



# Top Pig Diseases to Know for Boards Success Part 2

## Musculoskeletal & dermatological conditions



Focus your pig study on the top diseases

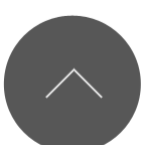
- Remember that only 15 (6%) NAVLE® test questions cover pigs.
- Erysipelas* and *Trichinella* are zoonotic.
- Today, most US human trichinosis from eating undercooked game (bear meat), not pork.

### 6. *Mycoplasma hyorhinis* and *M. hyosynoviae*

- Classic case: both can cause lameness/swollen joints
  - *M. hyorhinis* affects nursery pigs (three to 10 weeks of age)
    - Unthrifty pigs post-weaning
    - Head tilt: Otitis media
    - Lameness and swollen joints
    - Cough
  - *M. hyosynoviae* affects finishing pigs (10 to 20 weeks of age)
    - Acute lameness with or without joint swelling
    - Up to 50% mortality
- Etiology
  - *M. hyorhinis* grows better in culture than other types of *Mycoplasma*, others are too slow-growing
- Dx
  - Gross lesions: think thickened tissues
    - *M. hyorhinis*
      - Fibrinous pleuritis, pericarditis, and sometimes peritonitis
      - Thick serosal membranes and fibrinous adhesions
    - *M. hyosynoviae*
      - Thick, edematous synovial membranes and joint structures
      - Increased volume of synovial fluid (± brown or cloudy)
  - Microscopic lesions
    - *M. hyorhinis*: *Mycoplasma* may be visualized on the cilia of the inner ear



Culture of serosal surface or PCR can be used to diagnose *M. hyorhinis*



- *M. hyosynoviae*: Perivascular infiltration of lymphocytes, plasma cells, macrophages
- For both: PCR on joint fluid
  - *M. hyorhinis*
    - Swabs of serosal surfaces or joints (not lungs)
    - Can culture joint fluid (pre-mortem sample)
- Tx
  - Both: Injectable antimicrobials
    - Tylosin
    - Lincomycin
  - Early Tx for *M. hyorhinis* is effective but advanced Dz is refractory
  - Low mortality rate for *M. hyosynoviae*
- Pearls
  - *M. hyorhinis*
    - Ubiquitous organism in the porcine respiratory tract
    - Disease results from invasion and systemic proliferation of the organism
    - Clinically similar to *Glaesserella* and *Streptococcus*
  - *M. hyosynoviae* is not found in pigs < 4 wks of age, OCD may predispose
    - Similar presentation to *Erysipelas* but will not respond to Tx with penicillin

## 7. *Glaesserella parasuis* (a.k.a. “Glässer disease” and previously called *Haemophilus parasuis*)

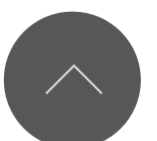
- Classic case
  - Ages affected: Nursery pigs (three to 10 weeks of age)
    - Sudden death
    - Fever
    - Cough
    - Neurologic signs: Head tilt
    - Lameness and swollen joints
    - Wasting/unthrifty pigs
  - Mortality is high once showing signs if delay or fail to provide individual Tx
  - May find suddenly dead pigs in some cases
- Etiology
  - Small gram-negative rod with many serovars
  - Hard to grow in lab
- Dx
  - Gross lesions: Fibrinous polyserositis of the peritoneum, pericardium, and pleura
  - Microscopic lesions
    - Polyserositis with fibrinopurulent exudate consisting of fibrin, neutrophils, and macrophages on serosal surfaces
    - Fibrinopurulent meningitis
  - PCR is best since it is difficult to culture
  - Try culture of locations where the microbe is not expected
    - Serosal surface



*Pigs newly showing wasting and swollen joints (arrow) consistent with Glaesserella infection*



*Lungs with serosal fibrin is a classic sign of Glaesserella*



- Exudate
- Tx
  - Prompt injection of appropriate antimicrobials
    - Ceftiofur
    - Enrofloxacin
    - Tulathromycin
  - Vaccination
    - Piglets twice
    - Sows pre-farrowing
- Pearls
  - Commonly diagnosed cause of poor nursery pig performance
  - Prognosis depends on the speed of Tx

## 8. Seneca Valley virus

**REPORTABLE:** Signs of foot and mouth Dz (FMD) in pigs are **INDISTINGUISHABLE** from signs of Seneca Valley virus, swine vesicular Dz, and vesicular exanthema

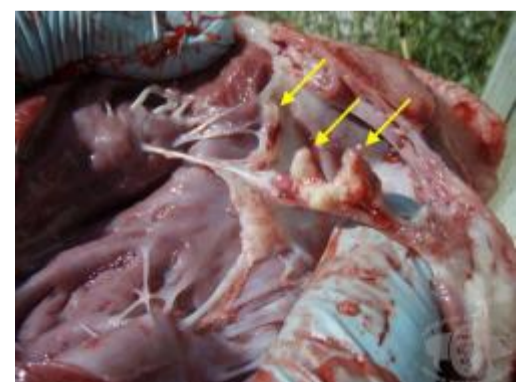
- Classic case
  - Any age animal
  - Typical outbreaks in sows (with stress): Lameness
  - Cases peak in summer
  - Multifocal round erosions or vesicles on distal limb (coronary band), snout/nares, lips/oral mucosa
- Etiology: Picornavirus, genus Senecavirus
- Dx
  - Gross lesions as described above
  - Microscopic lesions: Lesions seen in the stratified squamous epithelium
  - Virus isolation or PCR on serum, oral fluids, vesicles, or vesicle swabs
- Tx
  - There are no known treatments or control measures
  - Must report vesicles in regions free of foot and mouth disease
- Pearls
  - Emerging disease of swine
  - Prognosis is usually good but may cause high mortality in neonates



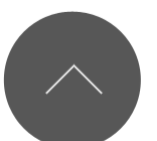
*Vesicles on the feet of a pig consistent with foot and mouth disease or Seneca Valley virus*

## 9. Streptococcus suis

- Classic case
  - Ages affected: Farrowing room to nursery (one to 10 weeks of age)
    - Cough
    - Neurologic signs: head tilt, seizures
    - Swollen joints and lameness
- Etiology
  - Multiple capsular types
  - Facultatively anaerobic, gram-positive, nonmotile coccus (chains)
- Dx
  - Gross lesions



*Vegetative valvular endocarditis with Strep can help differentiate from Glaeserella*





*Fibrin adhering the heart to thickened pericardial sac consistent with Strep. suis*

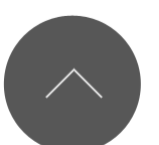
- Fibrinous polyserositis
- Vegetative valvular endocarditis (differentiates from *Glaeserella*)
- Microscopic lesions
  - Suppurative bronchopneumonia
  - Neutrophilic meningitis or encephalitis
  - Fibrinopurulent or suppurative epicarditis
  - Interstitial pneumonia secondary to septicemia
- Culture from tissue other than lung, especially protected spaces, e.g.:
  - Brain
  - Joint
  - Pericardial sac
- Tx
  - Injectable antimicrobials: Ceftiofur, enrofloxacin
  - Injectable steroids
  - Reported mortality depends on treatment: [Can range from 2-20%](#)
  - Prevention!
    - Use clean tools for tail docking and castration
    - Keep farrowing rooms clean
    - Maintain good ventilation
- Pearls
  - ZOONOTIC: Re-emerging human pathogen: septicemia, meningitis, permanent hearing loss, endocarditis, arthritis
  - Common agent in nursery pigs
  - May be found in pigs with pneumonia
  - More common at times of high humidity
  - Prognosis is good with prompt Tx but poor once animals are showing neurologic signs

## 10. [Sarcoptic mange](#)

- Classic case
  - Pruritus
  - Decreased growth rate
- Etiology
  - Burrowing mite: *Sarcoptes scabiei*
  - Entire life cycle is on the skin
  - Sows are reservoirs and pass it to piglets
  - Demodectic mange is unimportant in swine
- Dx
  - Gross lesions
    - Erythematous skin
    - Progresses to papules on the rump, flank, and abdomen
    - Alopecia and abrasions from scratching
  - Microscopic lesions
    - Papules contain eosinophils, mast cells, and lymphocytes
  - Identify the mite on scrapings from inside ear
- Tx
  - Acaricides
    - Injectable: Ivermectin, doramectin
    - Topical: Permethrin



*Note the erythematous skin in this pet pig with sarcoptic mange*



- Eliminate from breeding stock
- Pearls
  - Rare in confined herds in the U.S.
  - Good prognosis
  - DDx may include sunburn

### 11. *Staph. hyicus* a.k.a. “greasy pig disease” or “exudative epidermitis”

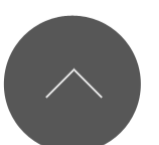
- Classic case
  - Starts with focal red areas and clear exudate in groin or on face
  - Progresses to coalescing lesions with a thick brown exudate
  - Eventually exudate will be thick, black, with a layer of crust over thick, wrinkled skin
- Etiology
  - Gram-positive cocci
  - Normal skin flora
  - Exfoliative toxins linked to virulence
- Dx
  - Gross lesions
    - As described above plus lymphadenopathy
  - Microscopic lesions
    - Serocellular crusts of neutrophils and fibrin
    - Epidermis is ulcerated and/or hyperplastic
  - Dx based on typical appearance of lesions + culture of lesions
- Tx
  - Early Tx with antimicrobials can be successful, though may be resistant
    - None labelled for *Staph. hyicus* so base choice on susceptibility
  - Topical sprays containing chlorhexidine and mineral oil
  - Prognosis: Good if disease is mild and treated early
    - Poor if other underlying factors are present, e.g.: viruses, poor husbandry, gilt litters (young mothers, poor colostrum)
- Pearls
  - Most common staphylococcal skin disease of pigs



*Skin lesions of Staph. hyicus may appear first on the face and ears*

### 12. *Erysipelas rhusiopathiae* a.k.a. “diamond skin disease”

- Classic case
  - Acute
    - Septicemia resulting in lethargy, fever, painful joints, decreased feed intake, classic diamond-shaped skin lesions
  - Subacute
    - Milder version of acute form
  - Chronic
    - Follows acute/subacute infections
    - Chronic arthritis w/ enlarged hock/stifle/carpus
- Etiology
  - Gram-positive rod, facultative anaerobe
  - Several serotypes
- Dx



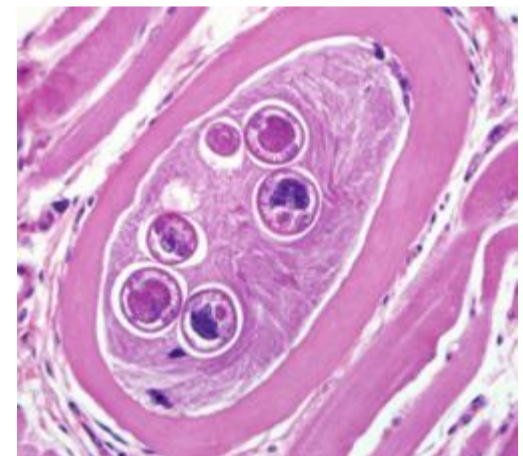
- Gross lesions
  - Multifocal raised rhomboid/square/diamond-shaped, red to purple skin lesions
  - Vegetative valvular endocarditis
  - Petechiae on renal cortex
- Microscopic lesions
  - Blood vessels in dermis and other tissues: Dilated and congested with bacterial emboli that occlude vessels
  - Leads to focal necrosis
- Culture affected tissues with histopathologic lesions
- Tx
  - Injectable antimicrobials in affected pigs
    - Penicillin
    - Lincomycin
    - Tylosin
  - Vaccination
    - Sow twice at pre-breeding and at each weaning
    - Piglets twice
- Pearls
  - Outbreaks in pigs may occur cyclically (every 10 years or so)
  - ZOONOTIC
  - Good prognosis with prompt Tx



*Hunched appearance, loss of body condition, diamond-shaped skin lesions indicate Erysipelas*

### Bonus! - [Trichinellosis](#)

- Classic case: No clinical signs in pigs - all about the zoonotic threat
- Etiology
  - Several species exist in different regions
  - *T. spiralis* in North America and Europe
- Dx
  - Histopath of muscle tissue: ID cysts (in diaphragm)
  - ELISA
- Tx: None for swine
  - Focus on transmission
    - Cook pork to 145°F(63°C)
    - Regulations for garbage feeding in swine
- Pearls
  - ZOONOTIC: Via ingestion of infected muscle tissue
  - More common from other sources than pork like consumption of bear meat



*Encysted larvae of Trichinella spp. in muscle at 400x stained with H&E*

All images courtesy of Meghann Pierdon, VMD, DACAW, except where noted - [Trichinella histopath](#) (U.S. Centers for Disease Control) and the [vesicular lesions on the feet](#) (USDA).

