Rhinitis and Sinusitis in Rabbits
(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 rabbits, 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, via the trachea to the lower respiratory tract, and through blood circulation to joints, bones, and other organ systems.
- Recurrent or very resistant bacterial infections are common. Often, this happens because some strains of bacteria produce toxins. These toxins can destroy bone and cartilage in the rabbit’s nose or can cause fever and lethargy. Damage to the nasal cavity can be permanent, impairing local defense mechanisms, and allowing reinfection with Pasteurella or other bacteria. These rabbits are often called “chronic snufflers.”
- 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
• Excessive tears or overflow of tears (known as epiphora) and inflammation of the moist tissues of the eye (known as conjunctivitis) are often seen in rabbits with upper respiratory tract disease due to extension of infection into the nasolacrimal ducts (tear ducts) or blockage of the nasolacrimal duct from overgrown tooth roots.

• 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—Staphylococcus aureus, Bordetella bronchiseptica, Moraxella catarrhalis, Pseudomonas aeruginosa, Mycobacterium spp., Pasteurella multocida, and various other bacteria have been implicated.

• Tooth-root abscess

• Foreign body such as small pieces of hay inhaled into the nose

• Cancer in the nose is extremely rare in rabbits.

• Immune-mediated inflammation of the nose (rhinitis)—Allergic rhinitis is rare, but many rabbits 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, or 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—Diets too low in coarse fiber content (long-stemmed hay) predispose to dental disease.

TREATMENT

APPROPRIATE HEALTH CARE

• Some rabbits may develop severe respiratory distress and require hospitalization with oxygen supplementation. Rabbits 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 rabbit 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. Relapse is common when treatment is stopped, especially if there has been permanent damage to the nasal passages. It is not unusual for some rabbits to require lifelong treatment, either continuously or off and on, as symptoms return.

• The number of antibiotics that are safe to use in rabbits is very limited as 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 rabbits include enrofloxacin, ciprofloxacin, marbofloxacin, trimethoprim-sulfa, chloramphenicol, and azithromycin. Penicillins can be given by injection only in severe or chronic cases.

**Anti-Inflammatory Agents**
- Nonsteroidal anti-inflammatory drugs (NSAIDs) such as meloxicam or carprofen are sometimes used, especially in rabbits 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
- 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 rabbits 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 rabbit will take when symptoms are seen.
- Long-term (chronic) infections are frustrating to both owners and veterinarians; lifelong therapy may be required. Some infections will become resistant to all antibiotics that are safe to use in rabbits, and cannot be successfully treated.

**KEY POINTS**
- The most common cause of rhinitis and sinusitis in rabbits is bacterial infections. Some bacteria produce toxins that can cause permanent damage to the nasal cavity and sinuses, leading to recurring symptoms.
- There is no way to accurately predict if a rabbit will completely clear the infection with antibiotic treatment, or if the infection will return. Some rabbits require medications to treat infection lifelong.
Notes

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