

Streptococcus equi equi:

Fact and Fiction: “Strangles” and Related Diseases



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Streptococcus: The Organism

Streptococcus equi var equi

(Very similar to Strep equi var zooepidemicus)

Highly contagious Gram Positive Aerobic Bacteria

Spread via nasal + oral secretions

Produces widespread purulent lymphadenitis of the head and neck

Affects equine only (horses, donkeys, mules, zebra)

Incubation: 3-21 days

Typical Duration of Clinical Signs: 7-14 d

“It’s a SNEAKY bacteria!”

QuickTime™ and a decompressor are needed to see this picture.

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Typical Presentation

Classic Clinical Signs:

- Nasal Discharge
- Fever (often > 102 F)
 - Lethargy
 - Inappetance
- Lymphadenopathy
 - Submandibular
 - Other Areas

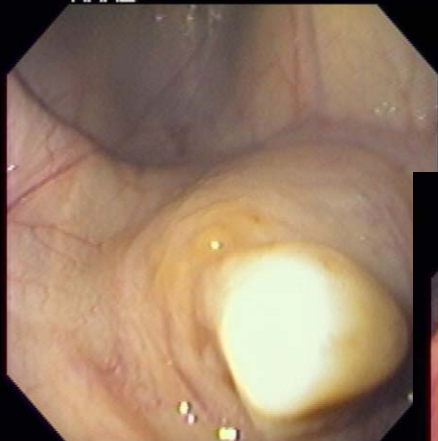


More Severe Cases:

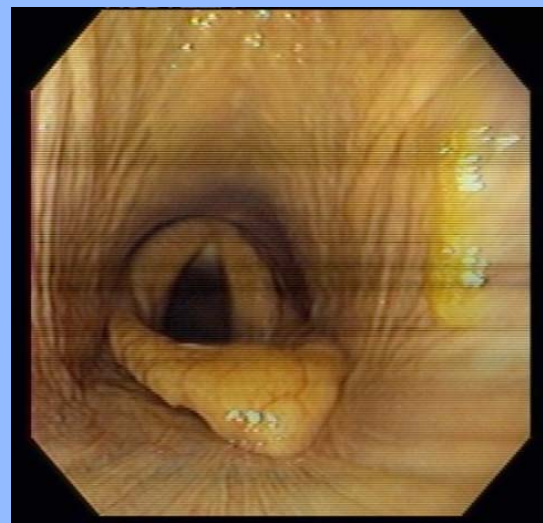
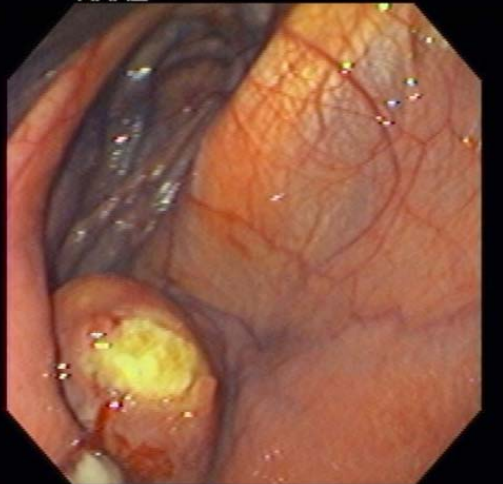
- Eating Difficulties
- Breathing Difficulties

Typical Presentation: Airway + Guttural Pouch

NAME:



NAME:



Detection & Diagnosis

- **CBC/Chemistry**
 - **Non-specific**
- **Blood Titers**
 - **Measures Immune response from M-protein**
 - **Interpretation can be difficult**
 - * **Recent infections or vaccinations**
 - * **Immune Mediated Disease**
 - * **Bastard strangles**



Detection & Diagnosis

- Culture

– Via sterile sampling

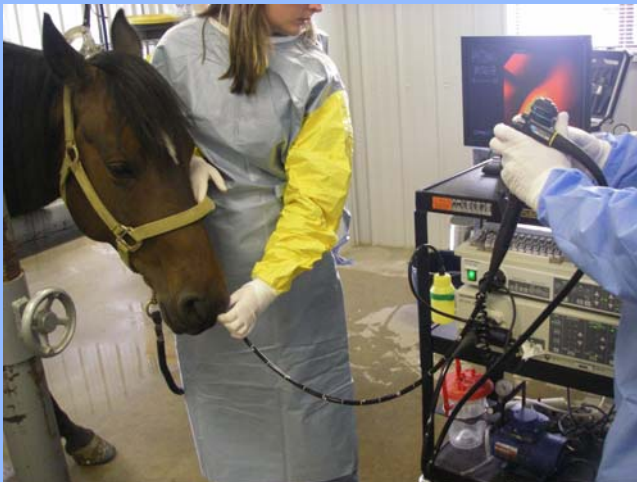
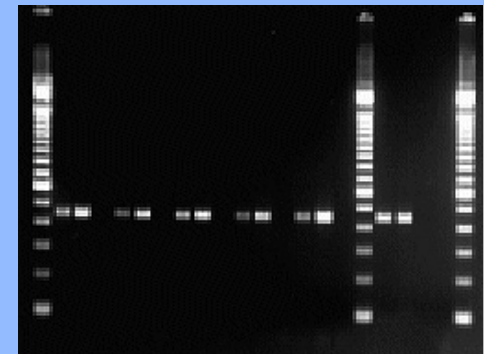
- Aspiration, Guttural Pouch Lavage

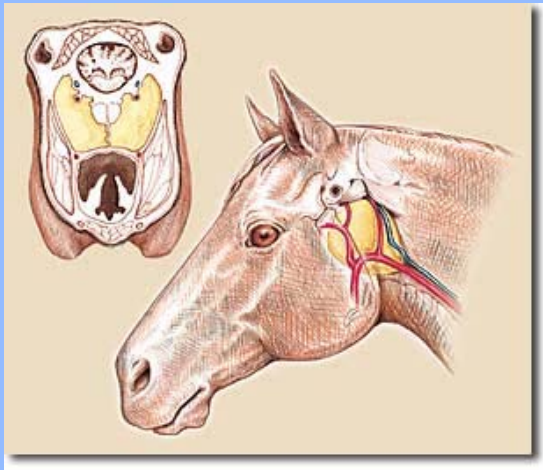
- PCR

– Highly Sensitive

– Future Applications:

- May allow detection of specific “strains”

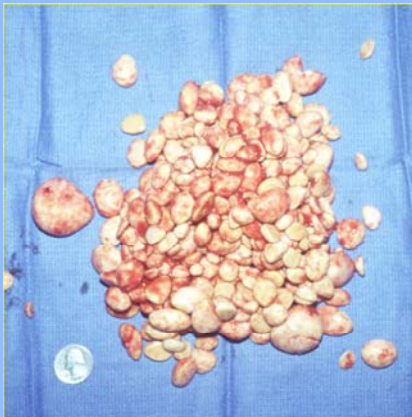




Atypical Infection: Guttural Pouch Empyema

- **Guttural Pouch Filled with Pus**
 - Disease Strains
 - Innate Immunity
- **Requires Flushing, Antibiotics**
- **Potential for Chondroid Formation**

QuickTime™ and a
decompressor
are needed to see this picture.



Atypical Infection: “Bastard Strangles”

- “Occult” Infection
 - Internal Infection
 - Thorax
 - Abdomen
- History of Exposure
 - +/- Previous Clinical Signs
 - CBC/Chemistry (Bloodwork)
 - Fluid Sampling
 - Ultrasound!!!
 - Chest, Abdomen

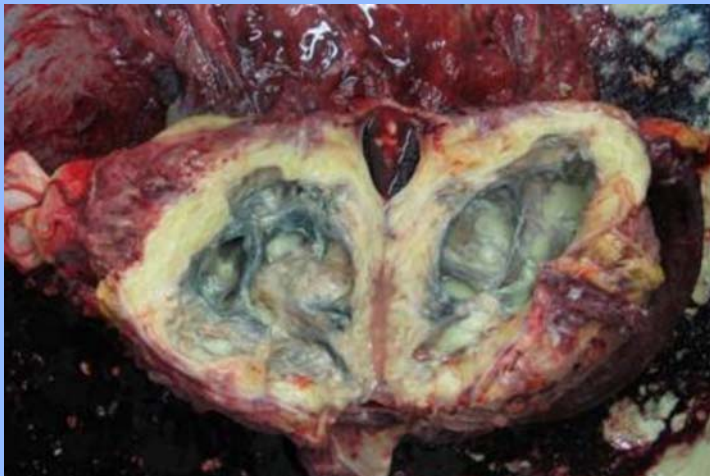


Atypical Infection: “Bastard Strangles” & Antibiotics

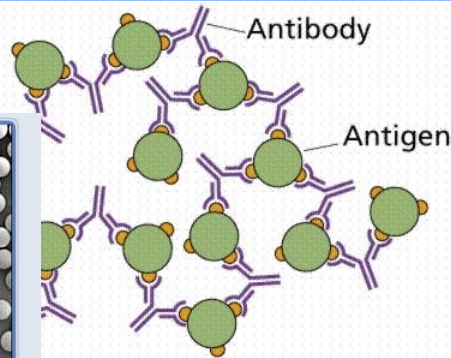
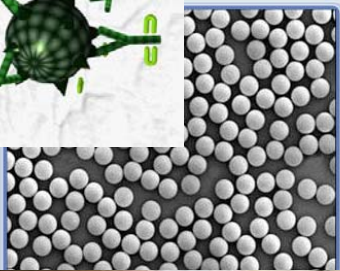
Myth: Antibiotics can CAUSE “Bastard Strangles”

Truth: “Bastard Strangles” develops due to increased bacterial virulence and decreased host immunity

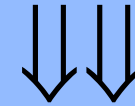
There is NO cause-and-effect relationship between antibiotics and atypical infection



Complications: Purpura Hemorrhagica



Antigen/Antibody Complexes



Immune-Mediated Vasculitis

(Inflammation of vessels)

Soft-tissue swelling

Kidney Damage

Clotting Abnormalities

Petechia/Ecchymoses



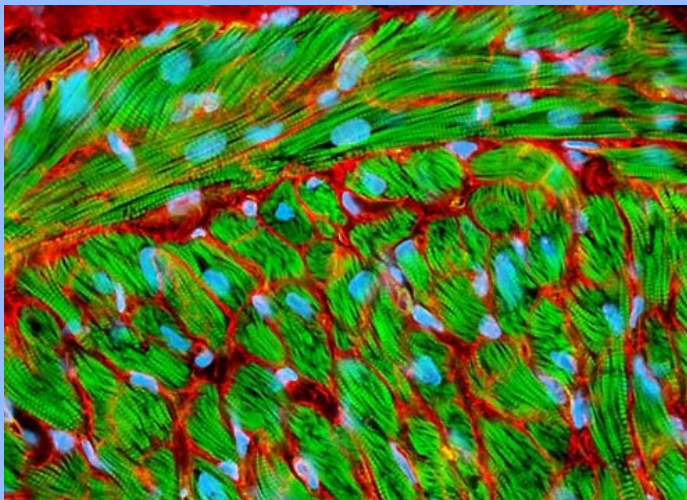
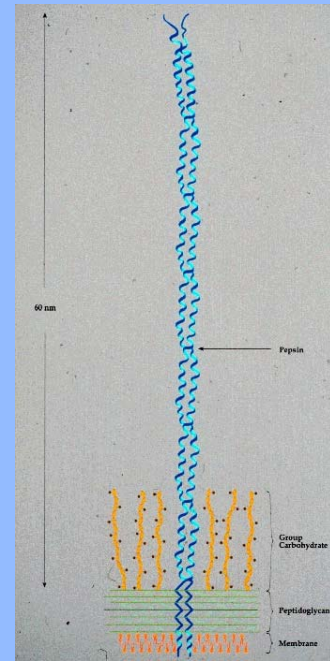
Other Complications:

- Ulcerative keratitis/panophthalmitis
- Septic arthritis/tenosynovitis
- Paravertebral abscesses
- Laryngeal paralysis
- Colic
- Agalactia



Rare Complications: Strep Myositis

- Bacterial defenses trigger auto-immune response
- Strep M-protein mimics Myosin Muscle Fibers
- “Confused” Antibodies attack muscles
 - Topline (epaxial) muscles most often affected
 - Increased IgG, Muscle Enzymes



Persistent Infection

Carriers: Asymptomatic shedders

Strep organism can live >90 days in the guttural pouch

May result in repeat outbreaks

ID - Sterile Guttural Pouch Lavage ⇒ Culture/PCR

Treat - Systemic Antibiotics, Guttural Pouch Lavage

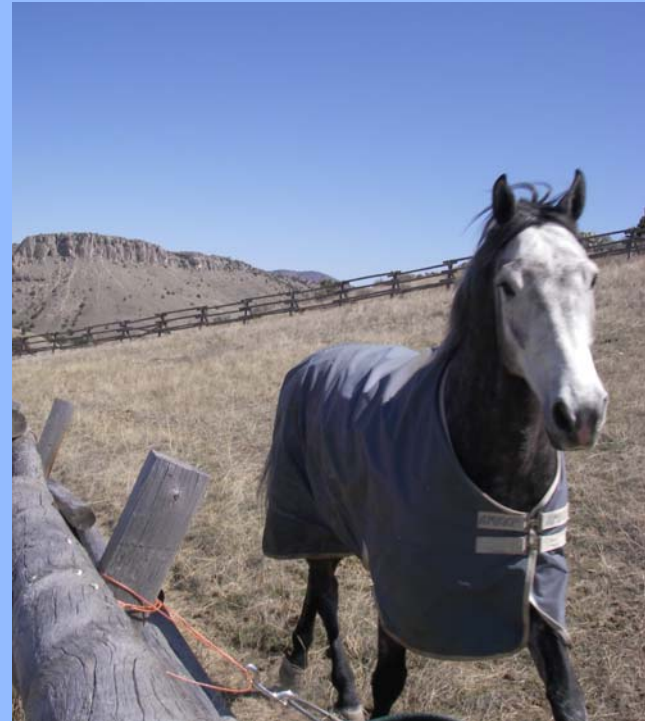
Quarantine - Strict Isolation, Dedicated Tools, Clothes

Re-test - Repeat GP Lavage



Vaccinations: To Treat or not to Treat?

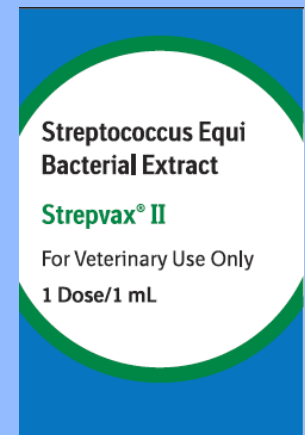
- Any decision to vaccinate is always a Risk - Benefit Analysis
 - How likely is exposure?
 - How serious is the infection?
 - How effective is the vaccine?
 - How safe is the vaccine?
 - If treatment is necessary,
 - Is it likely to be expensive?
 - Is it successful?
 - Is prevention by other means practical?



- Less than 50% of U.S. equine veterinarians routinely recommend vaccination against Strep equi
- Strangles vaccination provides less protection than true infection

Vaccinations: To Treat or not to Treat

- Ft. Dodge's Pinnacle IN Vaccine most widely used
 - Modified Live Strep organism - Intra-Nasal
 - Provides local immunity in nasal passages
 - Variable body-wide immunity
 - Via lymphatic system
- Relatively High Rate of Side Effects:
 - 1 in 27 have mild side effects: fever, lethargy, enlarged Lymph Nodes
 - 1 in 275 have more severe side effects
- Boeringer-Engelheim Strepvax II
 - Purified M-protein vaccine
 - 3 shot primary series



Prevention: Identify - Disinfect - Isolate



- STOP all Movement on/off Ranch
- Quarantine cases/in-contact horses
 - “Dirty” pastures
- Rectal Temps
 - Fever before clinical signs
 - Use to further segregate horses
- Screening recovered horses**
 - Monitor carrier status

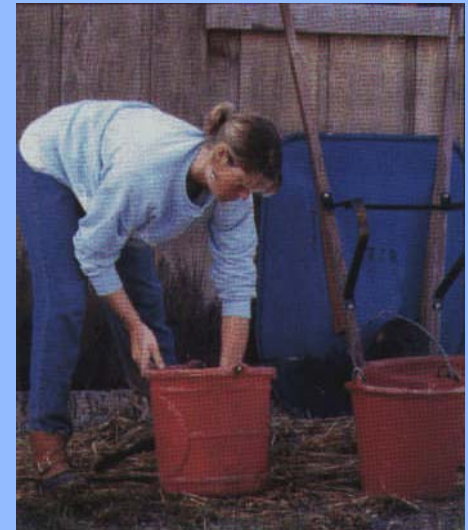


Premise Disinfection: Durability in the Environment

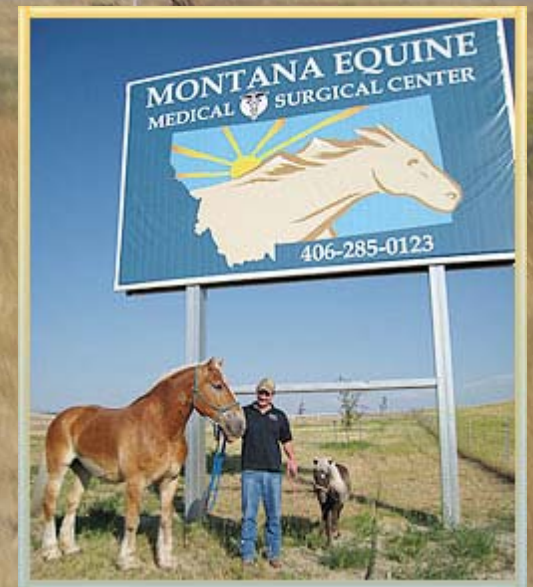
- Use dedicated clothes, tools, wheelbarrows for infected group
 - Disease best spread by nose-to-nose contact
 - Secondary spread by “fomites”
- Use footbath or shoe covers

DISINFECTION:

1. Pressure Wash - Remove all organic material
2. 10% Bleach Solution on all surfaces
3. Pressure Wash Again
4. Spread limestone on soil of contaminated pens



Questions?



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