

SPECIFIC DISEASES AND DISORDERS OF THE SALIVARY GLANDS

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DEVELOPMENTAL ABNORMALITIES

Complete absence (aplasia or agenesis) of salivary glands is rare, although it may occur together with other developmental defects, especially malformations of the first and second brachial arch, which manifest with various craniofacial anomalies.

Patients with salivary gland aplasia experience:

xerostomia and increased dental caries, rampant dental caries in children, Enamel hypoplasia, congenital absence of teeth, and extensive occlusal wear

DEVELOPMENTAL ABNORMALITIES

Aberrant salivary glands are salivary tissues that develop at unusual anatomic sites. Aberrant salivary glands have been reported in a variety of locations, including the middle-ear cleft, external auditory canal, neck, posterior mandible, anterior mandible, pituitary, and cerebellopontine angle.

DEVELOPMENTAL ABNORMALITIES

When the submandibular salivary gland sits within a depression on the lingual posterior surface of the mandible, it is referred to as **Staphne's cyst**. Staphne's cyst is usually located between the angle of the mandible and the first molar below the level of the inferior alveolar nerve.

DEVELOPMENTAL ABNORMALITIES

FNA biopsy is an accurate, cost-effective diagnostic tool for these and other lesions and contributes to conservative management in many patients with non-neoplastic conditions



ACCESSORY SALIVARY DUCTS

Accessory ducts are common and do not require treatment. In a study of 450 parotid glands by Rauch and Gorlin, half of the patients had accessory parotid ducts. The most frequent location was superior and anterior to the normal location of Stensen's duct.

DIVERTICULI

By definition, a diverticulum is a pouch or sac protruding from the wall of a duct. Diverticuli in the ducts of the major salivary glands often lead to pooling of saliva and recurrent sialadenitis.

Diagnosis is made by sialography.

Patients are encouraged to ***regularly milk the involved salivary gland*** and to promote salivary flow through the duct.

DARIER'S DISEASE

Salivary duct abnormalities have been reported in Darier's disease.

Sialography of parotid glands in this condition revealed duct dilation, with periodic stricture affecting the main ducts.

Symptoms of occasional **obstructive sialadenitis have been reported.** Progressive involvement of the salivary ducts in Darier's disease may be more common than reported previously.

SIALOLITHIASIS (SALIVARY STONES)

Sialoliths are calcified organic matter that forms within the secretory system of the major salivary glands.

The true prevalence of sialolithiasis is difficult to determine since many cases are asymptomatic.

The etiology of sialolith formation is still unknown, yet several factors that cause pooling of saliva within the duct are known to contribute to stone formation:

inflammation, irregularities in the duct system, local irritants, and anticholinergic medications.

SIALOLITHIASIS (SALIVARY STONES)

The structure of sialoliths is crystalline, and sialoliths are composed primarily of hydroxyapatite. The chemical composition is calcium phosphate and carbon, with trace amounts of magnesium, potassium chloride, and ammonium.

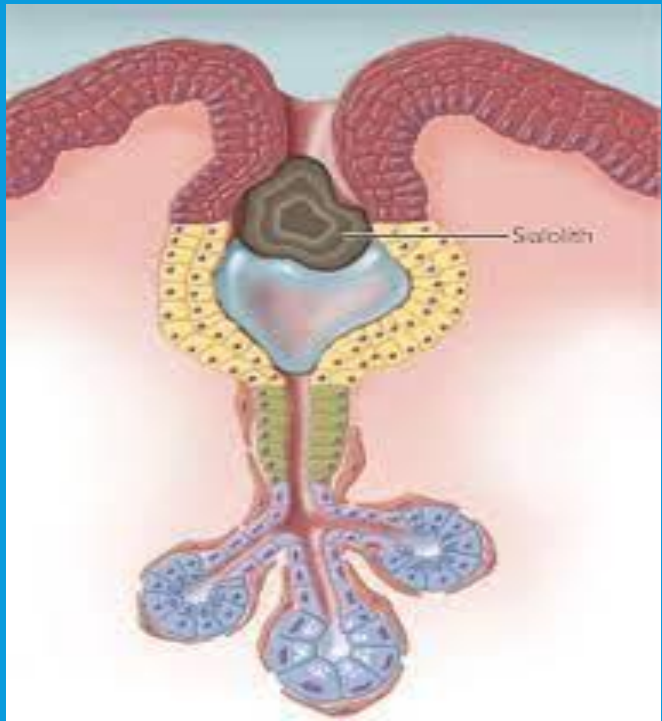
Gout can cause salivary calculi composed of uric acid; however, patients with a history of **renal stone formation** do not have an increased incidence of salivary gland stone formation.

SIALOLITHIASIS (SALIVARY STONES)

The prevalence of sialoliths varies by location. They are by far most common in the submandibular glands (80-90%), followed by the parotid (5-15%) and then sublingual (2-5%) glands.

The higher rate of sialolith formation in the submandibular gland is due to:

(1) the tortuous course of Wharton's duct, (2) higher calcium and phosphate levels, and (3) the dependent position of the submandibular glands, which leaves them prone to stasis.



CLINICAL PRESENTATION

Patients with sialoliths most commonly present with a history of acute, painful, and intermittent swelling of the affected major salivary gland.

The **degree of symptoms** is dependent on the extent of salivary duct obstruction and the presence of secondary infection.

Typically, eating will initiate the salivary gland swelling. The stone totally or partially blocks the flow of saliva, causing salivary pooling within the gland ductal system. Since the glands are encapsulated, there is little space for expansion, and enlargement causes pain.

If the sialolith partially blocks the duct, then the swelling subsides when salivary stimulation ceases and output decreases.

CLINICAL PRESENTATION

Salivary glands with obstructive sialoliths are frequently enlarged and tender.

Stasis of the saliva may lead to infection, fibrosis, and gland atrophy. Fistulae, a sinus tract, or ulceration may occur over the stone in chronic cases. An examination of the soft tissue surrounding the duct may show edema and inflammation.

Bidigital palpation along the pathway of the duct may confirm the presence of a stone.

Suppurative or non suppurative retrograde bacterial infections can occur, particularly when the obstruction is chronic.

DIAGNOSIS

Radiographs ,(*poorly calcified* stones may not be readily identifiable)

An *occlusal radiograph* is recommended for submandibular glands.

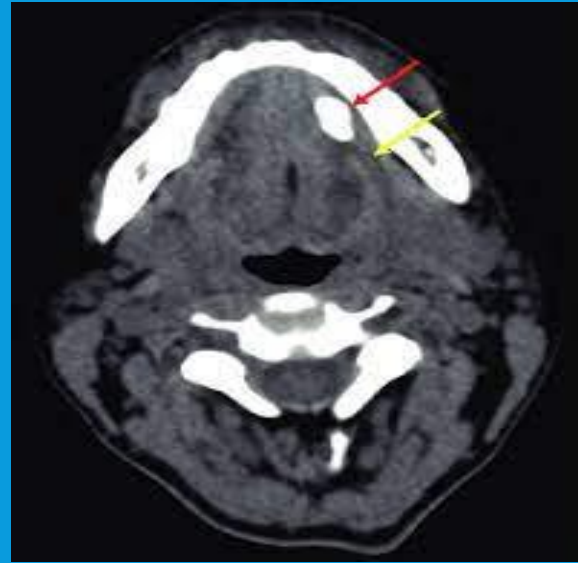
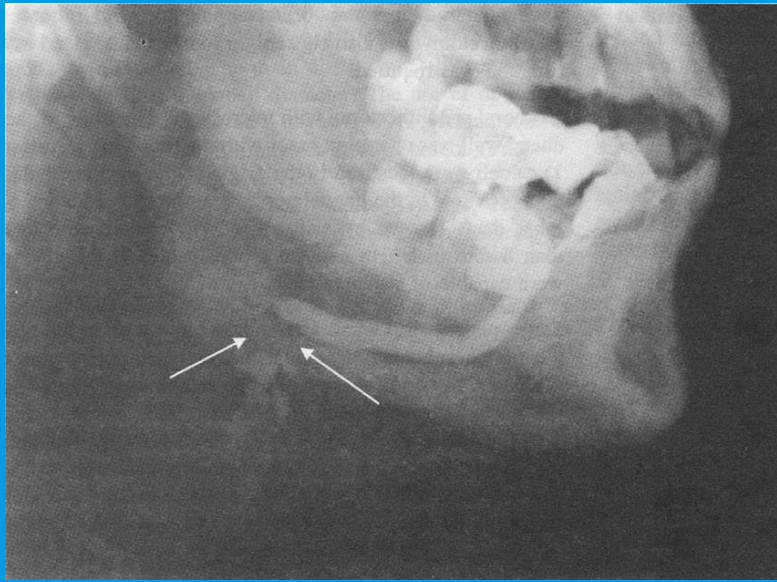
Stones in the parotid gland can be more difficult to visualize due to the superimposition of other anatomic structures;

An *AP view* of the face is useful for visualization of a parotid stone. An occlusal film placed intraorally adjacent to the duct may also help.

CT images maybe used for the detection of sialoliths and have a 10-fold greater sensitivity of plain-film radiography for detecting calcifications.

FNA techniques for submandibular sialoliths have been described and may have some utility, particularly when the differential diagnosis may include cysts or benign or malignant tumors.

sialoendoscopy, The endoscopic unit also has a surgical tip that can obtain soft tissue biopsies and help remove calcified materials using a minimally invasive technique under local anesthesia.



TREATMENT

During the acute phase, therapy is primarily supportive.

Standard care includes analgesics, hydration, antibiotics, and antipyretics,

In pronounced exacerbations, surgical intervention for drainage or removal of the stone maybe required.

Stones at or near the orifice of the duct can often be removed trans orally by milking the gland, but deeper stones require removal with surgery or sialoendoscopy.

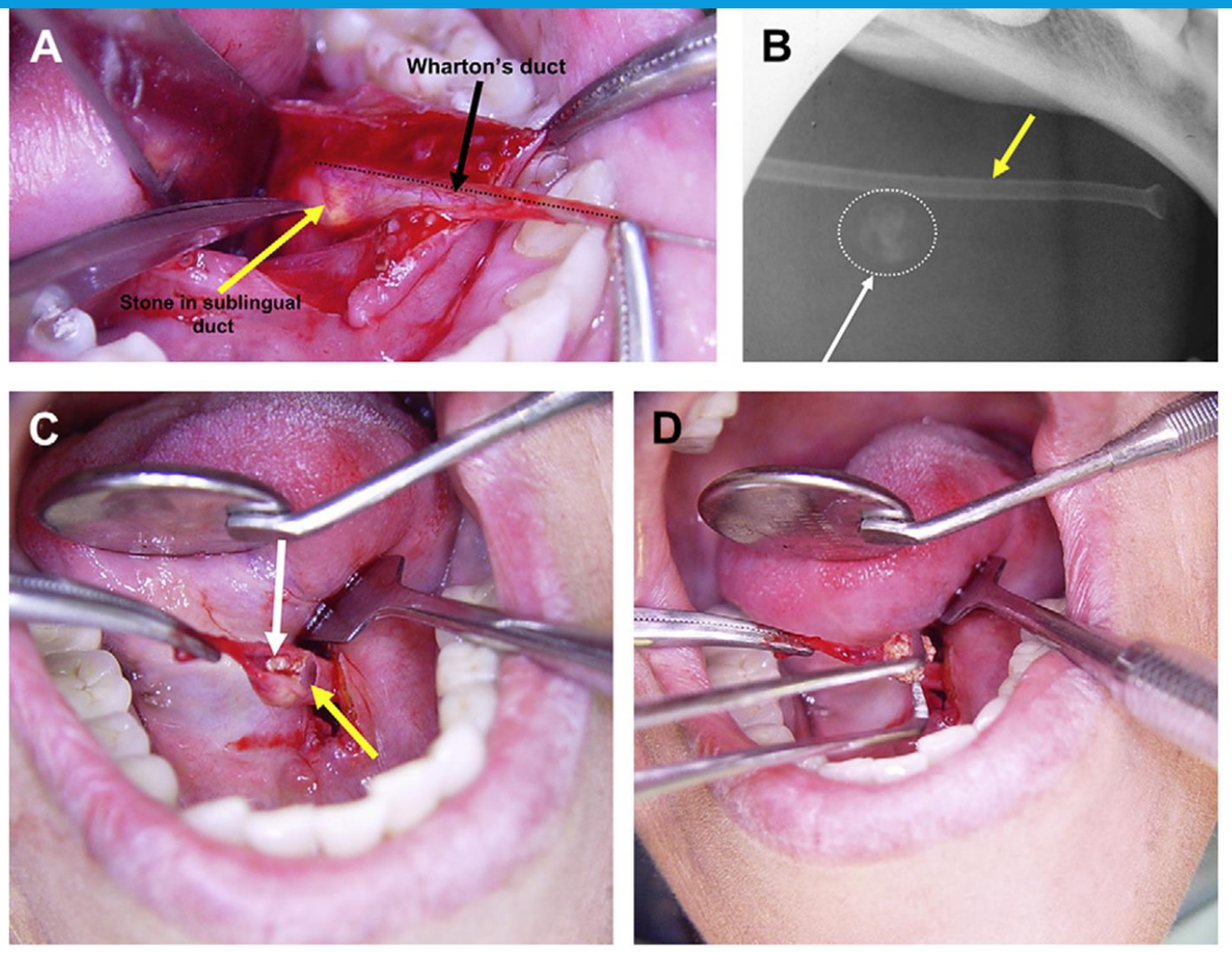
stones located in the intra glandular portion of the duct require complete removal of the gland. Alternatively, if the stone can be removed from the duct without damaging the body of the gland, nearly complete salivary recovery can occur.

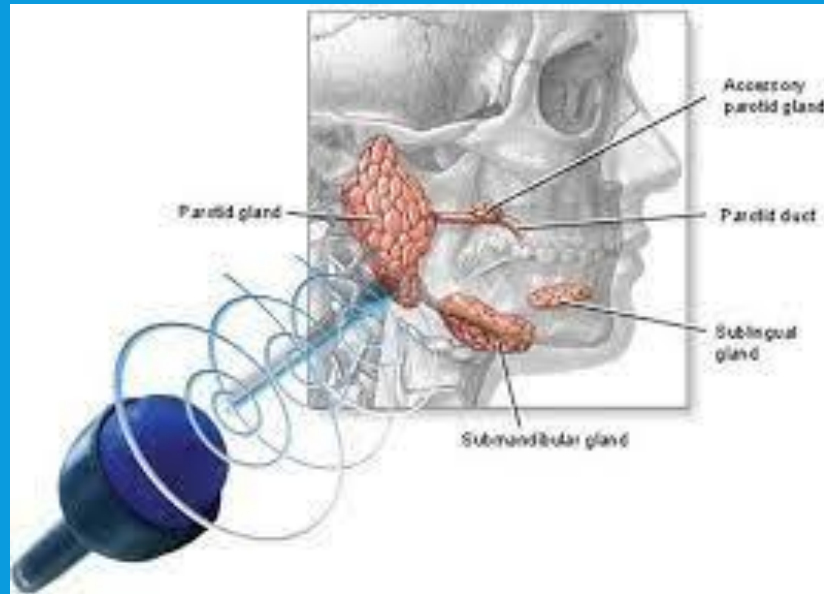
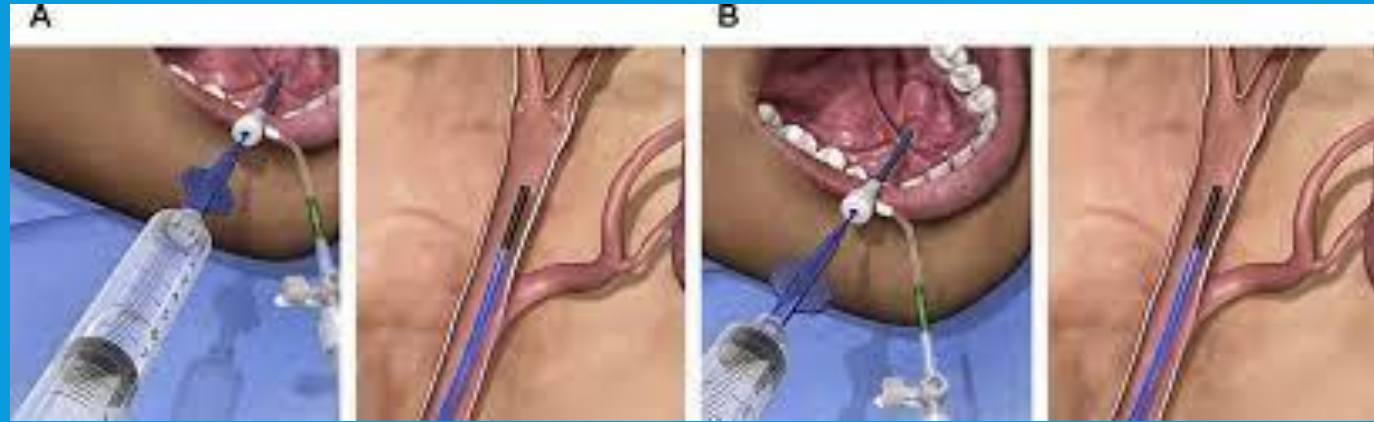
TREATMENT

Lithotripsy and sialoendoscopy can be helpful as noninvasive or minimally invasive treatments for sialoliths.

Ultrasonography will detect stones(diameter > 2 mm) and extracorporeal lithotripsy will fragment the stone,

Reported complications from lithotripsy include transient hearing changes, hematoma, and pain.



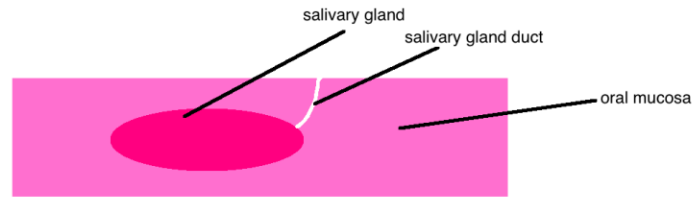


EXTRAVASATION AND RETENTION MUCOCELES

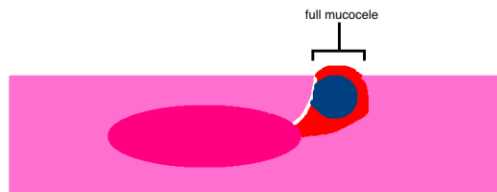
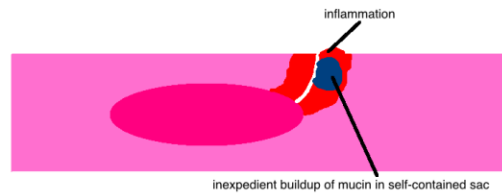
Mucocele is a clinical term that describes swelling caused by the accumulation of saliva at the site of a traumatized or obstructed minor salivary gland duct.

Mucocele are classified as:
extravasation types and retention types.

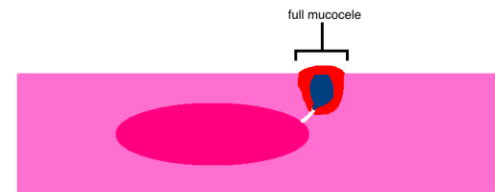
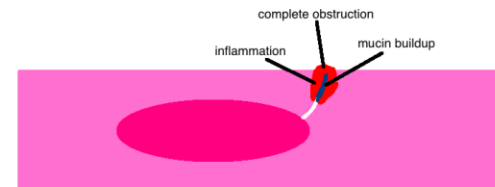
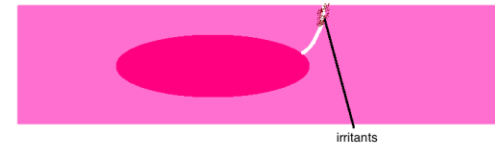
A large form of mucocele located in the floor of the mouth is known as a ranula



Mucus extravasation phenomenon



Mucus retention cyst



EXTRAVASATION AND RETENTION MUCOCELES



EXTRAVASATION AND RETENTION MUCOCELES

Clinical Presentation:

Extravasation mucoceles most frequently occur on the lower lip, where trauma is common. The buccal mucosa, tongue, floor of the mouth, and retromolar region are other commonly traumatized areas where mucous extravasation may be found.

Mucous retention cysts are more commonly located on the palate or the floor of the mouth.



EXTRAVASATION AND RETENTION MUCOCELES

Mucoceleles often present as discrete, painless, smooth-surfaced swellings that can range from a few millimeters to a few centimeters in diameter.

Superficial lesions frequently have a characteristic blue hue. Deeper lesions can be more diffuse, covered by normal-appearing mucosa without the distinctive blue color.

The lesions vary in size over time!

Differntional diagnosis:
salivary gland neoplasms, soft tissue neoplasms,
vascular malformation, and vesiculobullous diseases

EXTRAVASATION AND RETENTION MUCOCELES

Treatment:

Surgical excision is the primary treatment for mucoceles, particularly to prevent recurrence.

Aspiration of the fluid from the mucocele will not provide long-term benefit.

Surgical management is challenging since it could cause trauma to other adjacent minor salivary glands and lead to the development of a new mucocele.

Intralesional injections of corticosteroids have been used successfully to treat mucoceles.

RANULA

A ranula is a large mucocele located on the floor of the mouth. Ranulas may present as either a mucous extravasation phenomenon or, when the inflammatory components disappear, a sessile firm mass with a normal mucous membrane.

The most common cause of ranula formation is trauma. Other causes include an obstructed salivary gland or a ductal aneurysm. They are most common in the second decade of life and in females.

RANULA



RANULA

Clinical Presentation.:

The term ranula is used because this lesion often resembles the **swollen abdomen of a frog.**

The most common presentation is a painless, slow-growing, soft, and movable mass located in the floor of the mouth

Usually, the lesion forms to one side of the lingual frenum; however, if the lesion extends deep into the soft tissue, it can cross the midline.

The size of the lesions can vary, and larger lesions can cause deviation of the tongue.

A deep lesion that herniates through the mylohyoid muscle and extends along the fascial planes is referred to as a **plunging ranula** and may become large, extending in to the neck.

RANULA

Diagnosis:

Radiography will help rule out a sialolith as a cause of duct obstruction. Radiopaque material instilled in to the ranula cavity may be helpful in delineating the borders and full extent of the lesion.

Treatment:

Surgical intervention is the treatment of choice for ranulas.

A marsupialization procedure that un roofs the lesion is the initial treatment, especially for smaller lesions.

Intralesional injections of corticosteroids have been used sussuccessfully in the treatment of ranulas.

NECROTIZING SIALOMETAPLASIA

DESCRIPTION AND ETIOLOGY:

Necrotizing sialometaplasia is a benign, self-limiting, reactive inflammatory disorder of the salivary tissue. Clinically, this lesion mimics a malignancy, and failure to recognize this lesion has resulted in unnecessary radical surgery. The etiology is unknown, although it likely represents a local ischemic event, infectious process, or perhaps an immune response to an unknown allergen.



CLINICAL PRESENTATION:

Necrotizing sialometaplasia has a rapid onset. Lesions occur predominantly on the palate; ... lips and the retromolar trigone

Lesions initially present as a tender erythematous nodule. Even though lesions can be large and deep, patients often describe only a moderate degree of dull pain. Lesions often occur shortly after oral surgical procedures, restorative dentistry, or administration of local anesthesia, although lesions also may develop weeks after a dental procedure or trauma.

DIAGNOSIS:

biopsy / clinical history

Microscopically, necrosis of the salivary gland, pseudoepitheliomatous hyperplasia of the mucosal epithelium, and squamous metaplasia of the salivary ducts are seen. There is diffuse infiltration of lymphocytes, histiocytes, neutrophils, and eosinophils

TREATMENT:

This is a self-limiting condition lasting approximately 6 weeks, with healing by secondary intention.

No specific treatment is required, but debridement and saline rinses may help the healing process.

Recurrence and impairment are unusual.