

The forgotten value of scoring and charting

It is very easy to fall into the habit of performing a quick probe and visual sweep prior to starting a dental scaling but by doing so, a vast amount of vital information is overlooked. John Breen BSc VN looks at scoring and charting and the vital roles they play in detecting and diagnosing disease in cats and dogs

A visual examination with precise probing and detailed charting provides the critical evidence needed to make an informed diagnosis and tailor a treatment plan for the patient. It also provides a measurable record of disease progression or an evaluation of healing over time. It can be easy to miss early signs of pathologies that can potentially develop significantly without a systematic approach to assessment.

An oral examination of a conscious patient gives clues to underlying dental problems, but many issues cannot be truly recognised until the patient is anaesthetised and an in-depth assessment is made. This is where comprehensive probing and charting comes in to its own because it builds a complete picture of the patient's oral health. A skilled dental vet or nurse must be proficient at examining the oral cavity and clearly recording findings.

Occlusion is the first thing to assess and chart, and it should be done before the patient is intubated, checking for stiffness or crepitation of the jaw, and evaluating how the teeth meet when the jaws are closed. While many malocclusions don't impact the animal significantly, they can often hint at the likelihood of dental problems developing. This is especially true of brachycephalic breeds where the tight spaces lead to rotation and overcrowding of teeth, creating more tight spaces for bacteria to flourish. Prior to starting the internal oral examination, it is helpful to prepare the oral cavity to make all the dentition accessible and ready for assessment and scoring. A good light source is important for clear visualisation of the mouth. Using a temporomandibular joint (TMJ)-friendly mouth gag separates the upper and lower jaw so that all tooth surfaces can be seen and the use of a lip retractor removes the need for a second set of hands. Lastly, coating the mouth with chlorhexidine solution, which will bind to the soft tissue¹ and work as an antiseptic to reduce aerosol bacteria from circulating in the work environment, can be accomplished using a three-way syringe.



Figure 1: Scoring cards or charts provide a systematic approach by providing a checklist for each tooth.

After preparing the oral cavity and assessing the gross features, make a detailed analysis of each tooth and its associated structures. A complete probing and charting means assessing not only pocket depths but also any bleeding during probing, enamel defects, tooth mobility, gum recession and furcation of each tooth. This can appear overwhelming but scoring cards or charts provide a systematic approach by providing a checklist for each tooth which can be followed so nothing is missed. Keeping scoring cards as straightforward as possible makes the recording easier and this is where electronic charting software excels over traditional paper recordings as they provide a step-by-step series of data points to enter for greater clinical efficiency. They also provide a clear and concise summary of findings and a record of progress that can be used to educate clients about their pets' oral health.

WHAT FACTORS SHOULD BE EVALUATED AND SCORED?

Missing teeth

Are there any teeth visually missing? If so, it should not be assumed that the tooth is genuinely non-existent or previously extracted. While teeth can be genetically missing, especially in certain toy breeds, a tooth that cannot be seen above the gumline should be radiographed to confirm that it is indeed missing and not impacted or embedded or fractured beneath the gumline. These latter conditions can be associated with significant pathology and further treatment is often necessary.

Retained deciduous teeth

Are there any baby teeth still present after adult teeth have erupted? Deciduous teeth normally fall out between the ages of three to six months to make space for adult teeth. The most commonly retained deciduous teeth are the upper canines, followed by the lower canines. Persistent deciduous teeth can lead to infection as they have a very thin layer of dentin protecting the volatile pulp. Persistent deciduous teeth are also trying to occupy the same space as the emerging adult teeth, which can affect the development and placement of these permanent teeth. It also creates a very tight interproximal space in which plaque will develop.

Very often, it is prudent to remove retained deciduous teeth. Since they are often in very close proximity to neighbouring teeth, care is needed when extracting them so as not to damage the adult teeth that have erupted alongside them. Deciduous tooth elevators help with this as they are thin and curved to minimise the trauma.

Tooth resorption²

While tooth resorption is more common in cats, it can be seen in

dogs as well. Tooth resorption lesions start on the root of the tooth where cells called odontoclasts inappropriately start destroying the root structure before eventually extending to the crown of the tooth. Lesions are most commonly seen at the gumline. Radiographs are required to identify those below the gumline and also to determine the extent of damage and determine the necessary treatment.

Tooth resorption is classified in two ways, type and stage. The 'type' of resorption refers to the radiographic appearance of the tooth for treatment decisions. Type 1 demonstrates focal or multifocal radiolucency in the tooth. Type 2 shows the periodontal ligament space begin to narrow and increased radiolucency. Finally, Type 3 features a combination of Type 1 and Type 2 on the same tooth. Parts of the periodontal ligament is lost while other parts are normal in appearance coupled with decreased radiopacity overall and multifocal radiolucencies.

'Stage' is the extent of anatomical destruction that has taken place. It is graded from 1 to 5 (see Figure 2). Stage 1 references mild dental hard tissue loss with the lesion confined below the gingiva, making it hard to observe clinically. Stage 2 shows moderate dental hard tissue loss while Stage 3 is deep dental tissue loss that has extended into the pulp cavity. Stage 4 demonstrates extensive loss of the dental hard tissue, including the pulp cavity, and much of the tooth's integrity is lost. It is further classified into 4a (crown and root are

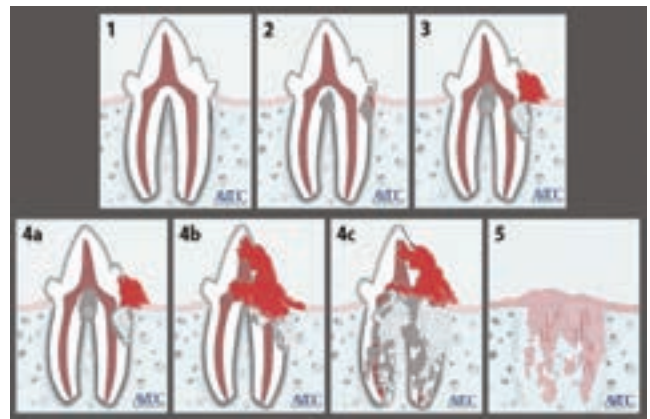


Figure 2: Classification of clinical stages of tooth resorption.
Photo: courtesy of AVDC®.

equally affected); 4b (crown is more severely affected than the tooth); and 4c (root is more severely affected than the crown). Lastly, Stage 5 means there are only remnants of the dental hard tissue remaining. The crown is lost and the subgingival remains are only visible as irregular radiopacities on radiographs.

Fractures

Fractures can apply to the tooth, root or the jaw. Tooth fractures are usually classified as complicated (involving enamel, dentin with pulp exposure) or uncomplicated

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(involves enamel and dentin but no pulp exposure) and whether the fracture is associated with the crown or root. Caries would also be categorised as a fracture but have distinct features to warrant their own classification.

Periodontal disease

Periodontal disease (PD) is an inflammatory condition as a result of infection of the structures that surround and support the tooth. While it is irreversible, restorative procedures are becoming more favoured over extraction, and more accessible to vets. Periodontal disease can be measured and recorded using stages¹⁻⁴.

- Stage 1: Gingivitis, the only reversible stage of PD. Gums are inflamed with some bleeding.
- Stage 2: Infection has spread to the surrounding bone with marked bone loss.
- Stage 3: Probing depths exceeding the normal range with significant bone loss.
- Stage 4: Advanced bone loss, destruction of the periodontal ligament, loose teeth, gum recession, potentially pus around site and severe pain when eating.



Figure 3: Probing depth should be recorded on every side of the tooth.

Probing depth

Probing depth is measured by gently inserting a periodontal probe into the gingival sulcus and is measured in mm. Probing depth should be recorded on every side of the tooth (not just one!). Mesial refers to the rostral surface, buccal is the surface that faces the cheek, distal is the back side and the lingual/palatal side is the tooth surface facing the tongue. The normal probing depth in a dog is 1-3mm and in cats it is 0-1mm. Knowing these figures and applying them to your next few dental procedures will highlight how common dental disease is in the early stages.

Gum line

This refers to the gum line growth and can be in negative figures for gingival recession or positive numbers for gingival hyperplasia. Using the probe, the area of recession from the cemento-enamel junction can be measured and recorded. Similarly, the amount of hyperplasia can be measured from

the top of the hyperplasia to where the free gingiva would normally start. There is no standard scale for a maximum and minimum, but charts often go as high as 9 and as low as -9 making 0 the norm.

Mobility

Mobility can be assessed by attempting to move a tooth within the socket using a probe at the top of the tooth. This is recorded if present and left blank if absent as no mobility is not considered a stage. The three types of mobility³ are:

- M1: slight mobility; >0.2mm but <0.5mm;
- M2: moderate mobility; >0.5mm but <1mm; and
- M3: severe mobility; >1mm or can be extruded from the socket.

Furcation

A furcation is the anatomical name for where roots divide and join the crown, so is only applicable to multirooted teeth. Furcation is measured by gently inserting the periodontal probe into any exposed furcation. Normally, furcation should not be visible, and the absence of furcation is not a stage. The three stages of furcation³ are as follows:

- F1: probe goes into furcation and up to 1/3 of the crown width;
- F2: probe goes 2/3 of the crown width; and
- F3: probe goes all the way through the furcation and out the lingual side.

Some other notable problems to identify and record include abrasion, attrition, rotation and general masses or decolouration around the teeth and gums. These gross appearances can be noted as you probe and record the numerical measurement of each tooth.

There is great value in a thoroughly performed and recorded oral examination. A careful examination of every tooth is needed for a complete dental chart which in turn is intrinsic to making an informed diagnosis and devising an appropriate treatment plan. It will also allow monitoring of changes over time and provide a tool to easily update your client.

REFERENCES

1. Bloor C. Dentistry: how to probe and chart [Internet] UK: The Veterinary Nurse [cited 2019 Mar 02]. Available from: <https://www.theveterinarynurse.com/practical/article/dentistry-how-to-probe-and-chart>
2. Niemic AB. Feline Tooth Resorption. TVC. [Internet] 2012 [cited 2012 Sep/Oct]; September/October 2012:59-63. Available from: <https://todaysveterinarypractice.com/practical-dentistry-feline-tooth-resorption/>.
3. Caiafa A. Oral Examination/Dental Charting and Diagnostic Tools [Internet] Australia: The Veterinary Information Network, Inc. [cited 2013]. Available from: <https://www.vin.com/doc/?id=5709744>
4. Bellow J. External Tooth Resorption in Cats. Part 2: Therapeutic Approaches. TVC [Internet] 2016 [cited 2016 Mar/Apr]; March/April 2016:50-56. Available from: <https://todaysveterinarypractice.com/external-tooth-resorption-in-cats-part-2-therapeutic-approaches/>.