CAT'S DON'T READ TEXTBOOKS! FELINE DENTISTRY

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Cats are not small dogs. It is equally important to realize that cats have not read textbooks when it comes to dental problems. Feline dental problems can be very similar and yet very different from canine dental problems.

It is essential to be able to identify oral pathology and anomalies. It is equally important to record the pathology on dental charts. A thorough dental examination includes both conscious and anesthetized examinations and charting disease processes, pathology and anomalies, and treatment plans.

Being aware of dental formulas, oral anatomy, as well as terminology is crucial to proper charting. The head type of the animal, as well as malocclusions, needs to be noted.

FELINE DENTAL FORMULAS:

Adult Cats	Kittens
2x(3/3I, 1/1C, 3/2P, 1/1M) = 30	2x(3/3i, 1/1c, 3/2p) = 26

GINGIVITIS INDEX (GI):

The gingival index (GI) is a measurement of gingival health. The assessments of gingival changes using the following criteria.

0 - normal healthy gingiva
1 - moderate inflammation, moderate redness, not bleeding on probing, edema
2 - moderate inflammation, moderate to severe redness, edema, bleeding upon probing
3 - severe inflammation, severe redness, edema, ulceration, spontaneous bleeding

Each tooth is given the most severe score.

PROBE DEPTH (PD):

Probe depth (PD) is a measure of the depth of periodontal pockets in periodontal disease. The probe depth is measured at multiple sites of the tooth. A periodontal probe with millimeter markings is gently placed between the free gingiva and the tooth surface and carefully advanced until soft tissue resistance is felt. The tip of the probe should be parallel to the long axis of the tooth. Pocket depth is recorded as the distance in mm from the free gingival margin to the bottom of the pocket. The probe may be glided or walked along the tooth to measure the varying pocket depths. A normal gingival sulcus depth is 0.5 to 1mm in cats. Measurements over these values should be recorded in the appropriate location on the dental chart.

GINGIVAL RECESSION:

Gingival recession is also measured with the periodontal probe. It is the distance from the cemento-enamel junction(CEJ) to the margin of the free gingiva. At sites with gingival recession, the probe depth may be normal despite the loss of alveolar bone. Areas of gingival recession should be noted on the dental chart.

FURCATION INDEX (FI):

The furcation index (FI) measures the loss of bone support in multi-rooted teeth. A periodontal probe is placed perpendicular to the tooth's long axis and slid along the free marginal groove to the furcation site. The following criteria are used to assign a numerical score.

0 - no loss of bone support
1 - horizontal loss of supporting tissues not exceeding one-third of the width of the tooth
2 - horizontal loss of supporting tissues exceeding one-third of the tooth's width but not encompassing the total width of the furcation area.
3 - horizontal loss of supporting tissue allowing for through and through exposure

A furcation index of 1-3 should be noted on the dental chart.

MOBILITY INDEX (MI):

The mobility index (MI) measures the loss of bone support by indicating the tooth's amount of movement. The periodontal probe's length is placed on the buccal surface of the crown of the tooth, and gentle pressure is applied to the tooth. The following criteria are used to assign a numerical score.

0 - no mobility

1 - perceptible mobility but less than 1 mm buccolingually
2 - definite mobility between 1-2 mm
3 - gross mobility exceeding 2 mm buccolingually and/or vertical mobility
A mobility index of 1-3 should be noted on the dental chart.

PERIODONTAL ATTACHMENT LEVEL (PAL):

This measurement is similar to the Probe depth measurement. PAL is the pocket depth measured from the base or apex of the pocket to the cemento-enamel junction. PAL is a more accurate assessment of tissue loss in periodontitis. PAL can be directly measured, or it can be calculated as the sum of PD plus gingival recession.

PROBE DEPTH:

(aka – pocket depth) is an essential part of charting. This loss of attachment is created by the progression of periodontal disease and, therefore, a vital piece of information. The normal healthy mouth has a probe depth of 1-3 mm in dogs and 1 mm or less in cats. Any probe depth greater than this should be recorded on the chart. The probe should be walked around all sides of the tooth to ensure all pockets are recorded.

STAGE OF PERIODONTAL DISEASE:

The stages of periodontal disease can be used to help price and schedule periodontal therapies and be recorded so that the progression of the disease can be determined. These stages are determined by either measuring clinical attachment level or radiographically.

- Stage 1 -Gingivitis only with attachment loss.
- Stage 2 - Less than 25% attachment loss. Grade 1 furcations present.
- Stage 3 - 25 to 50% attachment loss. Grade 2 furcations present
- Stage 4 - Over 50 % attachment loss. Grade 3 furcations present.

Oral masses need to be drawn onto the chart and noted. This includes epuli and gingival hyperplasia. This is important to note these to have a record of the mass and be able to note changes in future examinations and gingivectomies or the removal of excess gingival tissues.

SUPERNUMERARY TEETH:

Supernumerary or "extra" teeth are common in cats and may result in crowding and misalignment of the teeth. The mandibular fourth premolars are the most common supernumerary tooth observed in cats. Supernumerary teeth that cause crowding should be extracted with oral surgery early.

GEMINATION:

Gemination has been observed in both deciduous and permanent teeth. It is an attempt to merge two teeth. This results in a tooth with two completely or incompletely separated crowns, each with a single pulp chamber and a shared root canal. Etiology is unknown, but trauma could be one cause, although a genetic tendency has been observed. It can be challenging to differentiate between supernumerary and germination without dental x-rays.

STOMATITIS:

Gingivostomatitis is a chronic, painful condition that can be very difficult to diagnose and treat. Multiple tests are needed to rule out other problems. Make sure the animal is FeLV/FIV negative; you may want to consider Calicivirus testing. Most treatments are ineffective; to date, the best treatment is a complete dental extraction surgery, including removing all dentin. This treatment is usually effective in about 80% of the cases.

JUVENILE HYPERPLASTIC GINGIVITIS:

Juvenile hyperplastic gingivitis occurs after the permanent teeth have erupted between 6 to 8 months of age. This condition is common in Persian and Abyssinian cats, but it can occur in any breed. The gingiva is severely inflamed with overgrowth of gingiva onto the crowns of the premolars and molars. This overgrowth can result in pseudopockets. Treatment involves cleaning of the teeth every 3-6 months and a gingivectomy of hyperplastic gingival tissue.

JUVENILE ONSET PERIODONTITIS:

Juvenile onset periodontitis occurs before the age of 9 months of age. Siamese, Maine Coon, and DSH cats are predisposed. A typical presentation is malodor at the time of permanent tooth eruption. An oral examination reveals marked inflammation at the gingival margin and can extend in the attached gingiva.

TOOTH RESORPTION:

Tooth Resorption (TR) can be challenging to classify. The five stages of TR's are determined by the amount of crown involved in the lesion.

- Stage 1
  - Lesions extend only into the cementum. This stage occurs only subgingivally. – Very difficult to detect
- Stage 2
  - Lesions progress through the cementum into the root or crown's dentin, but the pulp is not exposed. Hyperplastic gingiva may cover these defects.
- Stage 3
  - Lesions progress into the pulp chamber. Bleeding on probing and spontaneous fractures of the crown may occur.
- Stage 4
  - Lesions destroy a significant amount of the crown.
- Stage 5
  - Lesions have significant root replacement resorption with the healing of the gingiva. There is no clinically apparent tooth tissue.

In addition to the stages of TR's, they can be classified based on the radiographic appearance of the periodontal ligament space:

- Type 1 – Lesions are caused by inflammation. The root appears normal, and the periodontal ligament space is still observable.
- Type 2 – The affected tooth is ankylosed to the alveolus. This type of lesion is not associated with periodontal disease
- Type 3- The affected tooth has one root with type 1 TR and one root with Type 2 TR.

CHRONIC ALVEOLAR OSTEITIS:

This condition is commonly associated with the maxillary canines of cats. It produces a pronounced bulging appearance of the osseous tissue at the upper canines. Suspicious tissue should be biopsied, but this condition is the result of chronic inflammation in most cases. Periodontal pockets may be present, and the teeth should be treated appropriately. There may be sufficient inflammation and loss of attachment to warrant extraction.

SUPER ERUPTION OR CANINE EXTRUSION:

In conjunction with chronic alveolar osteitis or alone, cats can have a unique response where the maxillary canine teeth appear to extrude. The teeth appear longer than usual and have an increased amount of gingival extrusion. The extruded teeth may also cause trauma to the lower lip. If the tooth is not mobile, does not have periodontal pockets or radiographic signs of excessive bone loss, it can be saved. It may be necessary to blunt the tips of these canines to minimize lip trauma.

DISCOLORED TEETH:

Discolored teeth should be thoroughly evaluated to determine if the discoloration is due to extrinsic or intrinsic staining. Extrinsic staining comes from accumulations on the surface. Intrinsic stains are secondary to endogenous factors that discolor the underlying dentin. Transillumination with a fiberoptic light can assist in distinguishing between vital and necrotic pulp. Radiographs of affected teeth can be very useful in identifying pathology associated with discolored teeth.

FRACTURED TEETH:

In cats, the pulp chamber extends to just under the crown tip compared to an adult dog, which usually has several millimeters of protective dentin under the enamel. When trauma occurs and the pulp chamber is opened, bacteria often enter the chamber, infecting the pulp. This infection may lead to the periodontal ligament, periapical tissues, and alveolar bone.

Cats rarely show obvious signs of endodontic disease. Occasionally there may be a draining tract either ventral to the orbital rim or under the chin. Some cases of chronic rhinitis are secondary to long-standing fractured teeth. Dental x-rays can help detect pulpal or periapical pathology.

ORAL TUMORS AND SWELLINGS:

Swelling and masses in the oral cavity can be common. Etiologies of oral masses range from cyst, infection, and inflammation to benign and malignant tumors.

EOSINOPHILIC ULCERS most commonly affect the upper lip at the philtrum but may occur anywhere in the oral cavity. Ulcers on the upper lip usually have a carved-out appearance with a yellow center. Clinically these lesions can be

mistaken for neoplasia. This lesion can be caused by underlying diseases such as allergies to foods or fleas. Diagnosis requires a deep incisional biopsy. These eosinophilic ulcers can also occur on the tongue.

SQUAMOUS CELL CARCINOMA occurs primarily on the gingival tissue or the tongue. Rarely can it occur on the palate, pharynx, or tonsils. The median age for oral SCC is 11 to 13 years of age; however, affected cats as young as three months to as old as 21 years have been reported. The most common finding is facial swelling or asymmetry noted by the owner or veterinarian during the examination. Other signs can be excessive salivation, anorexia, weight loss, malodor, or a hard mass is noted on the maxilla or mandible. The tumor can affect the tongue ventrally near the frenulum, which often appears thickened or ulcerated. If the mass occurs on the gingiva, there may be increased mobility of the adjacent teeth due to bone structure loss.

FIBROSARCOMA is the second most common tumor in the cat. Even though this is the second most common tumor is occurs very rarely. FSA usually affects cats 13 years or older; however, cats ranging in age from 1 to 21 years of age can be affected. Lesions are usually located rostrally on the gingiva. Presenting signs are similar to those of SCC.

ORAL TRAUMA:

Maxillary and mandibular fractures can occur secondary to trauma. Temporomandibular Joint Dislocation may present as a dropped jaw. The dislocation can be either unilaterally or bilateral.

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