The art of oral examination entails using all our senses in order to piece together the whole picture. This means we must follow a logical sequence of the following: history taking, relaxed patient observation, physical examination and any adjunct diagnostics when the animal is anesthetized. Our formation of a rule out list will either be substantiated or refuted by this physical evaluation.

**History**

Eating does not always equate to good oral health. Our pet’s pain is often not visible or audible and therefore we must watch them carefully. Our client’s questioning therefore must include the following: Does the pet go frequently to their bowl but then doesn’t eat. If they eat food do they have a tendency to gulp it and then subsequently vomit? When eating, does the animal either drop food or flip their heads when chewing? Do they attempt to paw at their face as if something is stuck in their teeth? Do they exhibit any facial shyness or refuse certain types of food? Has the pet exhibited any halitosis or salivation? Is there any weight loss that has occurred despite a good appetite?

Connecting the animal’s signalment to its presenting symptoms can often help in the early rule-out list of possible underlying etiologies. The age of the patient when the problem first presented is important in differentiating the following problems: Enamel attrition and abrasion is by definition, an abnormal wear of the crown’s exterior covering. In the first instance this is caused by other teeth and in the later case by external forces or objects. If the animal presents at an early age ruling out malocclusions and enamel hypoplasia are important. Older animals often have behavioral problems that can lead to traumatic abrasions in addition to the inherited or acquired malocclusions. Rock chewers, cage biters often have distinct wear patterns affecting specific teeth.

Age also plays a role in regards to oral masses. Often in young animals tooth eruption problems can lead to impactions. This further leads often to the development of either eruption cysts or dentigerous cysts. These cysts develop from mesenchymal cells in the periodontal ligaments. As the cyst develops the surrounding bone demineralizes and the cyst fills with fluid. Unlike cysts which develop from the periodontium, early developing cancers can include those that develop from the teeth themselves or odontogenically. Odontomas both compound and complex often present in young patients. Radiographically the compound odontoma appears to contain a multitude of denticles or miniature teeth. In older patients, benign and malignant oral tumors are often seen. The epulidae are masses that stem from the periodontal ligaments. They are not true cancer but often as in the case of the Acanthomatous Epulis can be very locally destructive. Squamous Cell Carcinoma in the cat, on the other hand, usually occurs in patients greater than 10 years of age as does malignant melanoma in the dog. Both are rapidly growing malignancies.
which metastasize early. Radical resections often are not done early and as a result the prognosis for both tumors is guarded.
The animal’s species plays a significant role. Felines for example infrequently ever develop malignant melanoma whereas this is the number 1 oral malignancy in the dog population. Eosinophilic granulomas are more often seen in cats although the Siberian husky can have a higher prevalence of this oral mass. Although odontoclastic resorptive lesions are seen more frequently in the cat, it is also often seen in the canine species. True bacterial decay cavities are commonly seen in the dog and rarely seen in the cat. This is due to the fact that their crushing molar dentition traps the food in their deep occlusal table. When fed simple carbohydrates like candy and ice cream their thin layer of enamel is quickly eroded by decay. Lymphocytic Plasmacytic Gingivitis on the other hand is regularly encountered in the Feline species and as the stimulation becomes chronic, severe granulomatous lesions develop on the fauces and sublingually.
The animal’s breed can allude to certain oral maladies. For example the Maltese, Shih Tzu, Cavalier Spaniels are much more prone to developing unerupted adult teeth. Often these teeth are encased in a cartilaginous matrix which prevents their normal eruptions. Clinically they are a firm to hard erythematic swelling in the dental arch. Malignant melanomas are most commonly encountered in the Cocker Spaniel and other orally pigmented breeds. The Abyssinian and Maine Coon cats commonly develop juvenile periodontal disease which occurs before 1 year of age and is associated with severe halitosis, gingival bleeding and recession and early loss of the teeth. Shelties are known to exhibit eruption difficulties of the canine teeth and rostroversion of the upper canine teeth also called “tusks” require either surgical extraction or orthodontic repositioning to prevent malocclusal trauma.

In short, the accurate History taking will give us the duration of onset and chronology of lesion development as they relate to the age, species, and breed of the animal. This allows us to assess the dynamic or static process of the pathology. This in turn might rule in or out appropriate treatment options. For example if during history the examiners determines that the cause of hypersalivation was acute in onset and associated with evident tooth fracture from a documented traumatic insult, then the treatment options might be extraction, root canal or vital pulpectomy pulp capping. This would be more logical than looking for a systemic cause of nausea as the cause of hyperptyalism and putting the animal on an anticholinergic drug. If an animal presents with a fractured carnassial tooth and a history of suborbital swelling that is responsive to antibiotics but returns soon after cessation of the drug we need to care for the underlying etiology not the symptom.

**Observation**

During this phase of the exam the animal is allowed to remain relaxed and the examiner evaluates the presence of any unusual symptoms. The animal’s head position has importance. If it holds it down to the side or slightly elevated it could be a sign of painful conditions of the ear, vertebral disease, or problems involving the lymphnodes, TMJ, teeth or tongue. Positional change in conjunction with tongue thrusting or trismus (jaw chattering) usually indicates an oral problem. Any facial asymmetry is evaluated by drawing an imaginary line down the center of the animal’s nasal dorsum. Viewing the face from the front and side can determine any asymmetry. Swellings of either side can be evidenced by protrusions of the facial musculature often seen in neoplastic disease i.e. fibrosarcomas or unilateral / bilateral muscle atrophy as seen in idiopathic myositis. If the swelling is either at the angle of the jaw or midline diseases that involve the

*The Art of Oral Examination: Combine The Details*

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salivary glands and lymphnodes should be suspected. Distortions in the facial bones from trauma can lead to non linear bone growth in young animals. Often this is seen as deviations of the nasal dorsum. This occurs when the mother crushes the pup’s head in her mouth and not until the fused growth plate causes bone deviation is the original trauma suspected. When viewing the animal’s muzzle from the side, the jaw relationships is easily discernible. Class II malocclusions or undershot lower jaws, as well as Class III malocclusions or overshot lower jaws are best observed from the side.

Lesions of the lips and nose should be evaluated for color, symmetry and evidence of discharge. Depigmentation of the nasal dorsum can be associated with autoimmune disease or vitiligo. If there is nasal discharge is it unilateral, bilateral, serous, purulent or hemorrhagic. Often lesions of the teeth and periodontal tissue will lead to oro-nasal fistula and epistaxis. Chronic sinusitis and nasal masses can often provoke discharge. If there is asymmetry of the nose or lips is it a traumatic disfiguration or a congenital malformation like harelip or cleft palate. This is where the history and the lesion’s chronology is important to determine duration.

Chronic changes in hair color can indicate hyperptyalism, epiphora, or chronic sinusitis. These symptoms are usually associated with oral pain. Facial fistulization from underlying oral pathology is seen in the suborbital fistula from abscessation of the carnassial teeth. The reddish brown discoloration and matting of hair indicates a chronic process.

Physical Examination
The oral evaluation starts outside of the mouth. The mandibular lymphnodes are palpated for symmetry, pain, mobility, enlargements or fluctuence. Since these nodes drain the oral cavity any evidence of unilateral enlargements can indicate the lesions i.e. infection or cancer are on the ipsilateral side.

The mouth is gently opened and closed. The degree of opening, pain and clicking noise if present is evaluated. This assessment is important in neuromuscular disorders like mandibular neuropraxia, a transitory paretic condition which causes the mandible to drop. It can be easily physically closed by the examiner. Contrary to this presentation, is a coronoid locking which prevents the animal from closing its lower jaw due to the coronoid process of the vertical ramus shifting under the zygoma and preventing jaw closure. Difficulty in opening the jaws might indicate chronic fibrosis of the masseter and frontal muscles which is the end stage to idiopathic myositis. Pain in opening can be osteoarthritis of the TMJ or if seen in the West Highland terrier in association with a thickening of the jaw Cranio-mandibular osteopathy should be suspected and ruled out. Neoplastic conditions that affect the vertical ramus of the mandible can also prevent adequate opening. Painful conditions of the horizontal ear canal need to be evaluated and excluded from the differential diagnosis as well as space occupying lesions of the orbit which can impinge on the dorsal aspect of the coronoid process.

The lips are lifted and the oral mucosa and gingiva are inspected for evidence of color changes and presence of lesions. Normally the color is pink or pigmented. Any raised areas of pigmentation should be biopsied especially when seen in the Cocker Spaniel. Extreme hyperemia of the tissue can indicate gingivitis- periodontal disease, when associated with gum recession and alveolar bone loss. Spontaneous bleeding needs to be evaluated in terms of clotting profiles before any anticipated oral surgery. Depigmentation of the gums as well as “kissing ulcers” should be localized and rated as to the extent.

Lesions of the soft tissue might involve neoplastic conditions, inflammatory- infectious problems or traumatic insults. Oral cancer is the third most common site for neoplasia. When present in
cats they are often Squamous Cell Carcinoma. Dog’s oral masses, on the other hand, can often be benign epulidae. Gingival hyperplasia may often resemble neoplasia. Certain breeds like the Boxer, Irish Setter, Doberman and Cocker are more predisposed to these lesions as a sequella of periodontal disease. When malignancies are present then the Malignant melanoma, SCC and finally Fibrosarcoma are seen in descending frequency in the canine. Like in people, early detection and appropriate treatment can often lead to long term remission. Depending on the tumor type adequate resection and tumor free margins are essential. Inflammatory granulomas in dog and cat as well as infectious parulal or gum boils from non-vital teeth and necrotic draining pulps are often encountered in the oral cavity. Foreign body reactions from grass awns are often encountered on the tongue and fauces. Eosinophilic granulomas are seen often on the lips and in the canine species on the tongue. Soft tissue changes of the tongue are often encountered as a result of trauma, inflammation, infection, or neoplasia. Lacerations from sharp objects or by catching the tongue on plant material or thorns can cause substantial damage. Lodging of foreign bodies can cause perforation and subsequent infection to the base of the tongue. Lymphocytic, Plasmacytic gingivitis Stomatitis produces in it’s severest most chronic form, sublingual granulomas.

After the soft tissue is evaluated, the teeth should be assessed. Counting numbers of the teeth can often show to many or supernumerary. This duplication is often seen in the incisors or premolars. Contrary to extra teeth to few teeth are often encountered. Pseudooligodontia is seen when teeth are impacted or fail to erupt. This phenomenon is often seen in the brachiocephalic breeds. Genetic absence of teeth often affects the premolars and occasionally the incisors. At times the missing teeth are all the adult teeth. This is called Anodontia.

The form of the tooth crown is evaluated next. Any malformations can be grouped into congenital deformities such as fusion and gemination. In the first case this involves the crowns fusing but having often two distinct roots. The total number of teeth is reduced. Gemination, in comparison, leads to an increase in relative tooth numbers since one tooth splits into two crowns. Radiographically viewed the roots often are either the same size or slightly bigger. Crowns can often be deficient in enamel. When other teeth rub it off due to a malocclusion it is called enamel attrition. When external damage is done to the teeth, it is called abrasion. If extensive damage is done to the enamel than the tooth subsequently fractures and exposes the root which requires either exodontia or root canal treatment.

The position and occlusion is tested with the mouth closed in order to determine the lower arch’s teeth in occlusion with the upper arch. Any individual tooth change in position can be do to transposition of the adult tooth buds. This might be brought on by crowding as seen in the brachiocephalic breeds or by trauma i.e. caused by “tug of war” in the young puppies. Since a young animal’s skeletal mineralization is minimal, it is very easy to pull out of position the young growing tooth. The jaw relationship is evaluated next. The Incisal relationship in a normal dog is viewed as the lower incisors occluding behind the uppers and contacting the uppers on their cingulum or distal enamel ridge. This is called a scissor bite. The lower canine sits in the center of the interdigital space of the upper canine and the upper lateral incisor. The mandibular premolars interdigitate directly in front of their maxillary counterparts. When the jaws are in occlusion the space between them should resemble a “pinking shear”.

Based on the preceding evaluation points the classification of bites are as follows:
Normocclusion: normal scissors and premolar relationship
Class I malocclusion: the individual incisal teeth are out of alignment but the premolar relationship is normal.

Class II malocclusion: “Parrot Bite” or “Undershot”. Often this leads to the medical condition of an oro-nasal fistula secondary to the lower canines striking the hard palate rather than the interdental space.

Class III malocclusion: “Monkey Bite” or “Overshot” The upper incisors often strike and traumatize the lower jaw or the soft tissue due to the fact that the maxillary incisors are hitting the mandible.

**Adjunct Diagnostics**
After doing a complete physical on the animal in a wake condition, the pet is anesthetized. A periodontal probe is introduced in the periodontal sulcus and any pockets greater than 4 mm are recorded. This indicates that the tooth’s total attachment apparatus has been compromised. An explorer is used to determine subgingival dental irregularities. Neck lesions as will as any fractured teeth are explored for openings in the root canal.
Radiology is an important tool in evaluating subgingival pathology and tooth structure in periodontal or endodontic disease. It allows us to correlate our physical findings with the radiographic images. It also allows us to evaluate the duration of endodontic disease by evaluating the symmetry and size of the root canals of same teeth.