

## **STEPS TO A COHAT –IMPROVING EFFICIENCY AND EFFICACY!**

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Performing a Complete Oral Health Assessment and Treatment (COHAT) entails much more than removing plaque and calculus from the teeth. A thorough dental prophylaxis consists of educating the client, an oral examination, charting disease process, pathology and anomalies, radiographs, both supra and sub-gingival plaque and calculus removal, hand scaling, polishing, irrigation, and home care instructions.

### **THE 12 STEPS:**

1. General health examination – including blood work, bite evaluation
2. Oral examination of each tooth under anesthesia and charting
3. Calculus and plaque removal from crowns of teeth
4. Sub-gingival scaling, root planning and curettage
5. Tooth polishing
6. Irrigation
7. Fluoride Application (controversial and optional)
8. Full Series of Dental Radiographs (Can be done first)
9. Post cleaning examination
10. Treatments
11. Home care instructions
12. Follow-up appointment – evaluate healing and effectiveness of home care

### **EDUCATION**

There are many ways in which to educate the client on the importance of dental health. It is important to explain the disease progression from the formation of dental plaque to dental calculus or tartar and then gingivitis and to the destruction of the periodontal tissues including the loss of the bone supporting the tooth and tooth loss.

A picture is worth a thousand words. Visual aids such as posters in the treatment rooms showing the progression of oral disease and the impact on the internal organs can be used to gain the client's interest. Pictures of healthy mouths versus diseased mouths are another useful tool. The use of plastic models that have a healthy side and a diseased side is a hands-on way to show disease. These are all helpful in the educational element of dental prophylaxis.

### **PREVENTIVE ANTIBIOTIC THERAPY**

Questions are often asked about the use of preventive antibiotic therapy in patients that present for a dental prophylaxis. The main objective of preventive antibiotic therapy is to prevent treatment induced bacteremia. Bacteremia will typically clear in approximately 20 minutes. The use of preventive antibiotics should only be necessary in patients that are not able to cope with this treatment induced bacteremia. Geriatric or debilitated animals, patients with a pre-existing heart or system disease or immunocompromised patients should receive preventive antibiotic therapy.

Preventive antibiotic therapy will also aid in controlling wound infections. Therefore animals with gross infections (marked swelling, pus formation, fever, lymphadenopathy, and elevated WBC count) chronic stomatitis, multiple extractions, may also benefit from receiving antibiotics prior to treatment. Clinical judgment should be used in diagnosis of the infection and the use of antibiotic therapy.

The choice of antibiotic and protocol for delivery is controversial. The antibiotic chosen must be active against Gram-positive and Gram-negative aerobes and anaerobes. Just as important as the choice of antibiotic is the timing of delivery. The generally accepted protocol should have antibiotics administered within two hours of the surgery and not continued for more than four hours after the procedure. In addition, antibiotics must be delivered at a dose high enough to reach a tissue level of four times higher than the MIC of the causative organisms.

In addition to preventive antibiotic therapy, antiseptics have a role in veterinary dental prophylaxis and oral surgery. Antiseptics help to reduce the number of bacteria in the oral cavity prior and during procedures.

Chlorhexidine gluconate is the antiseptic of choice for use in animals. Rinsing the oral cavity with an antiseptic prior to procedures gives a cleaner environment to work in and can reduce bacteremia induced by dental procedures. It will also reduce the number of bacteria that are aerosolized by dental equipment such as ultrasonic scalers. This will benefit the persons involved in the procedure. Bacteria may still be present in the operatory for up to 12 hours post treatment. Remember to always wear eye protection, masks and gloves.

## **ORAL EXAMINATION**

An oral examination on a conscious patient is important but often limited to a visual inspection and digital palpation. The examination involves more than just the oral cavity. Palpation of the facial bones and zygomatic arch, temporomandibular joint, salivary glands and lymph nodes are also important. Dental occlusion should also be evaluated. This can be done by gently retracting the lips to look at the soft tissue, the bite and the buccal aspects of the teeth.

Once the animal is anesthetized, a thorough oral examination can be completed. All the structures of the oral cavity must be evaluated to include the oropharynx, lips and cheeks, mucous membranes, hard palate, floor of the mouth and tongue as well as the teeth. The periodontium (gingival, periodontal ligament, cementum and alveolar bone) of each tooth needs to be evaluated. In animals with large amounts of calculus on the teeth, it may be necessary to remove these deposits to accurately access the periodontium. The use of a calculus removal forceps is a recommended method to remove supragingival calculus. Use care when using this instrument to ensure that the gingiva and tooth crown are not damaged.

When evaluating the periodontium a periodontal probe, a dental explorer and a dental mirror are used. The following indices should be evaluated for each tooth; gingivitis, periodontal probe depth, gingival recession, furcation involvement, mobility and periodontal attachment levels. Details of these indexes will be covered in other presentations.

## **CHARTING AND RECORDING**

The information gathered during the oral examination and subsequent treatment needs to be recorded. Because periodontal disease is a progressive disease, charting is an important aid for follow-up visits. A basic dental record consists of written notes, diagnostics, radiographs and a dental chart. There are numerous types of dental charts available. A dental chart will have a diagram of the oral cavity on which notations can be made, along with either fill in or check off formats to provide convenient recording. Color coding the different indices will make reading the chart easier. A simplified version of the chart can be made and given to the client indicating problem areas, treatment and home care instructions.

Charting should be done in the initial stages of the dental prophylaxis procedure. A final charting completed as a last step in the procedure involves a review of the previously performed diagnostic and periodontal charting. This final charting should include any additional treatment performed.

## **DENTAL RADIOGRAPHS**

The most beneficial diagnostic tool in veterinary dentistry is the dental x-ray machine. Even teeth that appear to be normal may have conditions that are not clinically visible. Studies have shown that almost 42% of pathology in animals' mouth is found by radiography.

It is important to take full survey radiographs of periodontal patients prior to every professional periodontal treatment.

## **SUPRAGINGIVAL PLAQUE AND CALCULUS REMOVAL**

As stated earlier, gross calculus can be removed by using a calculus removal forceps. Ultrasonic or sonic scalers are useful to remove the remainder of the supragingival calculus deposits. There are three types of ultrasonic scalers available, magnetostriuctive stacked, magnetostriuctive with Ferrite rod and piezo, all of which work in a similar manner. The ultrasonic scalers vibrate in the range of 18,000 to 45,000 cycles per second. When used properly, the vibration breaks up or pulverizes the calculus on the tooth surface. These instruments can damage the teeth by mechanical etching and thermal injuries if not used properly. Supragingival scaling uses steady, generous supply of water to aid in the prevention of overheating the tooth along with a high-power setting. When using the smaller, perio tip designed for sub-gingival scaling less water is needed, and the power settings should be decreased.

The instrument should be grasped lightly in a modified pen grasp. The hand piece is balanced on the index or middle finger. The instrument, not the hand, must be allowed to do the work, the hand is merely a guide. The

hand piece should be used with a light touch with minimal pressure, keeping the tip moving on the tooth. Stopping in any one area can cause damage.

The side of the wide tip (beaver tail) should be used for cleaning and held parallel to the tooth long axis of the tooth. Never hold the tip at a 90° angle to the tooth surface as this can damage the tooth and provides less of a cleaning surface, thus being less effective. The ultrasonic scalers can create a tremendous amount of heat. It is important to only spend a short time (~ 10 seconds or less) on each tooth. If you need more time to remove calculus from a tooth, scale the remaining teeth and return to the tooth after it has had time to cool off.

In addition to the ultrasonic scalers, sonic and rotary scalers are available. The sonic scaler requires the use of compressed air to operate. It produces less heat thereby reducing the chance of thermal damage. The sonic scalers are an excellent choice for the removal of supra-gingival calculus however their inability to effectively scale sub-gingivally is due to the lack of desirable range of motion. The use of the rotary scaler is controversial. This instrument demands careful use by an experienced and skilled operator. Extreme etching can occur as the six-sided burr rotates at 300,000 rpm. If contact is made with the enamel, traumatic injury will occur.

### **SUBGINGIVAL CALCULUS REMOVAL**

A curette or a specific ultrasonic scaler tip should be used to remove subgingival calculus. Several companies make scaler tips that are specifically designed for this procedure. The removal of this subgingival calculus is vital to the success of the treatment. If not removed, bacteria will continue to destroy the periodontium and further bone loss and eventual tooth loss.

### **HAND INSTRUMENT TECHNIQUE**

Hand scaling of the root to remove subgingival calculus deposits can be done if a perio tip is not available. A curette is used for this procedure. The curette has a sharp side and a rounded side. The sharp side is toward the tooth surface and the round side toward the gingival tissue. The curette should adapt to the curvature of tooth surface. If it does not, the opposite end should be used. The curette is inserted into the pocket with the face, or sharp side, facing the root surface. The instrument is moved over the calculus and positioned so that the cutting surface is under the calculus. A rocking pull stroke is used to remove the calculus from the root surface. This procedure is repeated until all calculus is removed.

### **CHECK FOR MISSED PLAQUE OR CALCULUS**

An explorer can be used to check the tooth surface for remaining calculus. The crown can be inspected for missed plaque by the application of a disclosing solution or for missed calculus by air drying which will make the calculus appear chalky white. Disclosing solutions should be applied then gently rinsed with water to observe any remaining plaque or calculus. This technique must be used with care as it may cause staining of the hair around the patient's mouth. It is, however, more reliable than the air drying technique.

### **POLISHING**

Polishing with a prophy cup and paste applied with an electrical or air powered polisher is an important step. This step will remove any missed plaque and smooth out the minute scratches on the tooth surface. When etching occurs, it gives the plaque bacteria more surface area to attach to the tooth. The prophy cup on a low-speed hand piece moves at approximately 3,000 to 8,000 rpm. Disposable prophy cups are available and are inexpensive. The advantage is they don't need to be cleaned after each use.

An inexpensive prophy paste can be made by mixing flour pumice with glycerin. There are many commercially available prophy pastes on the market that are more convenient to use. These prophy pastes range in grit and hardness from fine to extra course.

### **IRRIGATION**

Irrigation of the mouth following calculus removal and polishing is vital. All pieces of calculus and prophy paste must be removed from the mouth to avoid aspiration upon recovery. This can be done with a spray bottle filled with water or chlorhexidine gluconate. The gingival sulcus should be irrigated to remove debris and help oxygenate the intrasulcular tissues. Saline, stannous fluoride or diluted chlorhexidine gluconate (0.12%) can be used. The advantage of chlorhexidine is its substantivity, or its ability to adhere to oral tissues and release its agents slowly.

There is some controversy as to whether fluoride is necessary for veterinary dental health.

## **HOME CARE INSTRUCTIONS**

A client who understands the importance of oral care and is willing to perform the home care to ensure that their pet's mouth heals and remains healthy will be a happier client. Education will help to develop a strong relationship between client and clinic. Explaining to the client why home care is important and demonstrating how to administer the care is critical to gaining compliance.

Handouts can be individualized for the patient is another way of showing the client the importance of dental health. This handout should include a simplified dental chart for making notations, such as probe depth, furcation formation or tooth loss. The prescribed treatment plan should be included on this handout so the client can then take it home with them as a reminder of the treatment necessary for their pets.

## **CONCLUSION**

A complete dental prophylaxis for a periodontal patient involves many steps. Each and every step is vital to the success of the procedure. The success of the procedure is not determined when the animal recovers and leaves the hospital. Ensuring compliance of home care instructions and follow up examinations are critical to the overall success.

## **REFERENCES**

Available upon request.