

Swine Diarrhea and Gastrointestinal Disease

A PowerPage Presented By



Diarrhea in pigs and piglets seems to be one of the conditions that students preparing for board exams love to hate. It can be a challenge because there are many potential causes and relatively few big tip-offs in terms of clinical signs. The age of the affected pig is often a major indicator of the cause. While these diseases have the potential to affect pigs outside the suggested age range, you can use age as a strong indicator on boards questions. In farm environments, the speed of spread and severity of onset can also help in recognition of the likely etiology.

This PowerPage reviews the major causes of diarrhea in pigs and piglets with an emphasis on a few key clinical features of each. For more detailed review, this is one of a handful of boards topics for which the Merck Veterinary Manual is still recommended as a valuable and efficient boards study resource (see pp. 249-258 in 8th edition or on-line at links below).

Nursing/Suckling (Unweaned) Pigs

The major causes of diarrhea in this age group are:

- *Clostridium perfringens* – type A and C- 1-3 day old piglets
- *Clostridium difficile* – 1-2 day old piglets
- Enteric colibacillosis (*E. Coli*) – 1-2 day old piglets
- Transmissible gastroenteritis (TGE) – all ages
- Coccidia (*Isospora suis* and *Eimeria* sp.) – 5-7 day old piglets
- Rotavirus – all ages
- Hypoglycemia

Clostridium perfringens Type A and C – 1-3 days

- Slow spread of infection seen often after introduction of new pigs
- Pigs develop sudden onset of watery yellow and often bloody diarrhea
- Pathologic lesions include **dark red small intestines with hemorrhage**
- Low morbidity but **high mortality** (near 100% in acute cases), often with healthiest piglets affected
- Treatment usually ineffective in pigs with signs. In outbreaks, antitoxin or antibiotic given to piglets at birth can be protective and **vaccination of sows** prior to birth may provide some immunity via colostrum

Clostridium difficile – 1-2 days

- Variable morbidity, lower mortality (20-50%)
- Pasty yellow to watery diarrhea
- Often associated with **antibiotic treatment at birth**

Enteric Colibacillosis (Enterotoxigenic *E. coli* or ETEC) – 1-2 days

- Often associated with dirty or damp environment, poor management practices, and low temperatures
 - **Piglets huddled together**
- White to yellowish watery diarrhea with gas and fetid odor leading to rapid dehydration
- May see **tail necrosis**
- Treated with prompt fluid therapy and antibiotics

- Prevention by addressing predisposing factors above

Rotavirus- all ages – most often 1-3 weeks

- Low mortality, variable morbidity
- Often gray, pasty feces with **poorly digested** feed
- No specific treatment, supportive care is most helpful

Transmissible Gastroenteritis – all ages

- Caused by a coronavirus
- May be endemic (enzootic) with low mortality/morbidity or epizootic with near 100% mortality/morbidity in piglets
- **Vomiting** is often initial sign
- Diarrhea with **curds of undigested milk**
- No specific treatment. Intestinal immunity is critical. Vaccine is available. Biosecurity is key to prevention

Intestinal Coccidiosis – 5-15 days (especially 5-7 days)

- *Isospora suis* is most common. Also many *Eimeria* species can infect pigs
- Fetid, yellow to white diarrhea. Also can see “sheep pellet feces”
- Can be diagnosed by demonstration of **oocysts** in feces (see image) or demonstrating parasite in intestinal lesions
- Treated with **sulfamethazine**
- Prevention with anticoccidials to sows and thorough fecal removal and disinfection of farrowing facility



Growing and Finishing (Weaned) Pigs

Lawsonia intracellularis (Proliferative enteritis) – Older pigs (20-40 kg)

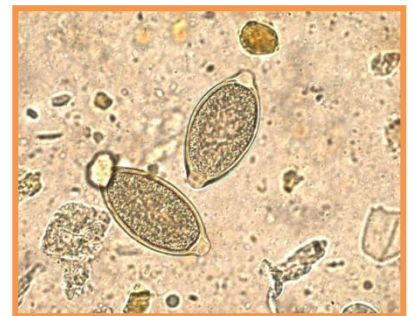
- Hemorrhagic and nonhemorrhagic forms
 - Pasty brownish vs. black tarry feces and anemia
- May pass yellow **fibrinonecrotic casts**
- Pathologically, see **thickening of the intestinal mucosa** with a fibrinonecrotic membrane
- Treated with injectable antibiotics to affected pigs and by feed to the rest of the herd

Brachyspira (Serpulina) hyodysenteriae (Swine dysentery) – Older pigs (15-75 kg)

- Anaerobic spirochete infection
- **Mucoid large bowel diarrhea with flecks of blood**
- Pathologically, see mucosa of large intestine covered by **gray mucus** layer or **yellow necrotic** debris
- Treated with antibiotics (often in water) but drug resistance is common

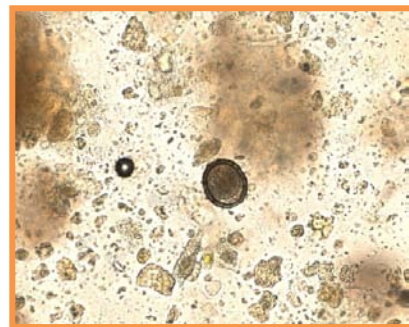
Trichuris suis (Whipworms) – Older pigs (3 months and up)

- 2 inch long worm that lives in cecum and upper large intestine
- Slender head penetrates lining of intestines causing irritation and **hemorrhagic diarrhea**
- Diagnosed by observation of classic **double operculated eggs** in feces (see image)
- Eggs survive in soil, dirt, or feces covered floors for long periods
- Treated with levamisole, dichlorvos, or benzimidazoles



***Ascaris suum* (Roundworms) – Older pigs (2-3 months and up)**

- >30 cm long worm of the small intestine
- May cause **intestinal obstruction** and migrate into bile ducts and liver causing subcapsular **white spots**
- Can cause pulmonary signs from lung migration and may cause abdominal breathing known as **thumps**
- Ascarid eggs may be identified in feces (see image)
- Many treatment options- fenbendazole, pyrantel, ivermectin, levamisole, dichlorvos, piperazine, hygromycin



Salmonella – Any age but usually older pigs (2-3 months and up)

- In young pigs, more likely to develop generalized septicemia
- Older pigs develop fever, yellow liquid diarrhea that may have flecks of necrotic debris
- May cause **rectal strictures** – should suspect Salmonella in an epidemic of rectal strictures
- Diagnosed by fecal culture or from culture of mesenteric lymph nodes
- Treated/prevented with antibiotics either in water to herd (neomycin, nitrofurazones) or carbadox in feed

References and Links

<http://www.thepigsite.com/diseaseinfo/>

<http://extension.missouri.edu/main/DisplayCategory.aspx?C=17>

<http://www.merckvetmanual.com/mvm/index.jsp>

