

SALIVARY MUCOCELE

(Sialocele Or Salivary Cyst)

Overview

A salivary mucocele is a collection of saliva that has leaked from a damaged salivary gland or salivary duct, and has accumulated in the tissues. This is often noted as a fluctuant, painless swelling of the neck or within the oral cavity. While often called a salivary cyst, mucoceles are lined by inflammatory tissue (called granulation tissue) which is secondary to the inflammation caused by the free saliva in the tissues, while a cyst is lined by epithelial (glandular) tissue which is itself responsible for the production of the fluid. Salivary mucocele may be classified as follows:

- **Cervical Mucoceles** (Figures 1 and 3) This is probably the most common type of mucocele. It is a collection of saliva in the upper neck region, at the angle of the jaw, or between the mandibles.
- **Sublingual Mucoceles** (also called a ranula) (Figure 2), Another frequent location for the formation of a mucocele is on the floor of the mouth alongside the tongue. This is frequently seen in association with a cervical mucocele.
- **Pharyngeal mucoceles** This type of mucocele is much less common. It is essentially a variation of the cervical mucocele, but the fluid accumulation is almost entirely within the throat (pharynx).
- **Zygomatic Mucocele** This is a very rare type of mucocele where the saliva is originating from the small zygomatic salivary glands which are located just below the eye

Causes

The cause of salivary mucoceles is rarely identified, although trauma such as from choke collars, bite wounds, or chewing on foreign materials is generally considered to be the most likely initiating event. As the saliva leaks from the torn salivary gland or duct, it accumulates in the tissue and initiates an intense inflammatory response. A connective tissue capsule gradually forms around the saliva to prevent it from migrating further.

Incidence and Prevalence

This condition is almost exclusively seen in dogs and very rarely in cats. All breeds are susceptible but there seems to be an increased incidence in Poodles, German Shepherds, Dachshunds and Australian Silky Terriers. There is no age predisposition and this condition may occur at any time.

Signs and Symptoms

Generally the development of a cervical mucocele (Figure 1) is seen as a gradually enlarging soft,

painless, fluctuant mass in the upper cervical (neck) or intermandibular (between the jaws) region. In most animals there are no problems associated with the development of the mass. If the mucocele is a sublingual mucocele (ranula) (Figure 2), the dog may have some difficulty eating and may develop bleeding from trauma to the mucocele as the dog chews. A pharyngeal mucocele is generally totally undetectable until the oral cavity is examined with sedation. The animal may present with respiratory distress because the mass developing in the throat is beginning to obstruct the airways. This is a potentially very serious problem and treatment must be instituted rapidly because these animals may die from acute respiratory distress. Dysphagia (difficulty swallowing) may be another sign that a pharyngeal mucocele is present.

Figure 1. This Boxer has massive swelling below the neck secondary to a very large salivary mucocele. It is important for owners to recognize which side the problem begins to develop on. When the mucocele becomes extremely large as it has in this case, it is very difficult to determine which salivary gland to remove.

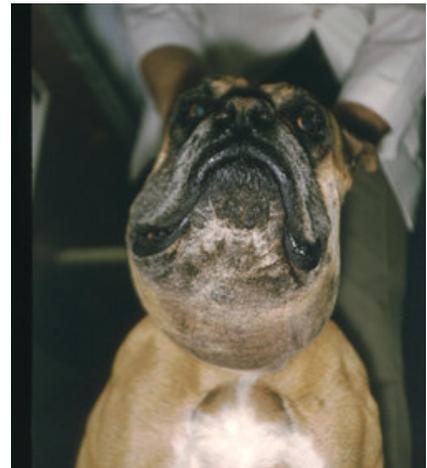


Figure 2. This Boston Terrier has a sublingual mucocele, also known as a ranula. The mandibular and sublingual glands will be removed and the ranula drained.



Risk Factors

Other than some tendency for certain breeds to develop mucoceles as mentioned above, there are no significant risk factors that have been identified.

Exam, Screening Tests, and Imaging

Generally diagnosis of a salivary mucocele is fairly straightforward. Palpation of the salivary glands is normally easily accomplished, and with the exception of the pharyngeal mucocele, the mucoceles are easily identified as a soft, fluctuant swelling that is non-painful. Tumors and abscesses may appear similar but are generally either firm or painful.

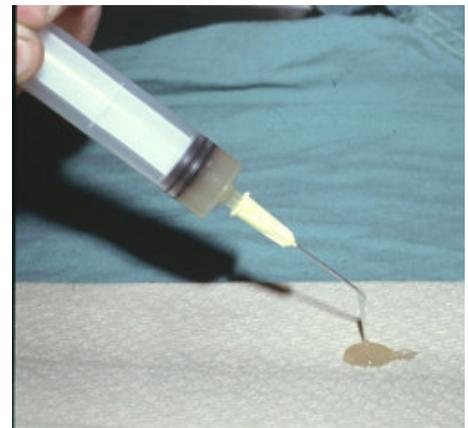
Occasionally cervical mucoceles migrate to the ventral midline making it difficult to determine whether the problem involves the left or right sided glands (Figure 1). Examining the animals with sedation in dorsal recumbency (on their back) (Figure 3) often allows the mucocele to migrate to the affected side.

Figure 3. This Husky dog had a cervical mucocele. Frequently when placed on the back, it is easier to determine which side the mucocele has developed from.



Laboratory abnormalities are generally not helpful in the diagnosis of salivary mucocele. If uncertainty exists about whether the mass is a mucocele or an abscess, a sterile aspiration of the fluid can be performed. Aspiration of a clear, yellowish or blood-tinged thick ropy fluid with a low cell count is consistent with saliva (Figure 4). An elevation of the white blood cell count in the fluid may indicate an infection in the salivary gland (sialadenitis) or an abscess.

Figure 4. Aspiration of a salivary mucocele should be done under aseptic conditions to prevent contamination by bacteria. The typical contents of a mucocele are a yellowish, thick ropy fluid with a low cell count as seen here.



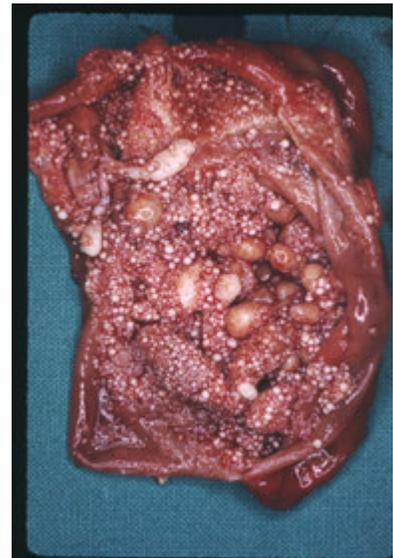
Radiographs are rarely needed to diagnose salivary mucoceles, however, if neoplasia (tumor) is suspected X-rays of the thorax are indicated to look for metastasis (spread to the lungs).

Differential Diagnosis

Swelling in the cervical area from any source may initially appear to be a salivary mucocele. Possible causes of this swelling include:

- Sialadenitis (inflammation of a salivary gland)
- Salivary neoplasia (tumor)
- Sialoliths (stones that form in the salivary duct) (Figure 5)
- Cervical abscess
- Foreign bodies
- Enlarged lymph nodes
- Thyroglossal cyst
- Cystic Rathke's pouch
- Branchial cyst

Figure 5. Occasionally stones will form in the salivary ducts and be the cause of a salivary mucocele. This is a mucocele that has been removed and it contains hundreds of small stones. It is likely that these stones formed after the mucocele developed.



Differentiation of a mucocele from a cyst or tumor must be made by pathology. Congenital cysts as is seen with thyroglossal duct, Rathke's pouch or Branchial cyst will have an epithelial lining rather than the granulation tissue seen in a mucocele

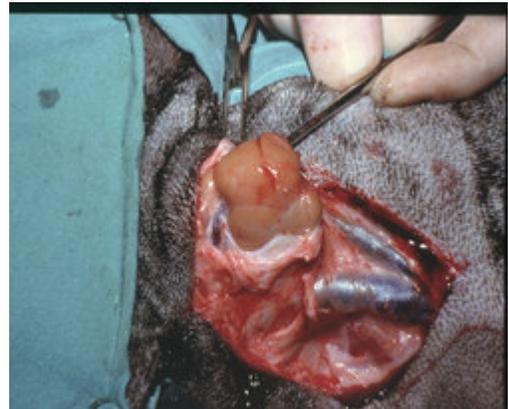
Treatment Options

The only satisfactory treatment for a salivary mucocele is removal of the salivary gland or glands that are involved with the mucocele (Figure 6). Continued aspiration of a mucocele will not permanently eliminate the problem. It will occasionally resolve the problem for weeks to several months, but most will recur. Aspiration also risks introducing bacteria into the mucocele which can potentially cause an abscess which will significantly increase the difficulty of successful surgical treatment.

Surgical removal of the mandibular and sublingual glands on the side of the mucocele is the normal

surgical treatment (Figure 6). The glands are removed together because the duct of the mandibular gland travels through the sublingual gland and removal of one gland would unavoidably traumatize the other. The mandibular gland is closely associated with the large veins that join to form the jugular vein. Removal of the salivary glands requires careful dissection to the area of several critically important nerves.

Figure 6. Surgical removal of the mandibular and sublingual glands is required to adequately treat salivary mucocele. This picture shows the mandibular gland being dissected free. Note the close proximity to several large veins.



Sublingual mucoceles (ranulas) (Figure 2) may be treated with marsupialization (in addition to removal of the mandibular and sublingual glands) to facilitate drainage into the oral cavity. Marsupialization is performed by excising an elliptical portion of sublingual mucosa overlying the mucocele and suturing the rim of oral mucosa to connective tissue

Frequently a drain is placed in the area of the mucocele to allow fluid to escape from the area until it has a chance to heal.

When to Seek Veterinary Surgical Advice

Salivary mucocele is a surgical problem. If your veterinarian suspects that your pet has a salivary mucocele, surgery should be the recommendation. Because this is an area that most veterinarians do not feel comfortable operating in, you may be referred to a surgical specialist.

Potential Complications Following Treatment

Postoperative complications are uncommon if the procedure is performed by an adequately trained surgeon. Occasionally a fluid pocket (seroma) may develop in the area where the mucocele was. This can either be drained or may be allowed to resorb by itself. Infections are rare if attention is paid to aseptic technique. If inadequate glandular tissue is removed, it is possible that the mucocele will recur.

Aftercare

If a drain was left in the surgical site, your pet will experience several days of drainage. If the wound is bandaged it will be necessary to change the bandage frequently. If the wound is not bandaged, it is helpful to apply warm compresses with a damp towel. This will help clean the skin

in the area of the surgery and will help encourage drainage of fluid from the area.

Prognosis

Prognosis is excellent for a normal life after drainage of a mucocele and adequate removal of the affected salivary glands. Dogs do not suffer from a dry mouth following removal of the mandibular and sublingual glands, even if performed bilaterally.

Written By:

Mark Davis, DVM

Diplomate ACVS