

Zoonotic bacterial diseases

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Anthrax

- serious infectious disease caused by bacillus anthracis
 - gram-positive,
 - rod-shaped bacteria
 - Endospore forming
 - aerobic
- Anthrax can be found naturally in soil and commonly affects domestic and wild animals around the world.
- people can get sick with anthrax if they come in contact with infected animals or contaminated animal products.
- anthrax is **not** contagious, which means you can't catch it like the cold or flu.

Transmission

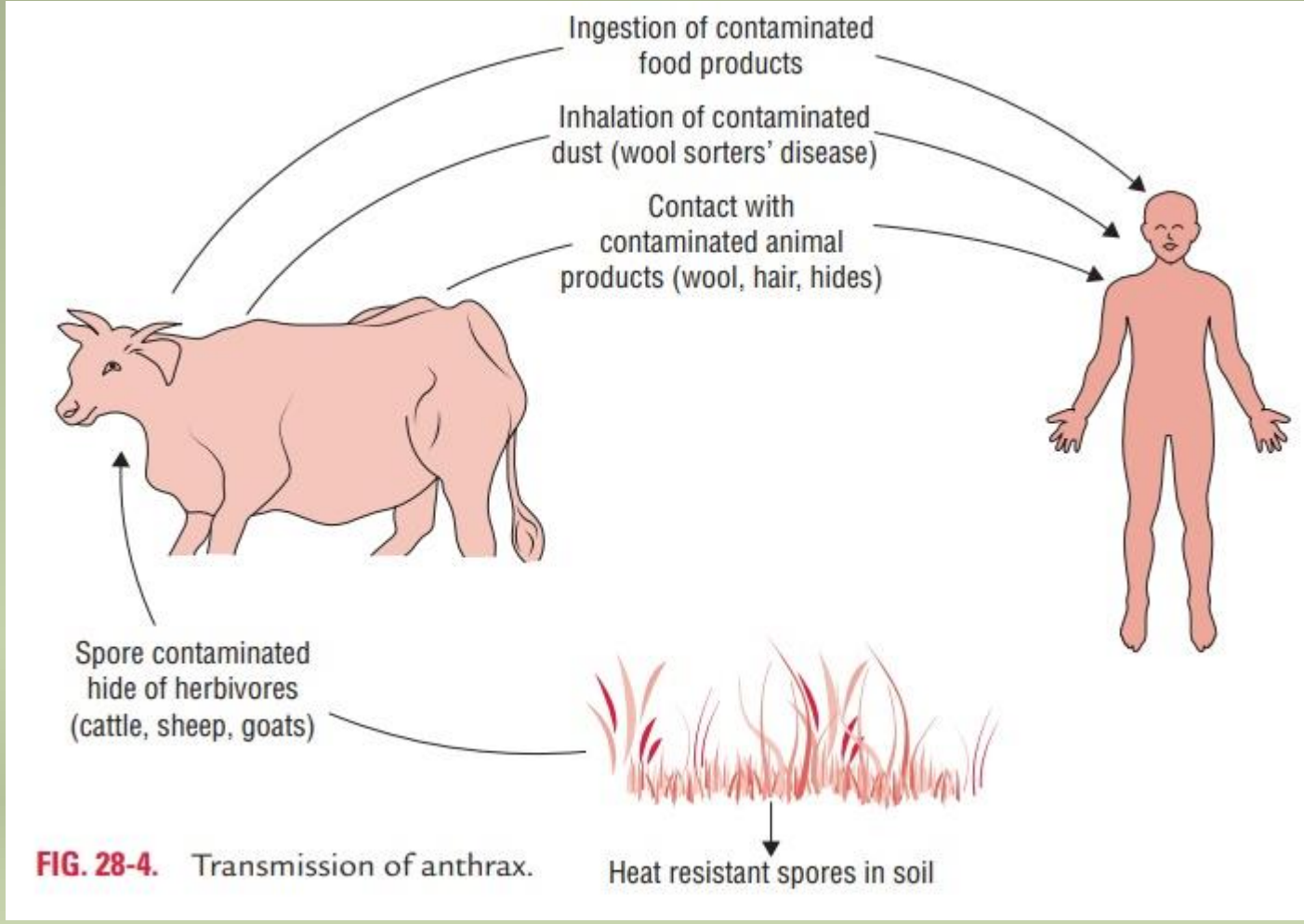
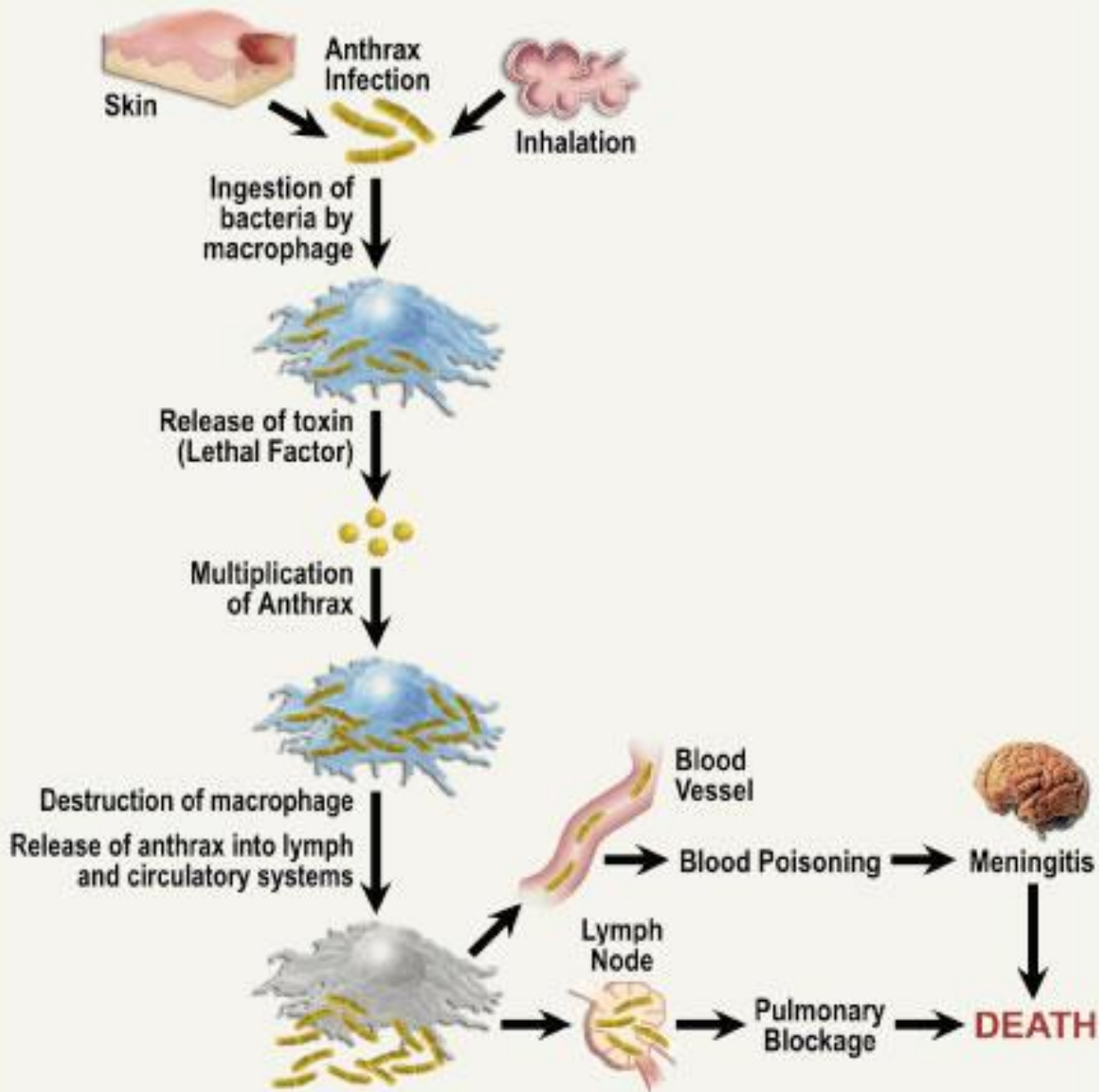


FIG. 28-4. Transmission of anthrax.

How the Bacterial Toxin "Lethal Factor" Results in the Fatal Spread of Anthrax



Pathogenesis

Symptoms

- IP: from 1 day to more than 2 months
- Cutaneous anthrax symptoms can include:
 - A group of small blisters or bumps that may itch
 - Swelling can occur around the sore
 - A painless skin sore (ulcer) with a black center that appears after the small blisters or bumps
 - Most often the sore will be on the face, neck, arms, or hands



- **Inhalation anthracis:**

- Chest Discomfort
- Shortness of breath
- Confusion or dizziness
- Cough
- Nausea, vomiting, or stomach pains
- Headache
- Sweats (often drenching)
- Extreme tiredness
- Body aches

- **Gastrointestinal anthracis**

- Swelling of neck or neck glands
- Sore throat
- Painful swallowing
- Hoarseness
- Nausea and vomiting, especially bloody vomiting
- Diarrhea or bloody diarrhea
- Headache
- Flushing (red face) and red eyes
- Stomach pain
- Fainting
- Swelling of abdomen (stomach)

Treatment

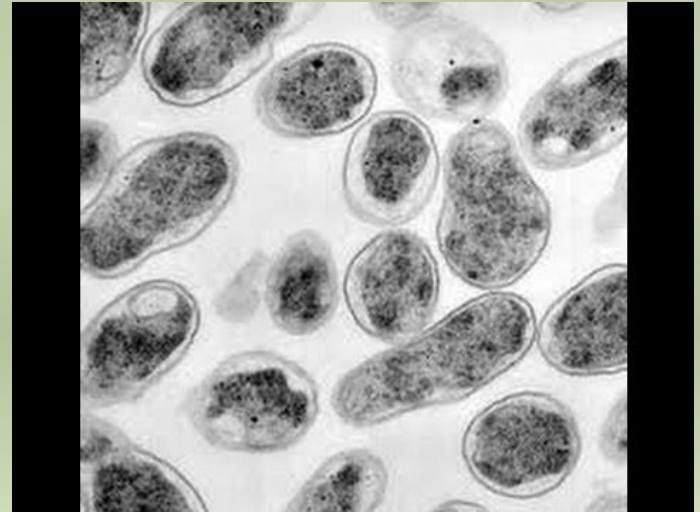
- Ciprofloxacin and doxycycline
- have received high profiles as primary treatment
- but the clinical effects of the toxin may continue for some time afterwards.
- hyperimmune serum, developed in various animal species, predates antibiotics by several decades. It was considered effective.

Control

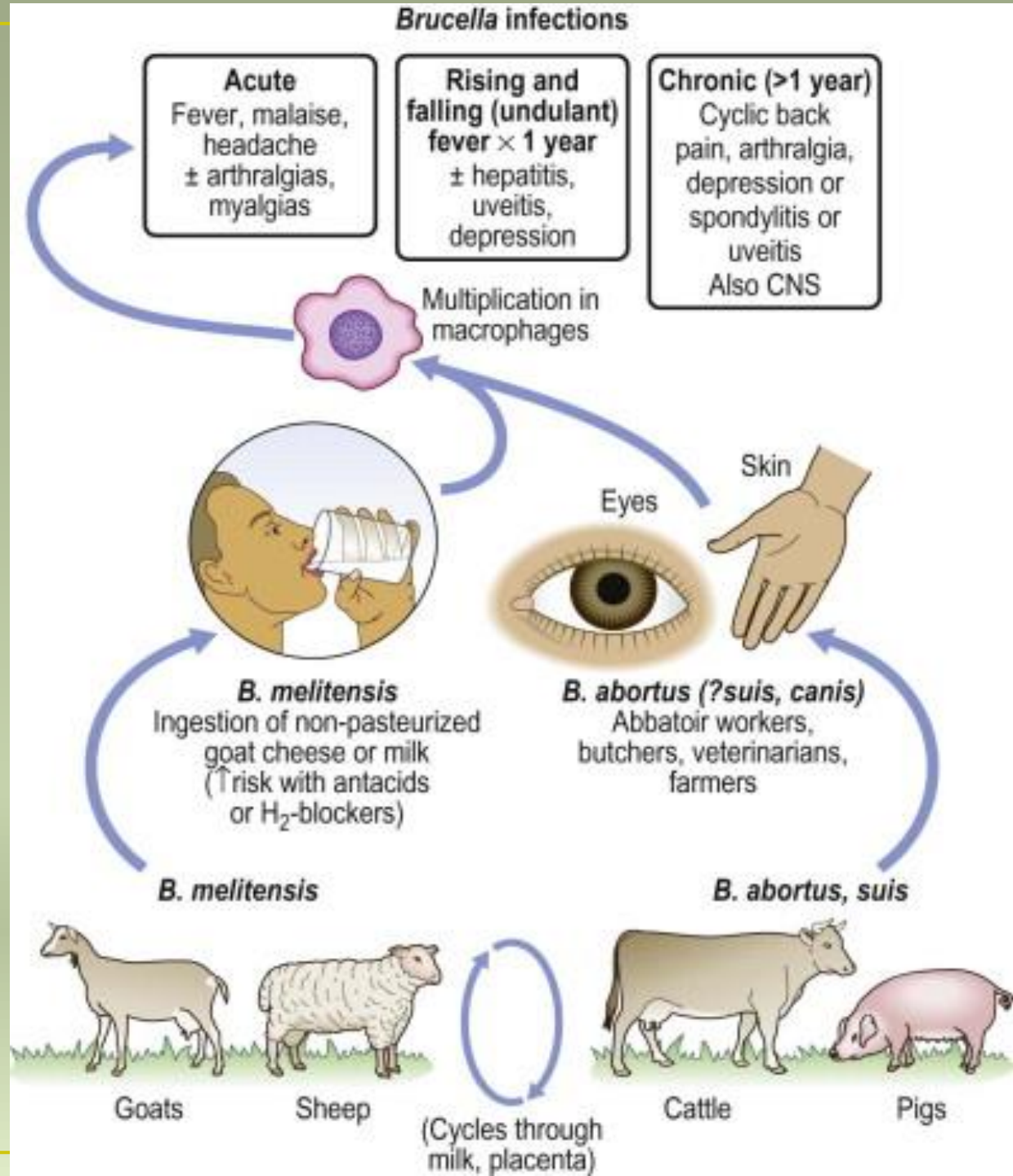
- correct disposal of the carcass(es),
- decontamination of the site(s) and of items used to test and dispose of the
- carcass(es), and initiation of treatment and/or vaccination of other animals as appropriate.
- The best disposal method is incineration.

Brucellosis

- Also called undulant fever or malta fever or mediterranean fever
- A systemic diseases caused by *Brucella melitensis* bacteria resuling in oosteroarticular infections in 20-60% pateints.
- *B. abortus*, *B. suis* and *B. canis* also causes the dieses
- **Reservoir**
- Cattle, swine, goats and sheep



Transmission and effects



Signs and symptoms

- IP: less than 8 days
- Symptoms include
 - Fever
 - Sweats
 - Malaise
 - Anorexia
 - Headache
 - Myalgia
 - Backpain
 - Severity may lead to arthritis and testicular inflammation in males

Treatment

- Tetracycline (500 mg every six hours orally six weeks has long been the standard treatment of human brucellosis.
- Doxycycline (100 mg every 12 hours orally and is administered for a period of six weeks.

Control

- based on occupational hygiene and food hygiene.
- • Vaccination is not generally recommended.
- • All dairy products should be prepared from heat-treated milk.
- • Consumption of raw milk or products made from raw milk should be avoided.
- • Meat should be adequately cooked.
- • Special precautions should be taken by laboratory workers.
- • Physicians and health workers should be aware of the possibility of brucellosis.
- • Public health education should emphasize food hygiene and occupational hygiene.