

STOMATITIS

Stomatitis is inflammation of the oral mucosa and includes glossitis (inflammation of the tongue), palatitis (lampas; inflammation of the palate), and gingivitis (inflammation of the mucosa of the gums).

- Clinically it is characterized by partial or complete loss of appetite, smacking of the lips, and profuse salivation. It is commonly an accompaniment of systemic disease.

ETIOLOGY

-Stomatitis can be caused by physical, chemical, or infectious agents, with the last being the largest group of causes. The agents are listed next.

Physical Agents

- Trauma while dosing orally with a balling gun or similar instruments.
- Laceration of the tongue.
- Foreign body injury.
- Malocclusion of teeth.
- Sharp awns or spines on plants.

-The most common lesions are on the gums of cattle and sheep just below the corner incisors where tough grass is pulled around the corner of the incisor arcade.

- In spear grass country the alveoli are often stuffed full of grass seeds.

-Very young animals, 1- to 6-week-old lambs, are particularly susceptible to traumatic injury from abrasive feed.

- **Among the most dramatic lesions are those in the mouths of horses.** They are large (2–3 cm long and 5 mm wide) and **linear in shape. They can be caused in horses or cattle by eating hairy caterpillars that infest pasture, or**

-by the awns in hay or chaff made from triticale (a hybrid of wheat and rye) and a yellow bristle grass (*Setaria lutescens*). (Foxtail awns can cause multiple painful nodules on the lips of horses that have eaten hay contaminated with the awns,) as can the seedheads of mouse barley (*Hordeum murinum*).

• **The strength and thickness of the awn in dwarf barley cultivars used to make silage fed to feedlot cattle in some regions is associated with mouth lesions.**

-The incidence of tongue lesions in slaughter cattle in some areas can be about 19%, and the incidence is higher in cattle finished on silage from semidwarf rough awn (29.3%) compared with normal-stem rough awn (13.5%) and normal-stem smooth awn barley (11.8%).

- **Eating frozen feed and drinking hot water are recorded**, but seem highly improbable.
- **Ulcers of the soft palate of horses can be caused by mechanical trauma associated with dorsal displacement of the soft palate.**

Chemical Agents

- **Irritant drugs, e.g., chloral hydrate**, administered in excessive concentrations.
- **Counterirritants applied to skin, left unprotected, and licked by the animal, including mercury and cantharides compounds.**
- **Irritant substances administered by mistake, including acids, alkalis, and phenolic compounds.**
- **Manifestation of systemic poisoning, e.g., chronic mercury poisoning. Poisoning with bracken, and some fungi (Fusarium spp., and mushrooms)** cause a combination of focal hemorrhages and necrotic ulcers

They are a common cause of confusion with vesicular or erosive disease.

- **Lesions associated with uremia syndrome in horses.**

Infectious Agents Cattle

- **Oral necrobacillosis associated with Fusobacterium necrophorum.**
- **Actinobacillosis of the bovine tongue is not a stomatitis, but there can be one or two ulcers on the dorsum and sides of the tongue and on the lips.** Characteristically, there is initially an acute diffuse myositis of the muscle of the tongue, followed by the development of multiple granulomas and subsequently fibrosis and shrinkage.
- **Ulcerative, granulomatous lesions may occur on the gums in cases of actinomycosis.**
- **Stomatitis with vesicles occurs in FMD and in vesicular stomatitis (VS).**
- **Erosive, with some secondary ulcerative, stomatitis occurs in bovine viral diarrhea (mucosal disease), bovine malignant catarrh, rinderpest. and rarely in bluetongue.** Cases of infectious bovine rhinotracheitis in young calves may have similar lesions.

- Proliferative lesions occur in papular stomatitis, proliferative stomatitis, and rare cases of rhinosporidiosis and papillomatosis where the oral mucosa is invaded.
- Oral mucosal necrosis in bovine sweating sickness.
- Nondescript lesions varying from erosions to ulcers occur late in the stages of many of the previously mentioned diseases when secondary bacteria have invaded the breaches in the mucosa. In some cases the involvement goes deeper still and a phlegmonous condition or a cellulitis may develop. Thus lesions that were initially vesicular are converted to what look like bacterial ulcers.

Sheep

- Erosive lesions in bluetongue, rinderpest, and peste de petits ruminantes.
- Vesicular lesions rarely in foot-and-mouth disease (FMD).
- Granulomatous lesions caused by ecthyma are not unusual in the mouth, especially in young lambs. Similarly, oral lesions occur in bad cases of sheep pox, ulcerative dermatosis, coital exanthema, and mycotic dermatitis. Horses
- Cheilitis and gingivitis (inflammatory nodules of the lips and gums caused by plant awns)
- Vesicular lesions in VS
- Lingual abscess associated with Actinobacillus spp.

PATHOGENESIS

The lesions of stomatitis are produced by the causative agents being applied directly to the mucosa, or gaining entrance to it by way of minor abrasions,

-or by localization in the mucosa from a viremia.

- In the first two instances, the stomatitis is designated as primary.

-In the third, it is usually described as secondary because of the common occurrence of similar lesions in other organs or on other parts of the body, and the presence of a systemic disease.

- CLINICAL FINDINGS

The clinical signs of stomatitis are caused by the inflammation or erosion of the mucosa and the signs vary in severity with the degree of inflammation.

-There is partial or complete anorexia and slow, painful mastication.

- Chewing movements and smacking of the lips are accompanied by salivation, either frothy and in small amounts, or profuse and drooling if the animal does not swallow normally.
- The saliva may contain pus or shreds of epithelial tissue.
- A fetid odor is present on the breath only if bacterial invasion of the lesion has occurred.
- Enlargement of local lymph nodes may also occur if bacteria invade the lesions.
- Swelling of the face is observed only in cases where a cellulitis or phlegmon has extended to involve the soft tissues.
- An increased desire for water is apparent and the animal resents manipulation and examination of the mouth.
- Toxemia may be present when the stomatitis is secondary to a systemic disease or where tissue necrosis occurs.

-This is a feature of oral necrobacillosis and many of the systemic viremias.

-In some of the specific diseases, lesions may be present on other parts of the body, especially at the coronets and mucocutaneous junctions.

-Several different lesions of the oral cavity may be present and their characteristic appearances are as follows.: The importance of

- **vesicular diseases** such as **FMD** means that the recognition and differentiation of these lesions assumes major importance.

- **Erosions are shallow**, usually discrete, areas of necrosis, which are not readily seen in the early stages. They tend to occur most often on the lingual mucosa and at the commissures of the mouth. The necrotic tissue may remain in situ but is usually shed, leaving a very shallow discontinuity of the mucosa with a dark red base that is more readily seen. If recovery occurs, these lesions heal very quickly.

-Vesicles are thin-walled swellings 1 to 2 cm in diameter filled with clear serous fluid. They are very painful and rupture readily to leave sharp-edged, shallow ulcers.

-**Ulcerative lesions** penetrate more deeply to the lamina propria and are painful, **such as in necrotic stomatitis in calves associated with *F. necrophorum*.**

- **In lambs the tongue** may be **swollen and contain many microabscesses** infected with **Actinomyces (Corynebacterium) pyogenes**.

There is an accompanying abscessation of the pharyngeal lymph nodes.

- **Proliferative lesions** are characterized by an abnormality raised above the surface of the mucous membrane **such as in oral papillomatosis**.

- **Traumatic lesions** are usually solitary and characterized by a discontinuity in the mucous membrane often with evidence of healing and the presence of **granulation tissue**.

- **Catarrhal stomatitis** is manifested by a diffuse inflammation of the buccal mucosa and is commonly the result of direct injury by chemical or physical agents.

- **Mycotic stomatitis** is characterized by a heavy, white velvety deposit with little obvious inflammation or damage to the mucosa.

- **Deformity of or loss of tissue at the tip of the tongue** may result in a chronic syndrome of chewing and swallowing food in such a way that food is always oozing from between the lips.

In sheep **this may cause permanent staining of the hair around the mouth**, creating an appearance similar to that of a tobacco chewer.

- Loss of the tip is usually the result of predator attack on a newborn or sick lamb.

In cattle, glossectomy interferes with prehension and the animal is unable to eat.

- Excessive loss of saliva is common because of interference with swallowing.

- Ulceration of the soft palate of horses may occur in 16% of horses with dorsal displacement of the soft palate and is characterized clinically by reduced exercise tolerance, respiratory noise during light exercise or racing, dysphagia, and coughing after exercising.

CLINICAL PATHOLOGY

Material collected from lesions of stomatitis should be examined for the presence of pathogenic bacteria and fungi.

- Transmission experiments may be undertaken with filtrates of swabs or scrapings if the disease is thought to be caused by a viral agent.

NECROPSY FINDINGS

Oral lesions are easily observed, but complete necropsy examinations should be performed on all fatally affected animals to determine whether the oral lesions are primary or are local manifestations of a systemic disease.

DIFFERENTIAL DIAGNOSIS

- Particularly in cattle, and to a lesser extent in sheep, the diagnosis of stomatitis is most important because of the occurrence of oral lesions in a number of highly infectious viral diseases.

The diseases are listed under etiology

- Careful clinical and necropsy examinations are necessary to define the type and extent of the lesions if any attempt at field diagnosis is to be made.

- The differentiation of causes of hypersalivation must depend on a careful examination of the mouth (the causative gingivitis is often surprisingly moderate in horses) and an awareness of the volume of increased saliva output caused by toxic hyperthermia,

TREATMENT

- Affected animals should be isolated and fed and watered from separate utensils if an infectious agent is suspected.

- Specific treatments are described under the headings of the individual diseases.

- Nonspecific treatment includes frequent application of a mild antiseptic such as

 - a **2% solution of copper sulfate,**

 - a **2% suspension of borax,**

 - or a **1% suspension of a sulfonamide in glycerin.**

- Indolent ulcers require more vigorous treatment and respond well to curettage or cauterization with a silver nitrate stick or tincture of iodine.**

- In stomatitis caused by trauma, the teeth might need attention.

- In all cases, soft, appetizing food should be offered and feeding by stomach tube or intravenous alimentation may be resorted to in severe, prolonged cases.

- If the disease is infectious, care should be exercised to ensure that it is not transmitted by the hands or dosing implements.

