Quiz Questions

Dr. John Carr
Question 1

- You examine a hog carcass with moderately severe lesions of tuberculosis (TB) in the mesenteric lymph nodes. You find no other lesions of TB, but there is a purulent abscess in the right shoulder. All other tissues are unremarkable. What is the most appropriate course of action?
  
a. Condemn the carcase and parts
b. Remove the involved tissues and pass the remainder unrestricted
c. Remove the involved tissues and pass the remainder for cooking only
d. Submit samples to the laboratory and made a decision based on their results
e. Pass the entire carcass
Answer to question 1

- b. Remove the involved tissues and pass the remainder unrestricted

Note that Hog TB is handled differently than cattle TB
Question 2

- Raised, crusty lesions on the ventrum, with a peripheral zone of hyperemia and a central zone of healed tissue, describes which porcine disease?

a. Exudative epidermitis
b. Swine pox
c. Erysipelas
d. Pityriasis rosea
e. Sarcoptic mange
Answer to question 2

• d. Pityriasis rosea

Also know as juvenile pustular psoriaform dermatitis, this self healing disease affects mainly the ventrum and forms expanding lesions with a central healed zone.
Question 3

- Which pathogen of pigs is not a potential pathogen of people

  a. *Erysipelothrix rhusiopathiae*
  
  b. *Trichinella spiralis*
  
  c. *Actinobacillus pleuropneumoniae*
  
  d. *Brucella suis*
  
  e. *Streptococcus suis*
Answer to question 3

- c. *Actinobacillus pleuropneumoniae*
Question 4

- Peribronchiolar lymphoid hyperplasia is characteristic of which respiratory disease in swine?
  a. Swine influenza
  b. Porcine reproductive and respiratory syndrome
  c. *Pasteurella multocida* infection
  d. Mycoplasma infection
  e. *Metastrongylus apri* infection
Answer question 4

- d. Mycoplasma infection
Question 5

- Massive hepatic necrosis in pigs may be caused by any of the following except:

  a. Gossypol toxicosis
  b. Vitamin E/selenium deficiency
  c. Fumonisin toxicosis
  d. Aflatoxicosis
  e. Coal tar toxicosis
Answer Question 5

- c. Fumonisin toxicosis

Fumonisin toxicosis causes pulmonary oedema
Question 6

“Milk spots” in the liver of pigs are caused by migration of larval stages in:

a. *Trichuris suis*
b. *Macracenthorhynchus hirudinaceus*
c. *Ascaris suum*
d. *Oesophagostomum dendatus*
e. *Ancylostoma duodenale*
Answer question 6

- c. *Ascaris suum*
Question 7

- Based on gross lesions found at necropsy, you suspect *Salmonella choleraesuis* infection in a group of pigs. What is the best samples to collect for histopathologic examination to confirm your tentative diagnosis?

  a. Lung
  b. Intestine
  c. Skin
  d. Liver
  e. Large intestine
Answer 7

- d. Liver

- Parathyroid nodules (microscopic, multifocal, randomly distributed necrosis, with infiltration by histiocytes and neutrophils) in the liver are almost pathognomonic for this infection in pigs.
Question 8

- Megacolon in feeder/finisher pigs is often secondary to rectal stricture. What is the initiating cause (possibly weeks earlier) of this sequence of lesions?
  a. Colibacillosis
  b. Trichuriasis
  c. *Salmonella choleraesuis* infection
  d. *Salmonella typhimurium* infection
  e. *Brachyspira hyodysenteriae* infection
Answer question 8

- d. *Salmonella typhimurium* infection
- One of the lesions of *Salmonella typhimurium* infection is thrombosis of blood vessels supply the rectum, leading to ischemic necrosis, fibrosis, stricture and megacolon. This sequence of events may take weeks to develop; the history may include an episode of diarrhea several weeks earlier.
The porcine liver has six lobes that are partially or completely separated by external fissures. Which of the following structures are absent in pigs?

- a. Gallbladder and bile duct
- b. Divided left and right lobes
- c. Papillary process of the caudate lobe and caudate ligament
- d. Quadrate lobe not extending to the ventral border and hepatic (portal) lymph node at the hepatic portal (hilus)
- e. Renal impression for the right kidney and gallbladder
Answer question 9

- c. Papillary process of the caudate lobe and caudate ligament
Question 10

- Differential diagnosis for the cause of diarrhoea in finishing pigs should include all the following except:
  a. Salmonellosis
  b. Proliferative ileitis
  c. Swine dysentery
  d. Colibacilliosis
  e. Trichuriasis
Answer question 10

- d. Colibacilliosis

- Colibacilliosis affects neonatal and nursery pigs
11. Concerning hairballs (trichobezoars) in swine, which statement is most accurate?

a. Hairballs do not occur in swine because pigs are unable to groom themselves.
b. Hairballs are common in swine and are readily passed through the gastrointestinal tract and excreted in the manure.
c. Hairballs are most commonly found in young or nursing piglets.
d. Most hairballs are not actually composed of hair, but usually of plant fibers derived from the feed.
e. Hairballs occasionally cause death in swine.
Answer to question 11

e. Hairballs form in pigs that ingest quantities of hair, usually during floor feeding (typical practice with older animals), and may produce metabolic imbalances through vomiting, irritation of the gastric mucosa, and ulceration. Occasionally they may be identified as the cause of death.
Examination of the intestinal tract in several finishing pigs with diarrhea reveals a combination of lesions, including thickening of the distal small intestine, fibrinohemorrhagic casts in the distal small intestine, and fibrinonecrotic pseudomembranes in the distal small intestine. The most likely cause of these findings is infection with:

a. *Salmonella choleraesuis*

b. *Brachyspira hyodysenteriae*

c. *Lawsonia intracellularis*

d. *Isospora suis*

e. *Trichuris suis*
Answer question 12

- c. *Lawsonia intracellularis*
Question 13

- Nursery pigs show snout deviation. Histologic examination of the nasal turbinates reveal many large glandular epithelial cells containing large intranuclear inclusion bodies. What is the most likely cause of these findings.
  a. *Pasteurella multocida* infection
  b. *Bordetella bronchiseptica* infection
  c. Cytomegalovirus infection
  d. Pseudorabies
  e. *Chlamydia psittaci* infection
Answer question 13

- c. Cytomegalovirus infection
Question 14

- Imbalance of vitamin E/selenium in the diet of feeder pigs may cause the following lesions except:
  a. Myocardial necrosis
  b. Hydrothorax
  c. Hepatic necrosis
  d. Encephalomalacia
  e. Necrotizing myositis
Answer question 14

- d. Encephalomalacia

- Encephalomalacia may be seen in poultry with Vit E deficiency but this lesion is not seen in pigs
Question 15

- One week after weaning, several pigs from a group of 50 exhibit CNS signs and swollen eyelids. Necropsy reveals edema in the wall of the stomach and mesentery of the spiral colon. What is the most likely cause of these findings?

a. *Streptococcus suis* infection
b. *Haemophilus parasuis* infection
c. Pseudorabies
d. *Escherichia coli* infection
e. Water deprivation
Answer question 15

- d. *Escherichia coli* F18 infection
Question 16

You examine fetal pigs from three different litters from a herd experiencing an abortion storm. Pigs from the same litter are of markedly different sizes, some have swollen, edematous, hemorrhagic umbilical cords. What is the most likely cause of these finding?

a. Pseudorabies
b. Porcine reproductive and respiratory syndrome
c. Leptospirosis
d. Brucellosis
e. Parvovirus infection
Answer question 16

b. Porcine reproductive and respiratory syndrome

PRRSv causes arteritis of the umbilical arteries, resulting in haemorrhage and edema of the umbilical cord. Parvovirus might cause disparity in the size of fetuses in the same litter, but is also usually causes mummification of some fetuses.
Question 17

- You perform a necropsy on three neonatal pigs that had diarrhoea. Two of the three have haemorrhagic small intestines characterized by bright to dark red discolouration of the serosal and mucosal surfaces and red fluid in the intestinal lumen. What is the most likely cause of these findings?

a. Colibacillosis  
b. *Clostridium perfringens* infection  
c. Salmonellosis  
d. Rotavirus  
e. Transmissible gastroenteritis
Answer question 17

- b. *Clostridium perfringens* infection
Question 18

- Perivascular eosinophilic cuffing in the brain of pigs in caused by:

a. *Streptococcus suis* infection  
b. *Haemophilus parasuis* infection  
c. Pseudorabies  
d. Water deprivation/salt intoxication  
e. Edema disease
Answer question 18

- d. Water deprivation/salt intoxication
19. In a swine herd the prevalence of disease X is 10%. If the test to detect disease X has 90% sensitivity and 80% specificity, what percentage of the pigs in this herd will react positively when tested?

a. 20%
b. 27%
c. 10%
d. 8%
e. 15%
b. Sensitivity is the probability of detecting a positive animal. Specificity is the probability of detecting a known negative. In this herd of 100 pigs, there are 90 true negative and 10 true positive animals (10% prevalence). Of the 10 true positives, nine will be detected as positive (90% sensitivity with one false negative) and 72 of the true negatives will be detected (80% specificity, 18 false positives), for a total of 27 positives.
### 19. Calculation

From 100 animals tested

<table>
<thead>
<tr>
<th>Prevalence (10%)</th>
<th>Positives +</th>
<th>Negatives (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>True positives detected</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>True negatives detected</td>
<td>18</td>
<td>72</td>
</tr>
<tr>
<td>Specificity</td>
<td>18</td>
<td>72</td>
</tr>
<tr>
<td>Apparent results</td>
<td>27</td>
<td>73</td>
</tr>
</tbody>
</table>
Question 20

- *Staphylococcus hyicus* is most frequently involved in:

  a. Mastitis in cows
  b. Mastitis in sows
  c. Urinary tract infection in animals
  d. Exudative epidermitis in pigs
  e. *Staphylococcus pyoderma*
Answer question 20

- d. Exudative epidermitis in pigs
Question 21

A producer want to feed 0.1kg of calcium to his sow. How much limestone containing 36% of calcium should be fed?

a. 0.036kg
b. 0.28kg
c. 0.36kg
d. 2.8kg
e. 3.6kg
Answer question 21

d. 0.1/0.36 – 0.277 kg
Question 22

Some pigs in a group of 100 4-month old pigs show diarrhoea and unthriftiness. At necropsy, you observe proliferative, necrotic, blood lesions in the ileum. Warthin-Starry silver staining of a histopathologic specimen from an affected area shows intracellular curved bacteria. What is the most likely cause of these findings?

a) Campylobacter hyointestinalis
b) Campylobacter jejuni
c) Clostridium piliforme
d) Lawsonia intracellularis
e) Listeria monocytogenes
Answer question 22

d. *Lawsonia intracellularis*
Question 23

In 8 to 10 week old pigs, systemic infection with *Haemophilus parasuis* is most accurately described pathologically as:

a) Acute purulent bronchopneumonia  
b) Endotoxaemia  
c) Fibrinous bronchopneumonia and pleuritis  
d) Fibrinous polyserositis  
e) Necrotizing vasculitis
Answer question 23

- **D. Fibrinous polyserositis**

- In uncomplicated cases pneumonia is normally not present
Question 24

Of the common causes of diarrhoea in neonatal piglets, which is least likely to cause significant histologic lesions.

a) *Escherichia coli*

b) *Clostridium perfringens*

c) *Isospora suis*

d) Rotavirus

e) coronavirus
Answer question 24

- *A. Escherichia coli*

- Colibacilliosis often causes no significant histologic lesions. The viral agents cause villus atrophy. Coccidiosis causes necrosis and villus atrophy. Clostridial enteritis causes haemorrhage and necrosis.
Question 25

*Streptococcus suis* infection in pigs commonly caused all the following lesions except:

a) Meningitis
b) Pneumonia
c) Synovitis
d) Polyserositis
e) Hepatitis
Answer question 25

- **E. Hepatitis**

- In addition it may cause pericarditis, endocarditis and pleuritis
Question 26

During collection of blood from the jugular, the right side is preferred to avoid injury to the:

a) Thymus gland, left brachiocephatic artery, and thymus
b) Left vagus nerve, thymus and heart
c) Thoracic duct, thyroid gland and left vagus nerve
d) Thymus, left azygos vein and thoracic duct
e) Capula pleurae, thyroid gland and vagosympathetic trunk
Answer question 26

- C. Thoracic duct, thyroid gland and left vagus nerve
- The right vagus provides more innervation to the heart and diaphragm.
Question 27

Pigs can be infected with several species of Sarcocystis, including *S. miescheriana* and *S. suihominus*. In the described live cycles of Sarcocystis species, the final host (host in which gametogony and sporocyst production occurs) is:

a) Herbivore
b) Carnivore
c) Mammal
d) Bird
e) Feline
Answer question 27

- C. Carnivore

- The carnivore may be mammal, bird or reptile
Question 28

- A visit to a pig farm presents with a high mortality in nursery pigs associated with wasting. Postmortem examination reveals enlarged superficial inguinal lymph nodes. What is the most likely diagnosis?
  - a. PRRS
  - b. PCVAD
  - c. TEG
  - d. PRC
  - e. PDNS
Answer question 28

- PCVAD
- Porcine Circovirus Associated Disease
Question 29

- Pigs present at 120 lbs in reasonable condition with purple patches mainly over the rump and scrotum. Postmortem examination reveals enlarged kidneys.
- What is the most likely diagnosis?
  a. Hog Cholera
  b. Erysipelas
  c. Renal cystic disease
  d. Porcine Dermatitis and Nephropathy syndrome
  e. Nephroblastoma
Answer question 29

- D. PDNS
Question 30

Which of the following organisms are resistant to penicillins

a. *Escherichia coli*
b. *Streptococcus suis*
c. *Actinobacillus suis*
d. *Mycoplasma hyosynoviae*
e. *Actinobaculum suis*
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- D. *Mycoplasma hyosynoviae*

- Mycoplasma’s do not have a cell wall.