

Ovine zoonoses

Institutional Animal Care and Use
Committee

12/09

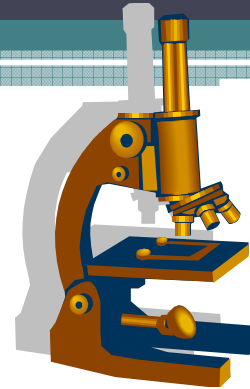
Q fever

- Caused by a bacteria, *Coxiella burnetti*
- Primary reservoirs are cattle, sheep and goats
- Linked to abortion in sheep and goats
 - Bacteria shed in amnionic fluid, placenta
- The bacteria is excreted in the milk, urine and feces of the infected animal
- The bacteria is resistant to heat, drying, and many common disinfectants
- Human exposure is by inhalation of dried excreta, or ingestion of contaminated milk
 - The incubation period is 2 to 3 weeks



<http://www.bing.com/images/search?q=image+of+sheep+lambing&FORM=BIFD#focal=f258doe4669ccf7d77c72241a6169fb3&furl=http%3A%2F%2Fwww.frugalsquirrels.com%2Fgallery%2Fjohn%2Fsheep%2FLambing%2F6062%2F04.jpg>

Q fever



- Diagnosis is difficult as the clinical signs are non-specific
- Serology can be helpful – look for antibody to the disease agent
- Tetracycline is the drug of choice for treatment
- Chronic Q fever is much more difficult to treat
- This is an occupational exposure for anyone working in animal health related industries

Q fever

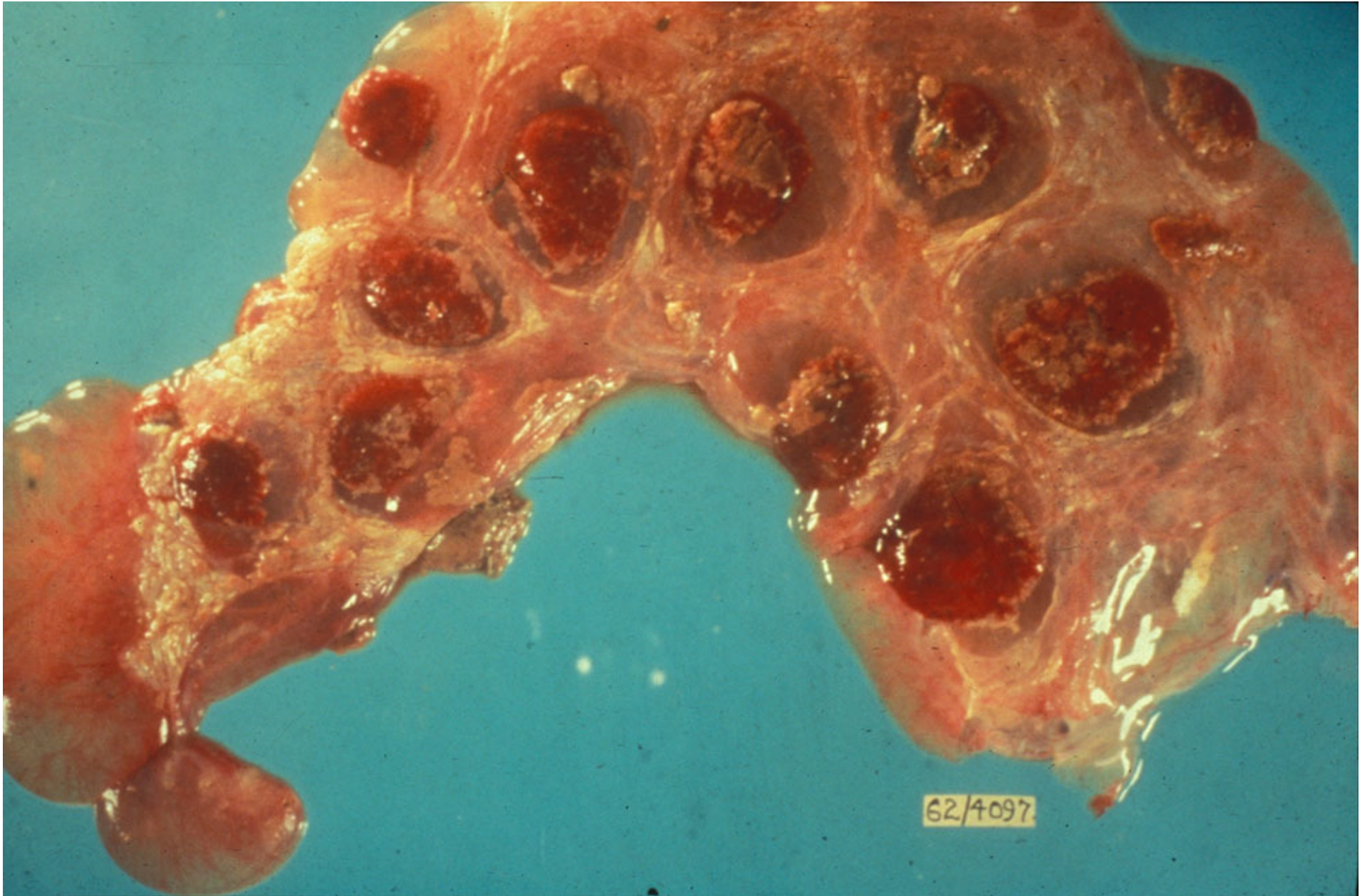


- Most infected humans do not show clinical illness
- Those that do get sick develop flu-like illness and most recover
- Pneumonia can develop; 1 to 2 % of acute cases can result in fatalities
- Chronic disease develops in a small percentage of patients
 - Tend to see infections of the heart valves, particularly in patients that have a history of valvular disease or valve surgery
 - Chronically ill patients (cancer, kidney disease) are also at risk

Q fever

- Prevention

- Education about the disease
- Appropriate disposal of birth products from sheep and goats
 - Wear gloves when handling placenta and fetus
- Use only pasteurized milk
- Laboratory safety where appropriate
- Vaccinate where appropriate
- Quarantine animals where appropriate



http://www.cfsph.iastate.edu/DiseaseInfo/ImageDB/BRU/BRU_006.jpg

Bovine placenta

Campylobacteriosis

- Infectious disease caused by the bacteria, *Campylobacter* spp.
 - *C. jejuni*, *C. fetus*
- Sick humans see diarrhea, cramping, abdominal pain, fever, nausea, vomiting
 - May see diarrhea in the blood
- 2 to 5 day incubation period followed by a week of illness
- Lasts longer in immunocompromised patients
- In rare cases can develop into a widespread, blood borne infection



Campylobacteriosis

- Common diarrheal illness in the United States
- More common in the summer
- More commonly isolated from young patients
- Most cases recover within a week
- Rare serious disease such as arthritis or Guillain-Barre syndrome (a patients own immune system attacks nerves and leads to paralysis)
- Diagnosis through isolation and identification of the bacteria

Campylobacteriosis

- Human exposure:
 - Poultry or poultry products
 - Unpasteurized milk, contaminated water
 - Contact with aborting cattle, goats or sheep
 - *C. fetus*
 - Contact with stool of ill animals
 - Dog
 - Cat
 - Sheep, goat, cow



Campylobacteriosis

- Prevention
 - Cook all foods thoroughly
 - Wash hands with soap and water
 - Avoid consuming unpasteurized milk or untreated water
 - When working with animals, particularly animals with diarrheal or reproductive illness, wear gloves and wash hands frequently



Contagious ecthyma - “orf”

- Parapoxvirus infection in sheep and goats
- Typically seen in lambs (around the mouth) and ewes (on the udder)
- Transmitted by contact
- Also called “soremouth” or “scabby mouth”
- Primarily will interfere with nursing of the lambs
- Isolate affected animals and allow it to resolve
- A good vaccine is available and can be used to control the disease in flocks



Contagious ecthyma- “orf”

- Seen as a sore or sores on the hands of humans
- May also develop a fever and swelling of regional lymph nodes
- Immunosuppressed individuals may develop more severe lesions
- Lesion will resolve in 4 to 6 weeks
- Transmitted to humans by contact with infected animals, carcasses or contaminated non-living material
- Common among shepherds, veterinarians, and individuals bottle-feeding lambs



<http://www.stanford.edu/group/virus/pox/2004vanya/orf.html>

*Typically "scabby mouth" lesions in a lamb - Dr. John King image
#13581*



Yersiniosis

- Caused by a bacteria, *Yersinia enterocolitica*
- Occurs most often in young children
- Fever, abdominal pain, diarrhea (bloody)
- Incubation period is 4 to 7 days and duration of disease is 1 to 3 weeks
- Can be confused with appendicitis
- May also see rash, joint pain, blood infections
- Typically found in pigs (tonsils), but can also be seen in rodents, rabbits, cattle, sheep, horses, dogs and cats



Yersiniosis

- Infection usually occurs by eating contaminated food (pork)
- Drinking unpasteurized milk or contaminated water is possible as well
- Contact with infected animals or humans
- Diagnosis by growing the organism in a lab
- Uncomplicated cases respond to antibiotics

Yersiniosis

- Prevention
 - Public education
 - Avoid undercooked pork
 - Consume pasteurized milk
 - Wear gloves and wash hands after animal contact
 - Prevent cross contamination in the kitchen
 - Dispose of animal feces in an appropriate manner





Salmonellosis

- Caused by bacteria, *Salmonella* spp.
- Diarrhea, fever, abdominal cramps roughly 12 to 72 hours after infection
- Illness last about a week after which most people recover
- In uncommon situations, severe bloody diarrhea may develop as well as bloodstream infections
- More serious in elderly, infants and immunocompromised individuals

Salmonellosis

- Diagnosis by growing the organism in a lab
- Most cases resolve without treatment, but antibiotics and fluids may be indicated
- *Salmonella* is common in many species of animals. Humans are exposed by consumption of food from these animals or contact with fecal matter from ill animals or carrier animals.
- Found in reptiles, birds, sick calves, lambs,

Listeriosis

- Infection caused by a bacteria, *Listeria monocytogenes*
- Typically a foodborne illness
- At risk individuals include the elderly, pregnant women, infants and immunocompromised patients
 - In pregnant women – abortion, fetal septicemia, fetal meningitis
- Fever, muscle aches, nausea, diarrhea
- Can spread to central nervous system
 - Headache, stiff neck, confusion, imbalance, convulsions



Listeriosis

- Bacteria is found in soil and water which can be contaminated by manure
- Animals can carry and excrete the bacteria but be clinically normal
- Meat, vegetables and dairy products can become contaminated
- Bacterium is killed by pasteurization, cooking
- Transmission by eating contaminated food or coming in contact with animals shedding the bacteria



Listeriosis

- *Listeria* can be a cause of abortion, septicemias and central nervous system disease in cattle, sheep and goats
- Prevention through cooking of foods, washing hands, using care when treating sick animals
- Consult your physician if suspicious
- It is treatable with antibiotics

Listeria infection in the liver of a calf. Note the white areas of inflammation.



Anthrax

- Caused by the bacterium, *Bacillus anthracis*
- The spore form of the bacteria is found in the environment and transmitted to people and animals
- There are basically three types of infection
 - Skin
 - Pulmonary
 - digestive
- The bacteria is not spread from human to human
- Infection in humans is due to exposure to the spores either on the skin of infected animals, by aerosol or through ingestion



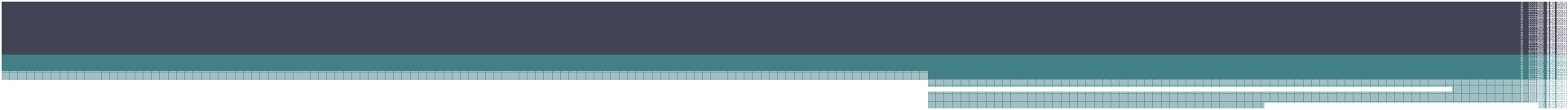
Anthrax

- Occurs in a variety of wild and domestic animals
 - Particularly serious in cattle, sheep, goats, bison, horses, deer
- Testing for the organism is typically done in a laboratory setting
- Vaccination is available for at risk groups
- Spores can remain dormant in the soil for years, therefore an infected premise is considered contaminated from that point forward



Anthrax

- Cutaneous infections form a non-healing ulcer with a black center
- Digestive infections result in nausea, anorexia, bloody diarrhea, fever, stomach pain
- Pulmonary infections include a wide variety of respiratory signs and flu-like illness
- Clinical signs typically occur within a week of exposure
- Treatment is with antibiotics





Anthrax

- Prevention is through judicious handling of anthrax suspect cases
 - Gloves
 - Do not eat meat from animals that die of unknown causes
 - Care in handling animal hides
- Proper disposal of anthrax positive cases
 - Burn on site

Cystic hydatid disease

- Caused by infection with the *Echinococcus* group of tapeworms (*E. granulosus*, *E. multilocularis*)
- Humans consume the egg form of the parasite through contact with wild or domestic canine feces
- The larval form of the tapeworm, a hydatid cyst, develops in the human
- These cysts can grow very large (basketball size) and will compromise organ function
 - Liver, lung, brain, bone marrow

The larval tapeworm cyst in this image shows how the parasite can spread to and develop within the skull. As the cyst enlarges it puts pressure on the brain. Other favored sites for larval development are the liver and the lung.



Cerebral hydatidosis

Cystic hydatid disease

- Most cases seen in the U.S. are in immigrants
- However, both *E. granulosus* (domestic canids) and *multilocularis* (wild canids) are found in the continental United States
- Diagnosis through imaging technology
- Treatment either surgical, medical or both
- No vaccine
- Prevention through good sanitation
 - Avoid unprotected contact with dogs/wild canids
 - Contaminated water or food sources