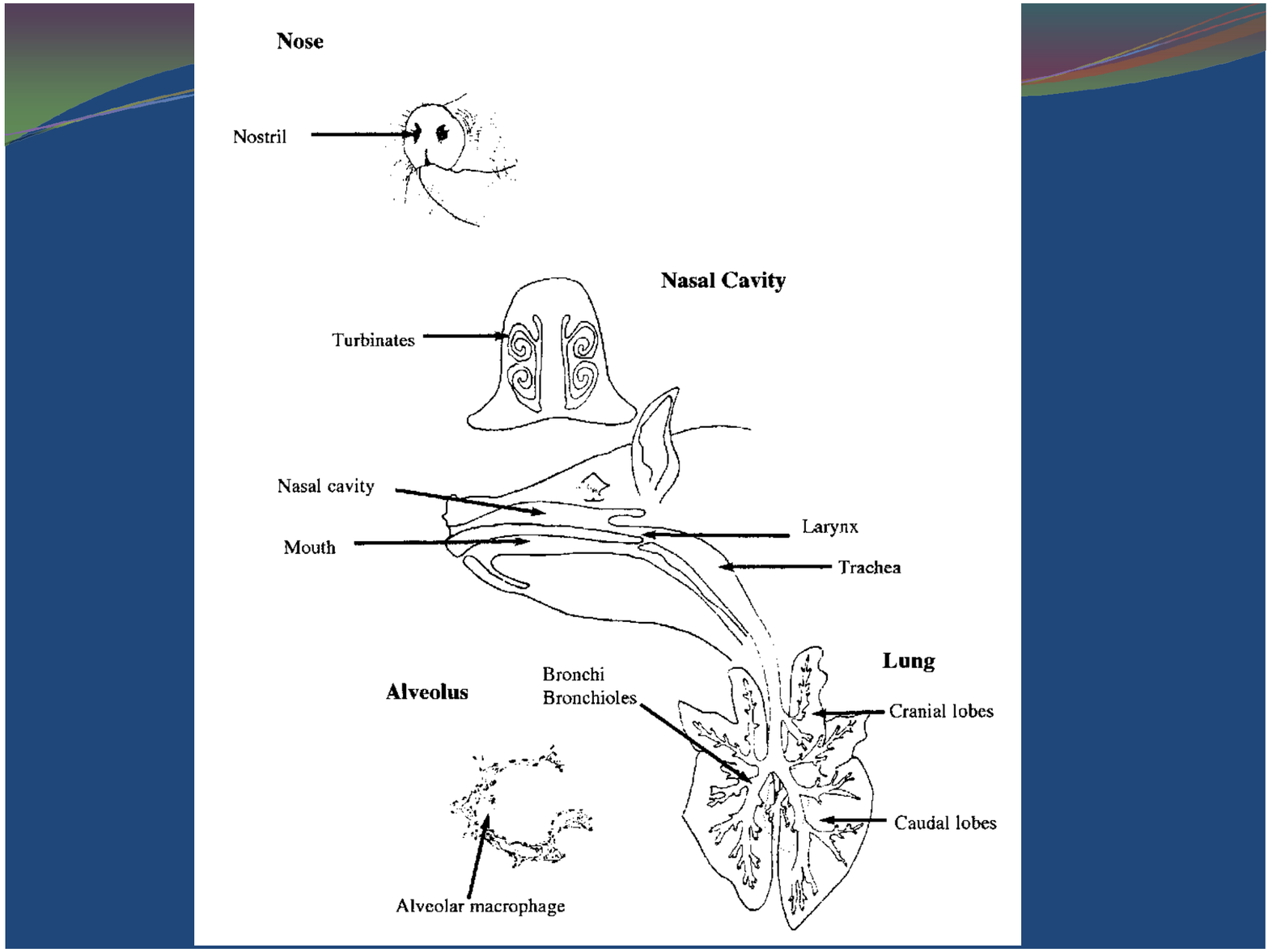




Treatment and control

- Respiratory problems
- All-in/All-out problems - Flow
- Reproductive problems

- Vaccination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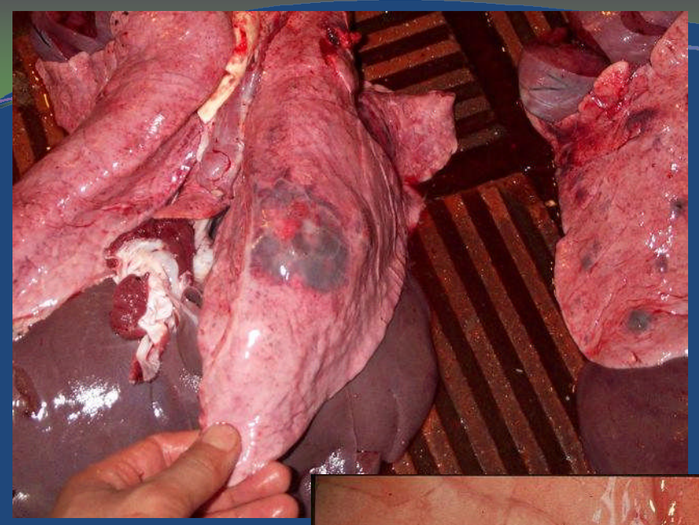
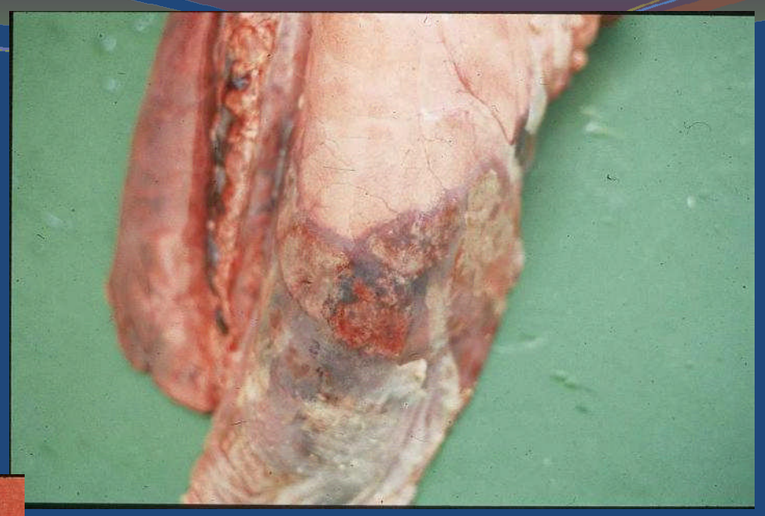
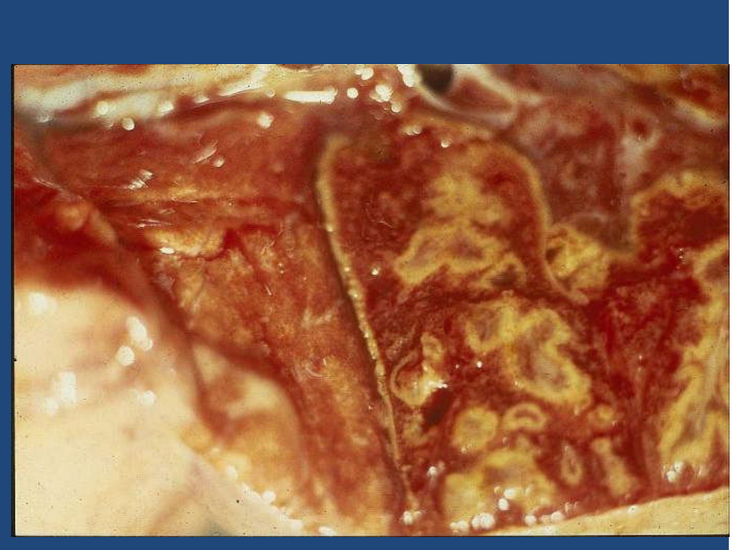
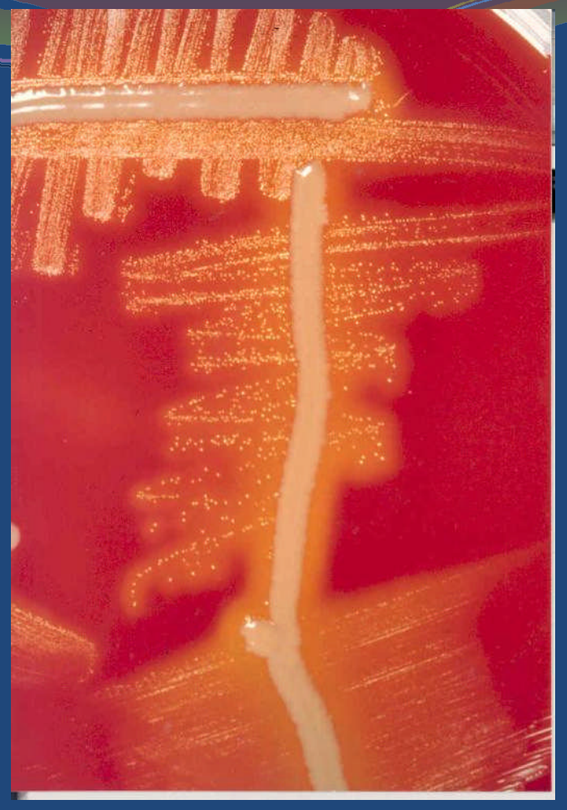
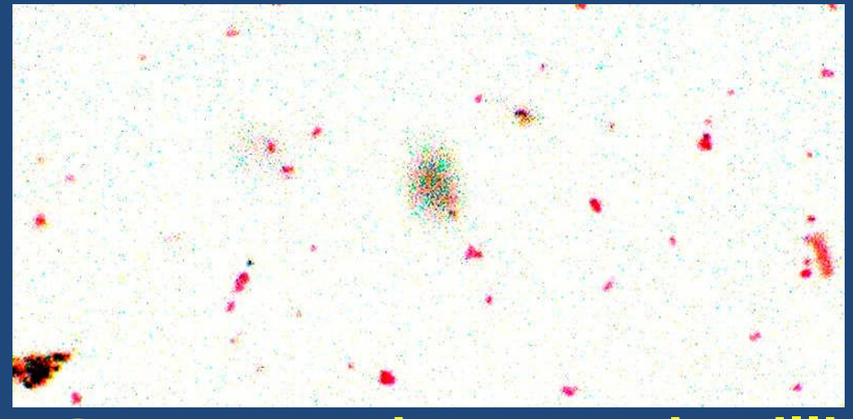
Actinobacillus pleuropneumonia









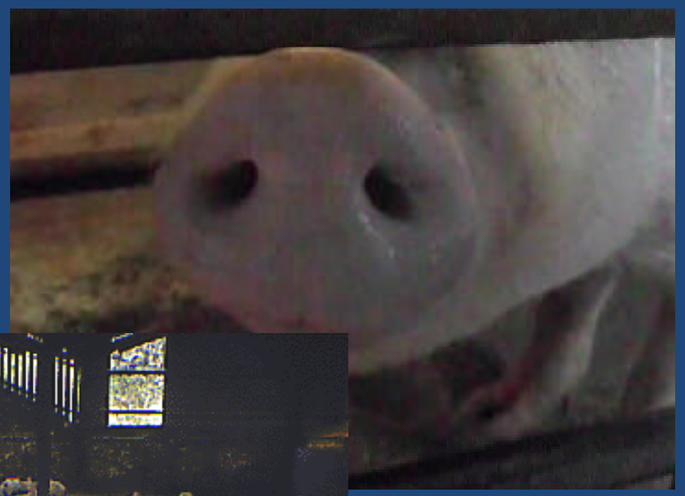


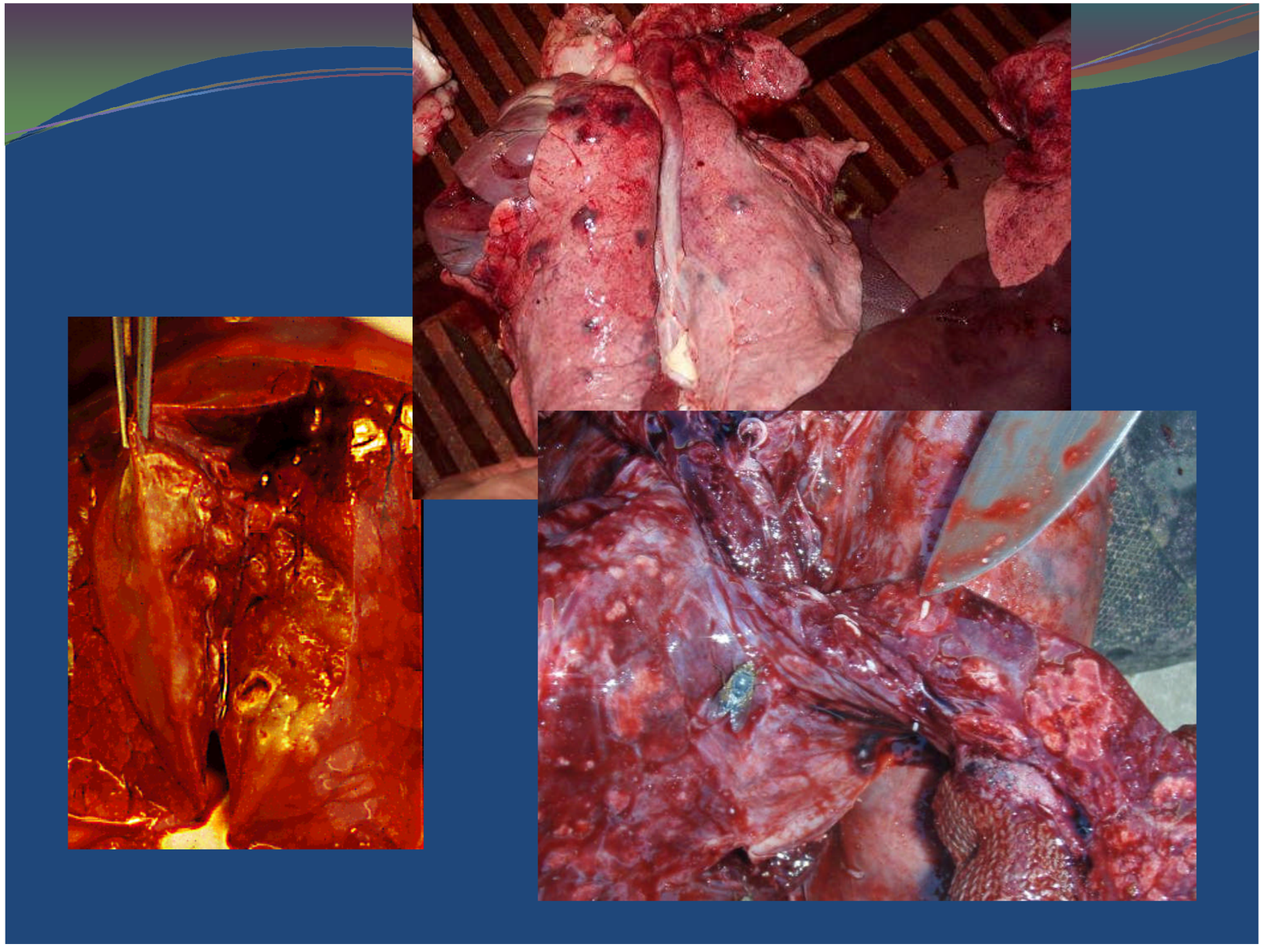
Gram negative coccobacilli –
requires factor V – Nicotinamide adenine dinucleotide

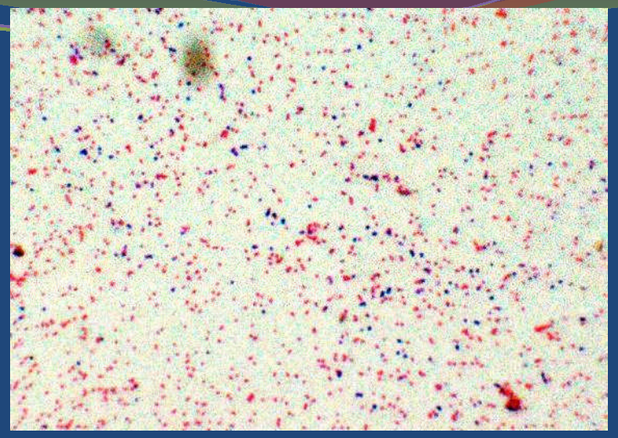
Treatment and control

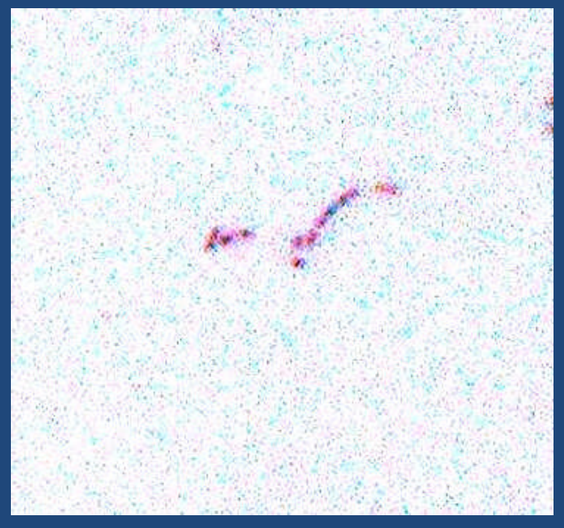
- Penicillins: Ceftiofur,
- Macrolides: Tilmicosin andTulathromycin
- Vaccines
- Partial depopulation

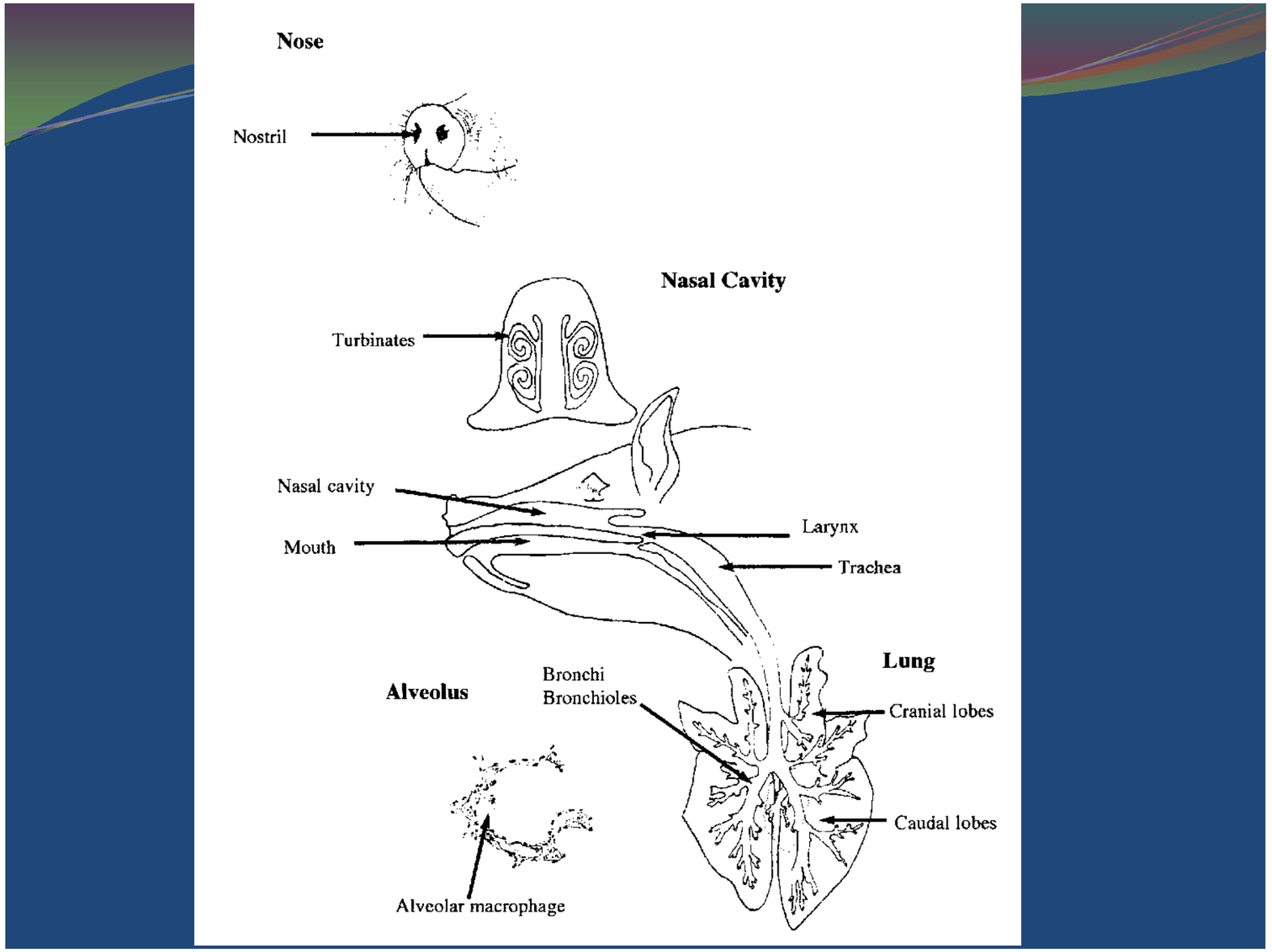
Pasteurella and Streptococcus pneumonia (+PRDC)







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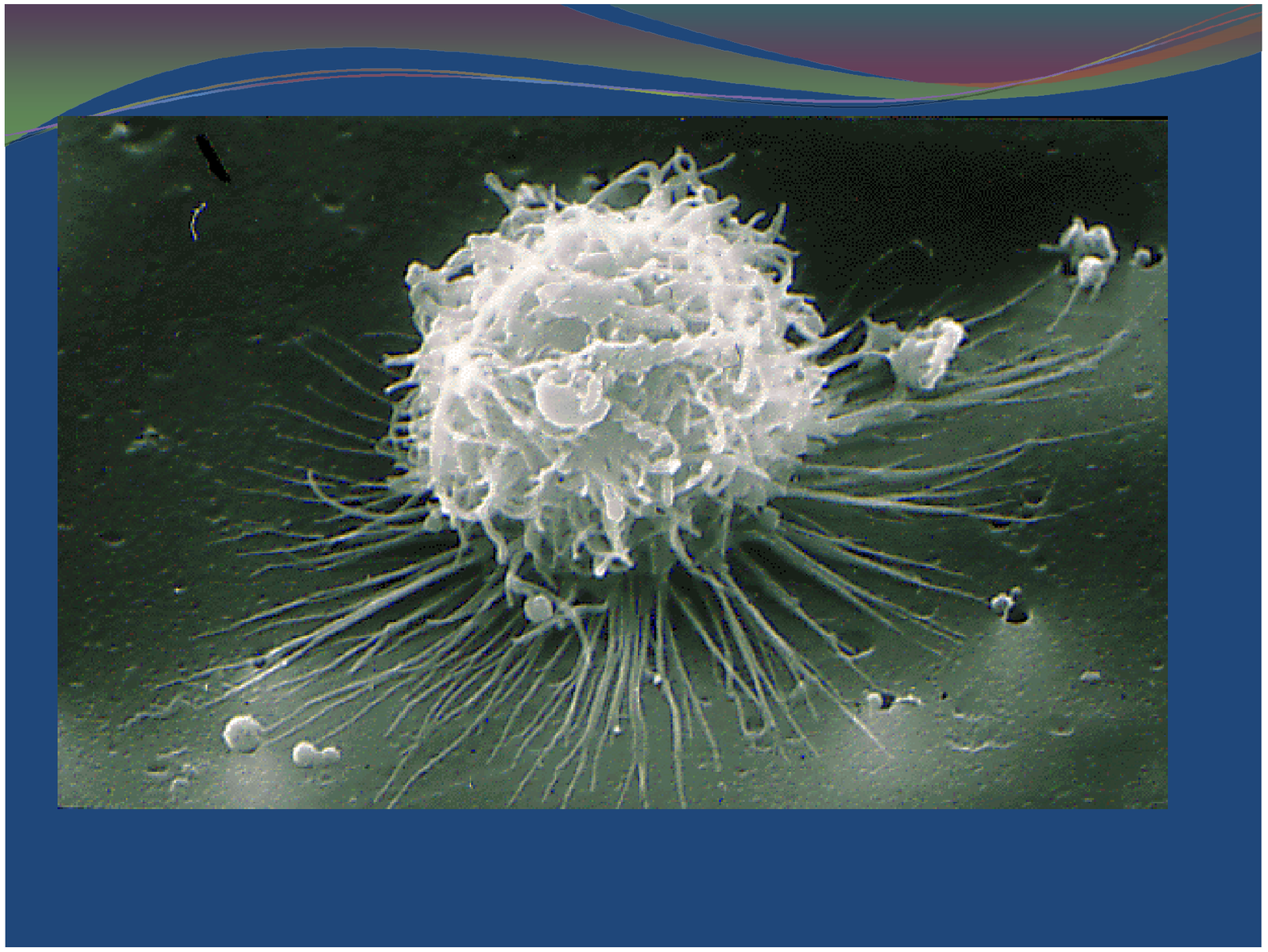
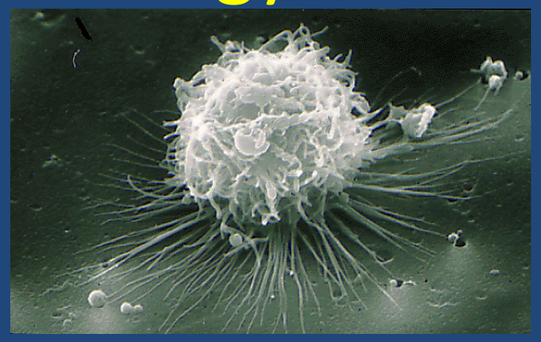
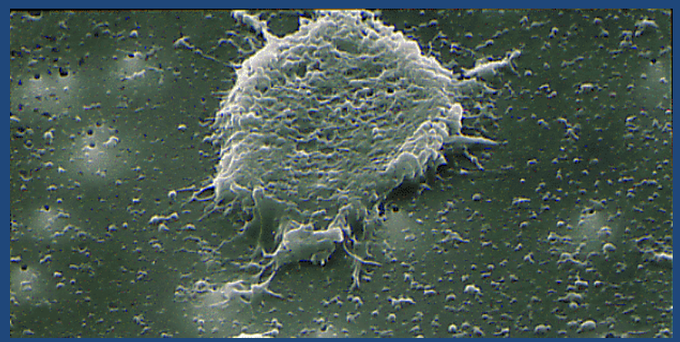
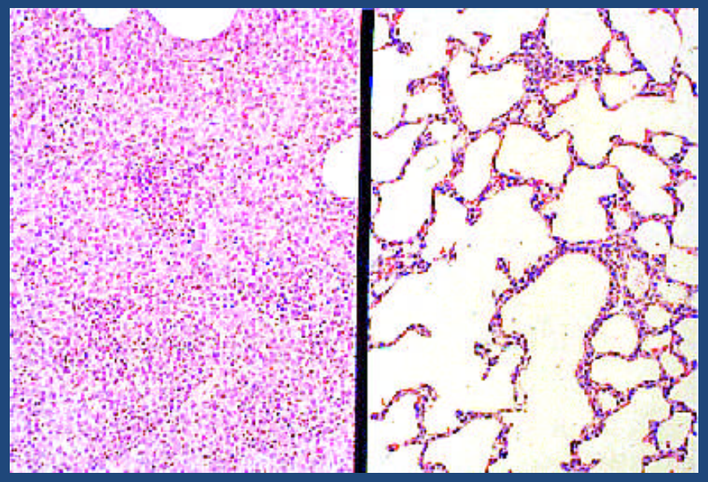


Porcine Reproductive and Respiratory Syndrome - PRRSv

Pathology

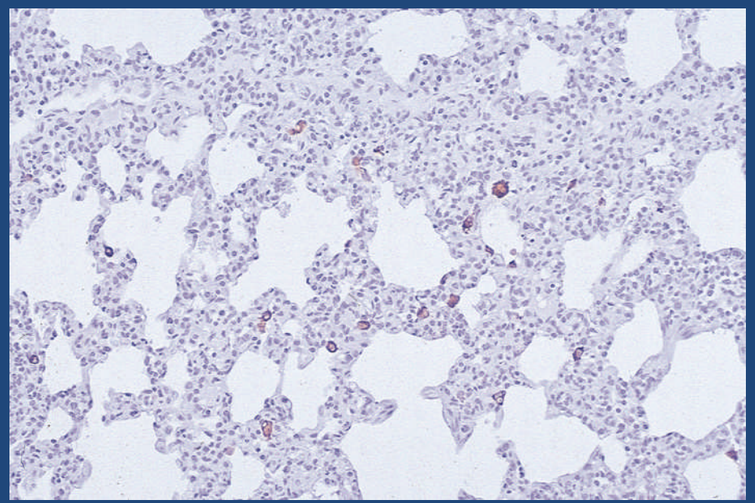






Diagnosis

- ELISA, PRC, IHC



Arterividae – RNA enveloped

Treatment and control

- Unusually some effect with Macrolides – Tiamulin
- Biosecurity – transmission
- Herd closure and allow the virus to die out
- Depopulation
- Vaccine – live and dead

Virus 7 regions of protein production

ORF 1	RNA replicase ORF1a and ORF1b	None structural proteins
ORF 2	Minor membrane glycoprotein GP_{2a} GP_{2b}	Structural proteins
ORF 2-7	Nucleocapsid protein N, nucleolar localization	
ORF 3	Membrane glycoprotein GP_3	
ORF 4	Membrane glycoprotein GP^4	
ORF 5	Major membrane glycoprotein GP_5	
ORF 6	Membrane associated protein - M	
ORF 7	Nucleocapsid protein - N	

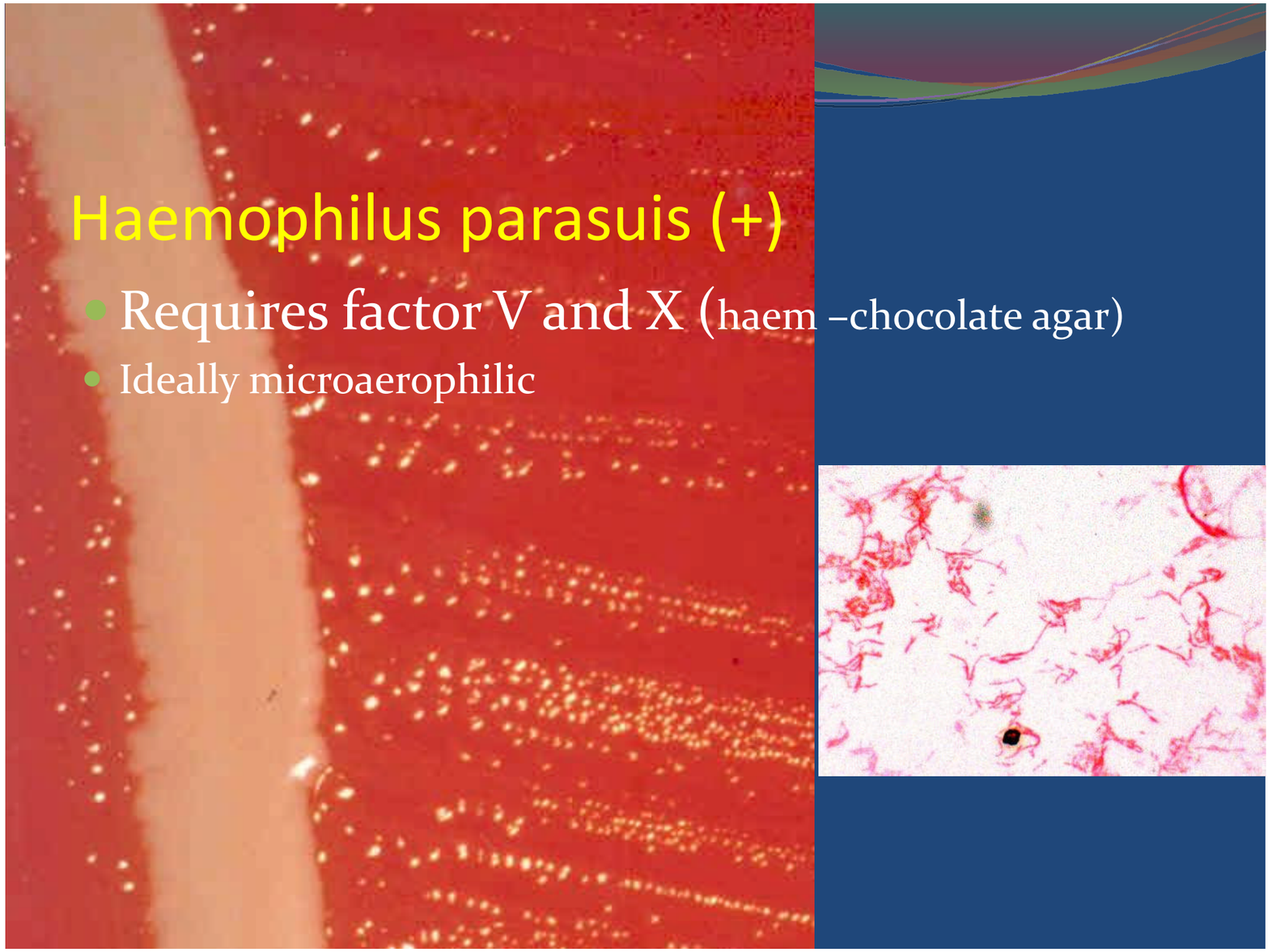
10	20	30	40	Bases
ATG TTG GGG AAA TGC TTG ACC GCG GGC TGC TGC TCG CAA TTG CTT TTT				48
TTG TGG TGT ATC GTG CCG TTC TGT TTT GTT GCG CTC GTC AAC GCC GAC				96
AAC AAC AGC AGC TCC CAT TTA CAG TTG ATT TAT AAC CTG ACA ATA TGT				144
GAG CTG AAT GGC ACA GAT TGG CTA ACT ACA AAT TTT GAT TGG GCA GTG				192
GAG ACC TTT GTC ATC TTT CCT GTA TTG ACT CAC ATC GTC TCC TAT GGT				240
GCC CTC ACC ACC AGC CAT TTC CTT GAC ACA GTC GGT TTG GTC ACT GTG				288
TCC GCC GCC GGA TAC TGC CAC GGG CGG TAT GTC CTA AGT AGC ATT GTG				336
GCT GTC TGC GCC CTG GCC GCG CTG ATT TGC TTC GCC ATC AGG CTG ACG				384
AAA AAC TGC ATG TCC TGG CGC TAC TCA TGT ACT AGA TAT ACT AAC TTT				432
CTT CTA GAC ACC AAG GGG AAA CTC TAT CGT TGG CGG TCT CCC GTC ATC				480
ATA GAG AAA GGG GGA AAA ATC GAG GTT AAC GGT CAC TTG ATC GAC CTC				528
AAG AGA GTT GTC CTT GAT GGT TCC GCG GCA ACT CCT GTA ACC AAA GTT				576
TCA GCG GAA CAA TGG TGT CGT CCT TAG				603

ORF 5
4% genome

Ingelvac ATP	PrimePac	RespPRRS	Suvaxyn	PRRomiSe	Lelystad
86.1%	86.2%	86.7%	86.7%	86.9%	53.4%

Glässer’s Disease

Polyserositis


Haemophilus parasuis (+)
Requires factor V and X (haem –chocolate agar)
Ideally microaerophilic

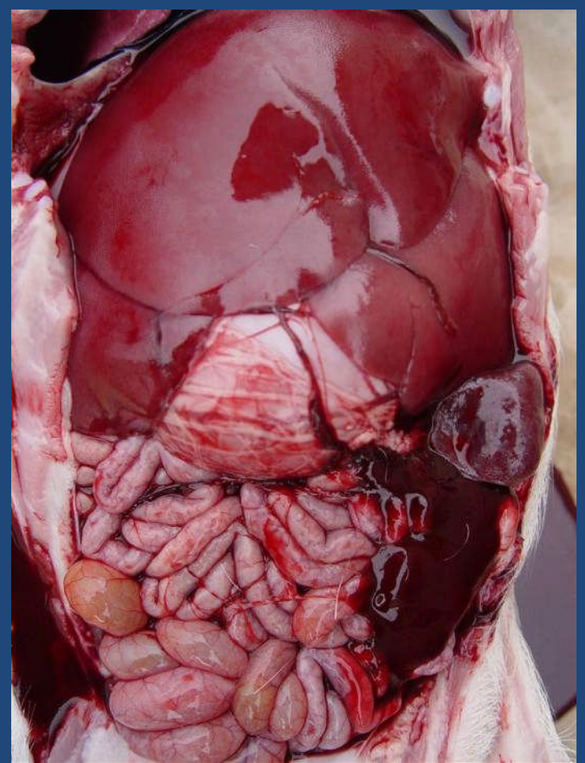
Treatment and control

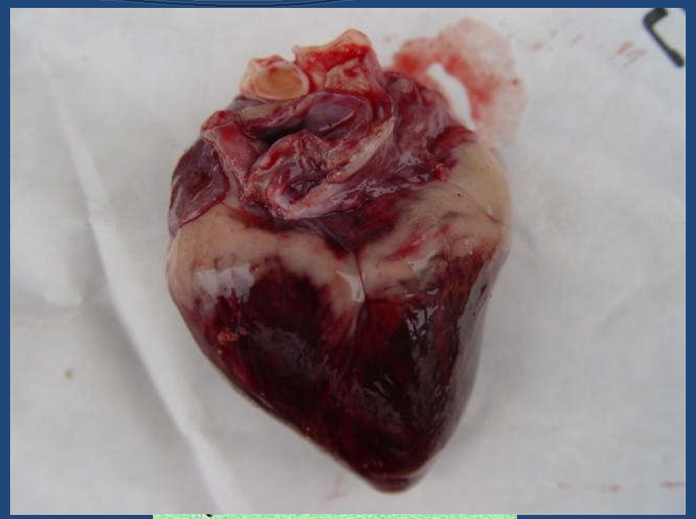
- Tulathromycin and Ceftiofur
- Remove stressors
- Vaccination – ideally to the sow

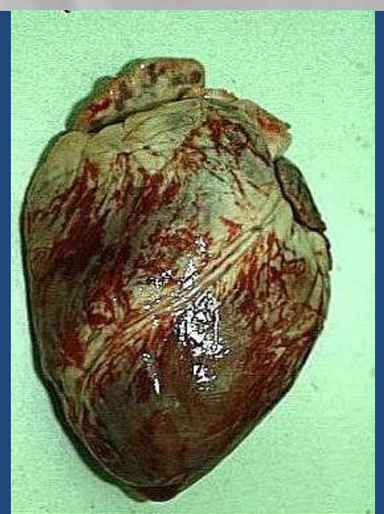
Management of stressor – air for example

Mulberry Heart Disease

Pathology







Treatment and control

- Vitamin E deficiency

- Review feed storage practices