Rhinitis and Sinusitis in Guinea Pigs
(Inflammation of the Nose and Sinuses)

Basics

OVERVIEW
• Rhinitis—inflammation of the lining of the nose
• Sinusitis—inflammation and irritation of the sinuses
• The nasal cavity communicates directly with the sinuses; thus, inflammation of the nose (rhinitis) and inflammation of the sinuses (sinusitis) often occur together (known as rhinosinusitis)
• The upper respiratory tract includes the nose, nasal passages, throat (pharynx), and windpipe (trachea).
• “Lower respiratory tract” (also known as the lower airways) refers to the lungs. Inflammation occurs in the bronchi, bronchioles, and other lung tissues (bronchitis or pneumonia).
• In guinea pigs, the most common cause is bacterial infection. Infection usually begins in the nasal cavity and may spread into the sinuses and bones of the face, via the eustachian tubes to the ears, via the nasolacrimal duct to the eye, or via the trachea to the lower respiratory tract.
• Dental disease can also contribute to chronic upper respiratory infections. Overgrown tooth roots can impinge on the sinuses or nasal cavity or may become abscessed, predisposing to infection.

SIGNALMENT
No breed, age, or sex predilection

SIGNS
• Sneezing, discharge from the nose, staining of the front paws
• Discharge—often is clear initially, then becomes thick and white; it may be blood tinged or may contain blood
• Discharge from one nostril suggests the presence of a foreign body, tooth-root abscess, or tumor/cancer.
• Discharge from both nostrils is more common with bacterial infection of the nose and sinuses.
• Facial deformity—usually associated with abscesses
• Head tilt or loss of balance may be seen with or following episodes of rhinitis/sinusitis due to extension of infection through the eustachian tube to the inner ear, where balance is controlled.

CAUSES
• Bacterial disease—*Bordetella bronchiseptica*, *Streptococcus zooepidemicus*, *Streptococcus pneumoniae*, *Streptobacillus moniliformis*, *Yersinia pseudotuberculosis*, *Streptobacillus moniliformis*, *Haemophilus* spp.,
Klebsiella pneumoniae, Pseudomonas aeruginosa, Pasteurella multocida, Salmonella spp., Staphylococcus aureus, Streptococcus pyogenes, Citrobacter spp.

- Tooth-root abscess
- Foreign bodies, such as small pieces of hay inhaled into the nose, can cause rhinitis, but this is rare in guinea pigs.
- Cancer in the nose is extremely rare in guinea pigs.
- Immune-mediated inflammation of the nose (rhinitis)—allergic rhinitis is rare, but many guinea pigs will sneeze and have a clear nasal discharge when inhaling excessive dust from hay or litters.
- Local trauma may cause bone deformity and increase the likelihood of developing long-term (chronic) inflammation of the nose.

**RISK FACTORS**
- Immunosuppression—Stress, concurrent disease, and taking oral steroid medications are the most important risk factors in developing bacterial rhinitis/sinusitis.
- Poor husbandry—dirty, molding bedding; ammonia buildup from urine-soaked bedding, dusty hay or litter, cleaning agents
- Dietary—Vitamin C deficiencies frequently contribute to the development of rhinitis or sinusitis; diets too low in coarse fiber content (long-stemmed hay) predispose to dental disease.

**TREATMENT**

**APPROPRIATE HEALTH CARE**
- Some guinea pigs may develop severe respiratory distress and require hospitalization with oxygen supplementation. Guinea pigs are obligate nasal breathers, meaning that they cannot breathe effectively through the mouth. If the nasal passages become blocked with mucus and pus, or severely swollen, they cannot breathe. This can become life threatening.
- Keep nostrils clear of discharge.
- Humidification of environment often helps mobilize nasal discharge.
- Nebulization with normal saline may be useful to humidify airways; this is performed using a home nebulization unit or while in the hospital.
- Remove environmental allergens/irritants (dusty or moldy hay and litters; provide clean bedding and air space).

**ACTIVITY**
- No change unless in breathing distress

**DIET**
- Make certain that the guinea pig continues to eat while being treated to prevent potentially life-threatening gastrointestinal disease (GI stasis, bacterial overgrowth).

**MEDICATIONS**
- Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered all-inclusive.

**Antibiotics**
- Antibiotic therapy should be based on bacterial culture and sensitivity testing when possible.
- Antibiotics are usually given for prolonged periods, from 2 to 6 weeks depending on the severity of infection.
- The number of antibiotics that are safe to use in guinea pigs is very limited compared with that in pets such as dogs and cats. Oral administration of many antibiotics that would be effective against bacteria causing respiratory infections will also kill bacteria that are necessary to keep the intestinal tract healthy and functioning. Examples of commonly used, safe, and effective oral antibiotics for guinea pigs include enrofloxacin, ciprofloxacin, trimethoprim-sulfa, chloramphenicol, metronidazole, and doxycycline.

**Anti-Inflammatory Agents**
- Nonsteroidal anti-inflammatory drugs (NSAIDs) such as meloxicam or carprofen are sometimes used, especially in guinea pigs that are painful.

**Antihistamines**
- Efficacy is debated—hydroxyzine or diphenhydramine are occasionally used.
**FOLLOW-UP**

**PATIENT MONITORING**
- Monitor for an increase in the severity of nasal discharge, or difficulty breathing. Seek emergency veterinary attention if struggling to breathe. Keep the nostrils as clean as possible.
- Monitor for relapse when the course of treatment is finished.

**PREVENTION/AVOIDANCE**
- Avoid stressful conditions, provide excellent diet and husbandry
- Ensure adequate vitamin C concentrations in the diet by feeding pellets specifically manufactured for guinea pigs, and by providing daily supplements.
- Prevent dental disease by providing high-fiber foods, especially good-quality hay. Yearly veterinary exams with periodic trimming of overgrown teeth as needed.

**POSSIBLE COMPLICATIONS**
- Extension of infection into the brain, eyes, ears, or lungs
- Loss of appetite leading to intestinal tract disorders (GI stasis, bacterial overgrowth)
- Respiratory distress as a result of nasal obstruction

**EXPECTED COURSE AND PROGNOSIS**
- Some guinea pigs will completely clear bacterial respiratory infections after a course of antibiotic therapy. Others may relapse as soon as antibiotics are discontinued, or may have off-and-on infections lifelong. Unfortunately, it cannot be predicted which course your guinea pig will take when symptoms are seen.
- Long-term (chronic) infections are frustrating to both owners and veterinarians; lifelong therapy may be required.

**KEY POINTS**
- The most common cause of rhinitis and sinusitis in guinea pigs is bacterial infections.
- There is no way to accurately predict if a guinea pig will completely clear the infection with antibiotic treatment, or if the infection will return. Some guinea pigs require medications to treat infection lifelong.

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