Microbiology (Bio 206) #29: Food Poisoning

Terms you should know:

- enterotoxin
- intoxication
- neurotoxin

Rotavirus

Description: Naked virus with double capsid and 11 double-stranded RNA molecules
Diseases: “Stomach flu;” short-lived fever, nausea and vomiting
Treatment: Maternal Ab in breast milk is protective; new oral vaccine approved
Reservoir and spread: Infects humans only, spreads by fecal-oral route

Staphylococcus aureus

Description: Gram-positive cocci in clusters
Diseases: Staphylococcal food poisoning (rapid-onset diarrhea and vomiting)
Virulence factors: Heat-stable enterotoxin causes all symptoms
Bacteria multiply and produce toxin in food, not in intestines
Treatment: Support only; self-limiting
Reservoir and spread: Common in normal flora of skin and nose; spread by food handling

Salmonella enteritidis

Description: Gram-negative rods (non-coliform)
Diseases: Salmonella food poisoning (takes 24-48 hours after eating)
Virulence factors: Pili, enterotoxin; disease requires multiplication of bacteria in intestine
Treatment: Self-limiting; antibiotics may encourage carrier state
Reservoir and spread: Extensive animal reservoir (esp. cattle, poultry), fecal-oral spread

Clostridium botulinum

Description: Gram-positive rods, forms endospores, obligate anaerobe
Diseases: Botulism
Virulence factors: Extremely potent neurotoxin (causes paralysis); not heat-stable
Multiplication of bacteria in improperly canned food is major cause
Treatment: Pre-formed antitoxin antibodies; must be treated quickly
Reservoir and spread: Environmental reservoir (soil), spores contaminate food

Listeria monocytogenes

Description: Gram-positive rods, do not form endospores
Diseases: Listeriosis, spontaneous abortion or fetal death
Pregnant women more susceptible; bacteria can cross placenta
Treatment: Antibiotics
Reservoir and spread: Environmental and animal reservoirs; spread by contaminated food