



Domestication of the rabbit and respiratory diseases

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Domestication and selection of rabbit breeds has led to a modification of the shape of the head. The shortening of the skull in dwarf rabbits, in particular, is the cause of various health problems.

Wild rabbits (*Oryctolagus cuniculus*) have a relatively broad and elongated head that is flattened on the sides. Proportions are harmonious compared to the rest of the body. By domesticating the rabbit and creating new breeds of different sizes, man has modified the shape as well as the bony framework of the head. Differences in the bone shape of the "normal" rabbit skull and a real dwarf rabbit are major. The head of the middle and big sized rabbits is rather

slender. Sideways, the ridge from the nostrils to the forehead is straight or slightly hooked. Dwarf rabbits have a short, compact head, round and well set on a very short neck (Figure 1, 2). Forehead and muzzle are broad, and eyes are prominent. The head is large in relation to the body. The shortening of the nasal part of the head, as seen in dwarf rabbits, contributes to the development of respiratory diseases, more in difficult to treat sinusitis.

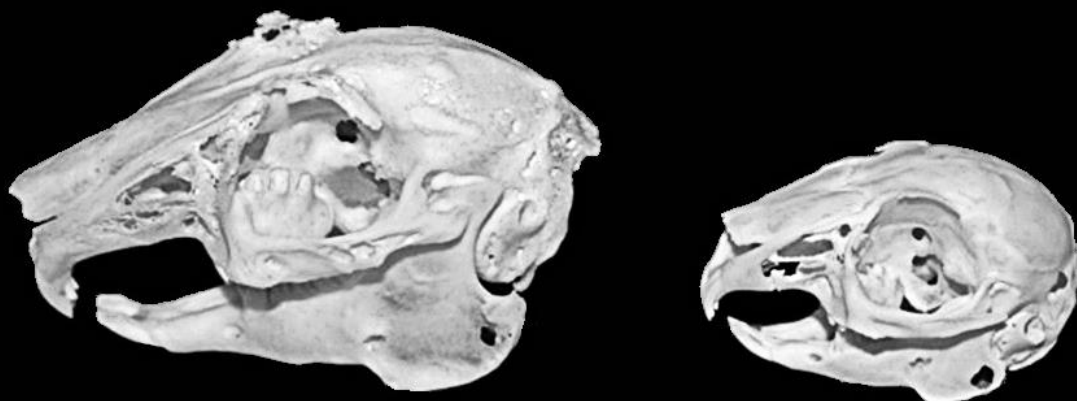


Figure 1: Skull of a normal rabbit (left) and skull of a dwarf rabbit (right). Proportions of size are respected.

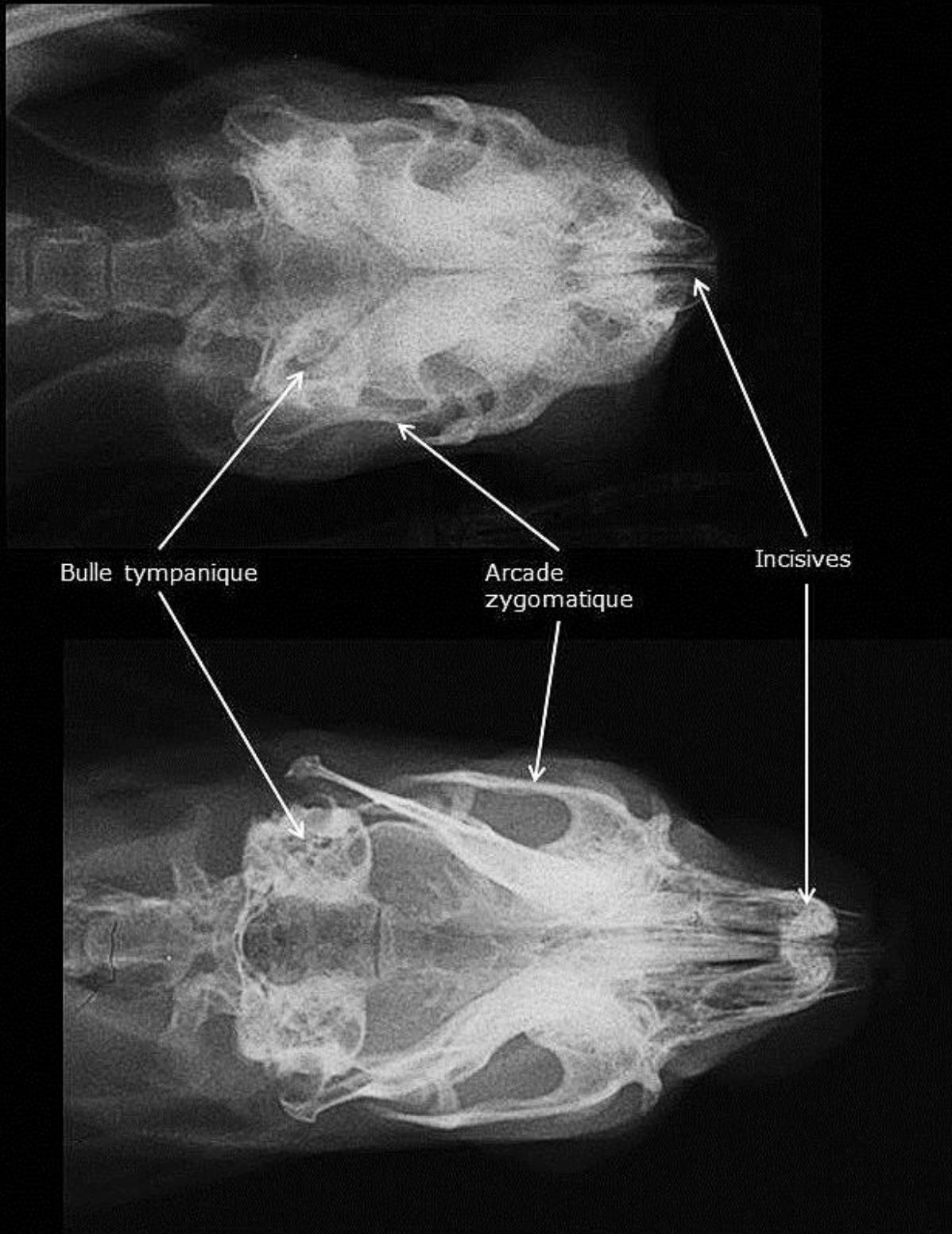


Figure 2: Sagittal section of a dwarf (top) and normal (bottom) rabbit skull, with details of the different nasal sinuses (radiograph kindly provided by Mrs Tammy Ege, C.V.T.).

Upper or lower respiratory disease ?

Pet rabbits, breed rabbits or commercially bred rabbits all suffer from respiratory diseases regardless of their housing conditions. Pathogens vary: viruses, bacteria, fungi, even parasites, allergies, ammonia fumes, cancer or dental problems. Unlike man, respiratory infections in rabbits are usually caused by bacteria rather than viruses. Bacterial pathogens are contagious and a major cause of mortality, hence the importance of recognizing clinical manifestations in rabbits. Characteristic signs of upper respiratory disease include sneezing, a watery or thick yellowish nasal discharge, and sticky or matted hair on the face or front legs. Excessive tearing is sometimes observed. In case of rhinitis or sinusitis, the rabbit produces a nasopharyngeal noise or rasp at rest. Body temperature is usually normal. Signs indicating a lower respiratory infection are, on the other hand, barely apparent. The rabbit may have some nasal discharge, a cough that sounds like barking, and, in severe cases, respiratory distress. The affected rabbit has often a decreased appetite, loses weight, and appears tired. Mucosal membranes may look pale or cyanosed due to the decrease of gas exchanges in the lungs.

Rhinitis or/and sinusitis

Rhinitis, also called "pasteurellosis" in reference to the bacterium *Pasteurella multocida*, is an inflammation of the mucosal membranes in the nasal cavity. While this bacterium is frequently

cultured and identified in a rabbit suffering from sneezing and nasal discharge, other bacteria can also cause rhinitis, such as *Staphylococcus aureus* or *Bordetella bronchiseptica* (kennel cough in dogs). An infected dog can carry the bacteria and transmit it to rabbits. During the primary rhinitis stage, the mucosal membranes lining the nasal cavity are solely inflamed. As the infection worsens, watery secretions become yellowish and thick, and crusts appear around the nostrils (Figure 3). When nasal discharge is abundant, a rabbit may show difficulties to smell the food, or to breath and chew simultaneously without suffocating, resulting in decreased appetite and weight loss.

Thick secretions can invade the paranasal sinuses in the nasal cavity via their drainage channel and cause sinusitis. Sinusitis is difficult to treat and relapse is frequent. In many rabbits, the evolution from rhinitis to

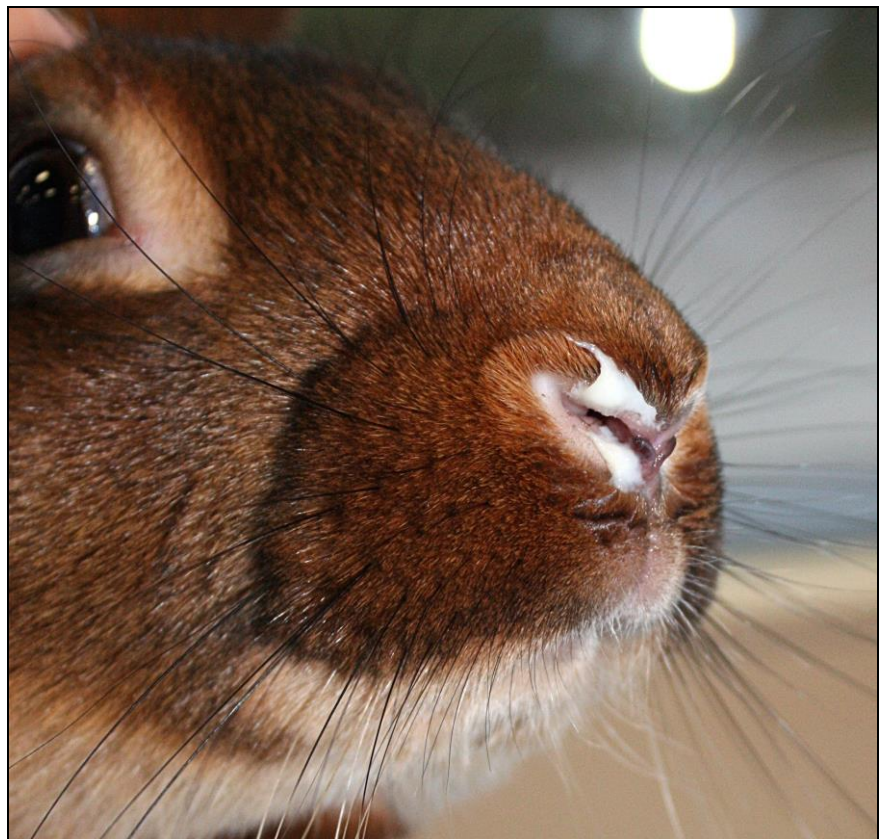


Figure 3: Thick and yellowish nasal discharge must be taken seriously

sinusitis is accompanied by ulceration of the mucous membranes, infections and lysis of the bone structures of the nasal cavity or the skull.

Allergies are possible in some rabbits

Allergies are rare in rabbits. Some seem to have a genetic predisposition with hypersensitivity to hay dust, pollen or sawdust. Allergies are often seasonal, unless caused by human products such as cigarette smoke or perfume. The affected rabbit sneezes and has a nasal discharge, develops a chronic rhinitis and sinusitis and, occasionally, tearing and inflammation of the conjunctiva. Diagnosis is difficult to establish and is done by eliminating other causes of rhinitis. The treatment of choice is the elimination of the allergen. The rabbit can be administered antihistamines, which reduce inflammation caused by the allergen. Corticosteroids should not be given to rabbits, even at low, short-term doses, as they are immunosuppressive, promoting secondary development of latent "pasteurellosis".

Golden rules to prevent respiratory diseases in rabbits

The golden rule is: Hygiene, Hygiene and Hygiene. The living environment of breed or pet rabbits, whether a hutch, a barn or an apartment, must be clean, well ventilated, not too hot, and without accumulation of ammonium gas from bedding soiled with urine. This gas irritates the respiratory airways of rabbits and can contribute to the development of latent "pasteurellosis". The environment should not be too humid, to prevent the development of mold. The released spores can cause respiratory allergy to molds. Ambient air that is too dry

can also lead to sneezing and a watery nasal discharge. Hay must be of good quality, dry, in order to prevent the development of respiratory diseases of fungal origin, such as aspergillosis.

In the past 22 years, my pet rabbits have suffered respiratory diseases on rare occasions only and secondary to another disease. I attribute this success to the fact that my rabbits regularly eat aromatic herbs (lavender, thyme, mint, marjoram and oregano) – herbs with proven antibacterial and antifungal properties, accompanied by fresh greenery. If this is not possible, there is a commercial product to be mixed with drinking water ("Mentofin") containing mint and eucalyptus aromatic oils, which helps prevent respiratory diseases.

Acknowledgement

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