

Salmonellosis in Elephants www.elephantcare.org

Etiology

- family: Enterobacteriaceae
- gram negative, non-spore-forming bacterial rods
- most motile
- 2000 serovars/serotypes

Epizootiology

- warm and cold-blooded animals
- may be commensals (part of the normal flora of the GI tract)
- shed intermittently in feces
- may survive for months in soil; will multiply in water
- exotoxins → GI disease; septicemia

Transmission and Pathogenesis

- severity depends on infectious dose, resistance of the host to colonization within the gastrointestinal tract and the particular serovar
- high host resistance → infection contained diarrhea only
- low host resistance + virulent serovar → proliferation in spleen and liver → septicemia
- humans may be source for elephants

Clinical Signs in Elephants

- stress, immune depression predispose
- anorexia, lethargy,
- constipation, colic,
- watery diarrhea +/- blood
- pain, hunched posture
- shock, septicemia

Diagnosis

- fecal cultures; multiple samples (shed intermittently)
- blood cultures if septicemia evident
- postmortem: culture liver, spleen, bone marrow
- histopath: hemorrhages on mucosal surface of intestine; necrotic ulceration; spleen and liver lesions
- serotyping by PCR

Differential diagnosis

- salmonella should be in the DDX of any disorder presenting with diarrhea or vague signs
- other GI infections
- foreign bodies

- toxicity

Management

- aggressive treatment may be life-saving!
- fluids (correct electrolyte imbalances)
- antibiotics (based on culture and sensitivity)
- pro-biotics (e.g. lactobacillus)
- asymptomatic carriers remain a dilemma

Zoonotic potential

- most widespread zoonosis in the world
- no documented cases of eleph → humans but human → eleph suspected in several cases
- hygienic precautions advisable in known or suspected elephant cases