



Abbey Veterinary Services

DIAGNOSTIC HISTOPATHOLOGY AND CYTOLOGY

Clinicopathological Newsletter

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CASE OF INTEREST

A case of salivary gland infarction in a dog.

By Richard Fox, Veterinary Pathologist.

Case donated by Judith Hargreaves, Veterinary Pathologist.

A ten year old Border Collie presented with an acute onset, painful swelling in the region of the left submandibular salivary gland. The dog otherwise was clinically normal. This lesion did not respond to broad spectrum, systemic antibiotics and non-steroidal anti-inflammatory drug therapy over a 4 day period and the lesion was then biopsied. A fine needle aspirate biopsy was initially taken before surgery.

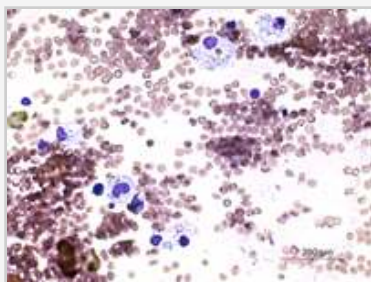


Figure 1. Cytological preparation identifying frequent 'foamy' macrophages one of which displays erythrophagocytosis (H&E).

Cytological findings (Figure 1) included many erythrocytes but large amounts of basophilic mucoid-like proteinaceous material and large numbers of macrophages with frequent cytoplasmic vacuoles. Some macrophages displayed erythrophagocytosis. There were also occasional lymphocytes, plasma cells and neutrophils present here and occasional spindle cells.

The soft tissue biopsy (wedge biopsy) revealed a portion of salivary gland. Many of the acini were necrotic (coagulative necrosis). In other areas acinar cells were undergoing squamous metaplasia. They were surrounded by reactive fibrous tissue with areas of haemorrhage and a mild mixed inflammatory cell infiltrate. Within the periphery of the biopsy the salivary ducts were hyperplastic and displayed moderate piling and internal polypoid projections (Figure 2).

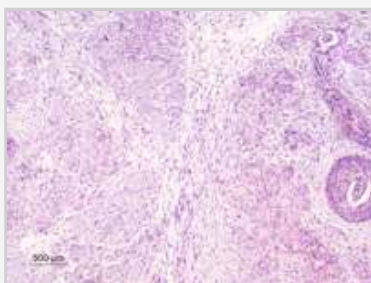


Figure 2. Histological section of the biopsy reveals, to the left, residual and necrotic acini and to the right, atypical, proliferative salivary ducts (H&E).

The acinar and ductal cells on high power examination (Figure 3) were dysplastic highlighted by moderate architectural disorganisation, anisocytosis and anisokaryosis. Cell nuclei were often hyperchromatic.

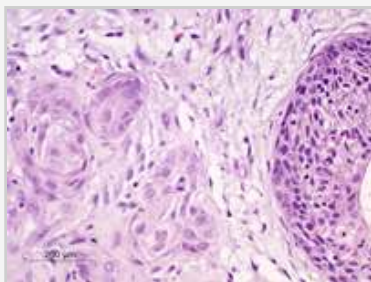


Figure 3. Histological section of of the biopsy , under high power reveals, to the left, residual acini undergoing squamous metaplasia and to the right, atypical, proliferative salivary ducts , both displaying moderate mitotic activity (H&E).

The dog since the biopsy has had no lesions in other salivary glands and the lesion has resolved clinically.

Necrotising sialometaplasia or alternatively salivary gland infarction is historically a disorder with conflicting clinical observations and outcomes. The most recent review of this disorder is summarised below:

1*."Salivary gland necrosis has been described in dogs and is characterised by enlarged,

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JOURNAL Articles(with e-links)

1. Baek SJ, McEntee MF, Legendre AM. Review paper: Cancer chemopreventive compounds and canine cancer. *Vet Pathol.* 2009 Jul;46(4):576-88. Epub 2009 [Link](#)

Canine cancer has become more prevalent in recent years because of increased life expectancy and greater attention to the health of pets. The range of cancers seen in dogs is as diverse as that in human patients, and despite more intensive therapeutic interventions, fatality rates remain unacceptably high in both species. Chemoprevention is therefore an important means of confronting this disease. Because domestic pets share our environment, greater cross-application and study of the protumorigenic and antitumorigenic factors in our shared environment will benefit all species, leading to the development of new families of less toxic antitumorigenic compounds based on novel and established molecular targets. Currently, the most interesting cancer preventive agents are nonsteroidal anti-inflammatory drugs, peroxisome proliferator-activated receptor-gamma ligands, and dietary compounds. This article provides an overview of what is known about how these agents affect molecular signaling in neoplastic disease, with reference to reported application and/or study in dogs where available.

2. Erne JB, Goring RL, Kennedy FA, Schoenborn WC. Prevalence of lymphoplasmacytic synovitis in dogs with naturally occurring cranial cruciate ligament rupture. *J Am Vet Med Assoc.* 2009 Aug 15;235(4):386-90. [Link](#)

OBJECTIVE: To determine the prevalence of lymphoplasmacytic synovitis (LPS) in dogs with naturally occurring cranial cruciate ligament (CCL) rupture and compare clinical, radiographic, cytologic, and histologic findings in dogs with and without LPS. **DESIGN:** Cross-sectional study. **ANIMALS:** 110 dogs with naturally occurring CCL rupture. **PROCEDURES:** Histologic examination of synovial biopsy specimens obtained at the time of surgical treatment was used to identify dogs with LPS. Clinical, radiographic, cytologic, and histologic findings were compared between dogs with and without LPS. **RESULTS:** 56 (51%) dogs had histologic evidence of LPS. There were no significant differences in age, body weight, duration of lameness, severity of lameness, severity of radiographic signs of degenerative joint disease, extent of CCL rupture (partial vs complete), or gross appearance of the medial meniscus between dogs with and without LPS. Mean tibial plateau angle was significantly lower in dogs with LPS than in dogs without LPS, and dogs with LPS were significantly more likely to have neutrophils in their synovial fluid. Lymphocytes were seen in synovial fluid from a single dog with LPS. **CONCLUSIONS AND CLINICAL RELEVANCE:** Results suggested that LPS was common in dogs with naturally occurring CCL rupture. However, only minor clinical, radiographic, cytologic, and histologic differences were identified between dogs with and without LPS.

3. Berg RI, Sykes JE, Kass PH, Vernau W. Effect of repeated arthrocentesis on cytologic analysis of synovial fluid in dogs. *J Vet Intern Med.* 2009 Jul-Aug;23(4):814-7. [link](#)

hard, painful salivary glands, retching and vomiting or regurgitation. The cause has yet to be determined. A retrospective study of 19 dogs with the same clinical signs was undertaken for breed, age, gender, history and presenting signs, diagnostic evaluations and findings, treatment and outcome. An underlying association was identified in 16 of the 19 dogs. This included Spirocerca lupi infestation (seven dogs), megaesophagus (three dogs) and oesophagitis, oesophageal diverticulum, giardiasis and suspected autoimmune sialadenitis. Almost all associated lesions involved the oesophagus. Where the associated disease was successfully treated, the salivary glands returned to normal and all clinical signs resolved. It is hypothesised that an afferent vagal reflex may be involved, and that the mechanism of disease is similar to the neural pathogenesis suggested for hypertrophic osteopathy; in this instance, the efferent targets are the salivary glands rather than the limbs."

Another article previous to this however summarised the following:

2*. "Necrotizing sialometaplasia (NS) is a distinct, though rare disease of the salivary glands. Histologic findings in humans and dogs are identical, but the distribution of affected glands and clinical course are very different. Small terrier breeds are predisposed. Clinically, canine NS is characterized by nausea (i.e., ptyalism, lip smacking, gulping), dysphagia, and pain in the mandibular region. Surgical removal of the affected glands produces minimal, if any, improvement; however, transient administration of anticonvulsants has resulted in dramatic clinical improvement in three cases. "

This therefore remains idiopathic in origin, the clinical signs of which in some cases responds to phenobarbitone therapy (possibly symptomatic?). Histologically, however, this can be confused with a neoplastic condition especially with small biopsies as the metaplastic component often displays cellular atypia and squamous metaplasia therefore appearing like a squamous cell carcinoma.

References:

- 1.Schroeder H, Berry WL. Salivary gland necrosis in dogs: a retrospective study of 19 cases. J Small Anim Pract. 1998 Mar;39(3):121-5.
- 2.Brooks DG, Hottinger HA, Dunstan RW. Canine necrotizing sialometaplasia: a case report and review of the literature. J Am Anim Hosp Assoc. 1995 Jan-Feb;31(1):21-5.

Swor TM, Whittenburg JL, Chaffin MK. Ivermectin toxicosis in three adult horses. J Am Vet Med Assoc. 2009 Sep 1;235(5):558-62.

CASE DESCRIPTION: 3 adult Quarter Horses were evaluated for acute, progressive neurologic signs 18 hours after oral administration of 1 dose of 1.87% ivermectin paste. CLINICAL FINDINGS: Clinical signs included depression, forelimb and hind limb ataxia, drooping of the superior and inferior lips, and muscle fasciculations. Bilateral mydriasis, decreased pupillary light reflexes, and absent menace reflexes were evident. Clinical signs progressed in severity for 36 hours after administration of the ivermectin. TREATMENT AND OUTCOME: All horses were treated supportively with IV administration of fluids and anti-inflammatory medications. Two horses survived with no apparent long-term sequelae. One horse was euthanized, and a high concentration of ivermectin was detected in its brain tissue at postmortem examination. Analysis of the ivermectin concentration in the paste product revealed that the concentration was approximately that indicated on the packaging. CLINICAL RELEVANCE: Ivermectin toxicosis is an uncommonly reported condition in equids that should be considered when acute neurologic impairment develops after ivermectin administration. Recovery is possible with supportive care and time.

CYTOLOGY TIPS

Scrapings

- Scrapings can be made from external lesions or tissue obtained from surgical or necropsy specimens.
- They are generally more cellular preparations than impression smears.
- Like impression smears they will have contaminants from the surfaces or inflammation if made from areas which are ulcerated.
- Usually indicated in skin lesions which are flat or from visceral organs which are not amenable to FNAB. They are suitable for surface skin infections including mite infestations.
- Scrapings of surface skin infections such as mange or dermatophytosis should be deep enough to result in serum or blood exudation.
- Material collected can be transferred quickly (prevents drying) to the middle of a glass slide and either smeared with the blade or with samples from soft tissue organs with techniques used in FNAB.

LATEST NEWS

Therapy dogs can acquire MRSA

The AVMA and American College of Veterinary Internal Medicine backgrounder cites research that indicates the presence of MRSA in health care environments may put animals at risk of infection or colonization during their involvement in animal-assisted intervention programs and includes guidelines for handling animal-assisted intervention programs in health care settings.

One study cited in the backgrounder indicates that dogs that participated in animal assisted programs in health care settings were six times as likely to acquire MRSA as were dogs that participated in non-health-care-related intervention programs.

More info: [JAVMA Website](#)

SIDE STORY

T-Cell Receptor peptide immunomodulator Trials for Canine Atopy - The shape fo things to come?

"Canine atopic dermatitis is a very prevalent condition in dogs, thought to affect up to 5 percent of the dog population. Clinical signs of atopic dermatitis include pruritus (itching) and an increase in topical skin infections such as staphylococcal pyoderma. The T-Cell Receptor peptides have previously shown significant improvement in dogs with severe atopic dermatitis."

"T-Cell Receptor peptides target T-helper cells: immune cells that are key players in atopic and allergic dermatitis. T-helper cells are central regulators of immune function and their imbalance is implicated in a variety of disorders including atopy, asthma, stomatitis, and various infections."

Further information [External Link](#) (Imulan Website)

MESSAGES

SEMINARS

We have recently been asked to give clinicopathological and pathological seminars by groups of practices and specialist groups.

If you have a request for us to give a talk on a particular subject, especially if you are have a specialist interest or are a member of a specialist referral centre we would like to hear from you.

We have a team of very experienced pathologists with a broad knowledge of disease in a wide variety of animals. Many of our pathologists are accustomed at presenting talks. Just Let us know!

OUR DETAILS

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