A proposed Method to insure a Complete

ORAL

EXAMINATION AND DIAGNOSIS

Following is a presentation of the essential body of information necessary, and a step by step method of conducting a through Oral Exam, which systematically includes ALL of the patient's head & neck anatomy as well as the dentition. All of this information is indexed to the Oral Exam Form presented herewith. (Originally presented in 1981)

Many people still believe that dental disease is an exclusively human frailty. However, a close look at the relevant veterinary literature will reveal that animals are afflicted with the majority of the dental and maxillofacial diseases and disorders seen in humans. This includes chronic sinusitis, severe genetic malocclusion, dental caries (tooth decay), destructive periodontitis (both local and generalized of all varieties), debilitating facial trauma, massive periapical abscessation, chronic draining oral fistulas, and a variety of facial and oral cancers. The patient population includes the entire spectrum of exotic animals: from aardvark to zebra. Too much disease exists in the animal kingdom to go unrecognized or remain untreated.

If veterinary dentistry is to continue to grow as a recognized clinical modality,

its practitioners must develop the clinical prowess to recognize oral diseases before they become terminally destructive. In a clinical environment, the responsibility for the timely detection of both dental and oral diseases rests with the veterinarian and their para-professional staff of animal health technicians and assistants.

DEFINITION OF VETERINARY DENTISTRY

Veterinary dentistry can be defined as the branch of the veterinary healing discipline that relates to the oral cavity and its associated tissues, including the teeth. This practice is concerned with the diagnosis and treatment of oral diseases, as well as the restoration of defective and missing tissues. Eight general categories of clinical veterinary dental care can be identified.

Preventative veterinary dentistry - is concerned with the maintenance of the masticatory apparatus and its associated structures in their normal functional state, including the prevention of all adverse systemic diseases or disorders secondary to an oral problem.

Periodontal veterinary dentistry - is concerned with the prevention and treatment of the diseases of the supporting structures of the teeth; e.g. the alveolar processes, the periodontal ligament (the collagen fibers between the alveolar bone and cementum of the tooth root), and the surrounding gingiva.

Endodontic veterinary dentistry - is concerned with the treatment of the dental pulp; i.e., the connective tissue, the blood and vessels, and the nerve tissue found within the hard tooth structure. This includes (1) preservation of the vital pulp, or (2) the removal of the necrotic or diseases pulp with the accompanying sterilization of the root canal system and obliteration of the resulting space, or (3) treatment of periapical pathosis.

Surgical veterinary dentistry - is concerned with the performance of cutting operations on the masticatory apparatus and associated structures involving the removal, restoration, and/or reconstruction of tissues to treat diseases or injury of the various body parts.

Operative veterinary dentistry - is concerned with procedures to restore or treat the faulty, missing or diseases parts of the clinical crowns of natural teeth; e.g. operations necessitated by caries, trauma, impaired function, attrition, abrasion, or erosion. The objectives are the inhibition of pathologic processes, the restoration of anatomic form and function.

Prosthetic veterinary dentistry - is concerned with the restoration and maintenance of oral function by replacement of missing parts of the oral cavity, masticatory apparatus, and maxillofacial anatomy by the design and fabrication of artificial appliances.

Cosmetic veterinary dentistry - is concerned ONLY with the improvement of the patient's appearance. These procedures do not improve function, occlusion, or treat pathology, or replace missing parts.

Forensic veterinary dentistry - is concerned with those issues prepared for a court of law. These matters include body and disease identification, as well as the application of the principles of law and justice to the practice of veterinary dentistry.

DEFINITION OF THE TASK

The basis of modern clinical veterinary dental therapy is diagnosis, which presupposes that disease can first be accurately identified and then effectively eliminated by the application of an appropriate treatment. The procedure by which

the information required to make a valid diagnosis is obtained and directly related to the success of the treatment plan. The diagnosis itself is based upon an assumption of valid observation and accuracy of information. It is not possible to overemphasize the importance of an efficient, disciplined procedure for collecting the material necessary to make a valid diagnosis.

It is not the intent here to provide a shopping list of possible diseases with highlights of their signs and symptoms. The objective of this paper is to present a summary of background information as well as a procedural outline to encourage the systemic collection of available data upon which a diagnosis can be based. All practitioners much have a comprehensive grasp of the range of variations customarily seen in the healthy individual. This is particularly true when the patient population contains such an extremely wide range of sizes, shapes, and functional variations as seen in the animal kingdom.

FACTORS RELATED TO INFORMATION GATHERING

The essential ingredient for effectiveness in any clinical endeavor is an accurate comprehension of what is to be accomplished. Information gathering begins with a thorough understanding of what the clinician is expected to examine, and proceeds through the steps necessary to accurately achieve the expected objective in an efficient and orderly manner. If diagnosis is to be complete and dependable, and if obscure lesions are to be noted with regularity, the technique of oral examination must be careful and exacting and certainly includes more than just a "check-up" of the teeth. The oral cavity represents a "window" to the patient's general internal well-being. Numerous systemic disorders manifest themselves with early, subtle signs or symptoms in and about the oral cavity. The issue at this point

is to understand, as accurately as possible, the diversity of the field of investigation.

THE EXAMINATION PROCEDURE

Most clinicians agree that the patient should have a complete visual examination periodically. Unfortunately, few clinicians do a thorough job, and fewer still legibly or completely record all that they find. The only logical remedy is to establish a standard examination routine, and always do the same routine, and always record all of the variations or abnormalities. In this way, if there are no notes on the patient's records, it can be assumed that no abnormality existed at that time. When this routine is habitual, the result is a thorough, concise, dependable examination.

The only way to comprehend the range of accepted variations encountered in a clinical veterinary dental environment is to actual examine a multitude of individuals in an orderly and systematic fashion. Once the clinician is familiar with the basic anatomy of the head and neck, the signs and symptoms of oral disease become readily apparent.

The best time to begin the evaluation of the oral problems of a particular patient is prior to immobilization. This first impression is an important guiding factor for the subsequent procedures. The clinician uses this first impression to avoid making premature conclusions. It is important during the first sighting to make tentative hypotheses that can be confirmed or discounted later upon closer examination. Before the patient is approached too closes, restrained, confined, immobilized, or transferred to a shipping container, the clinician should observe as much as possible in order to form a good first impression. The routine examination procedure is then performed, after immobilization.

The procedure recommended here is based on the concept that the examiner has learned how to examine the oral cavity, knows what to expect in the normal patient, and understands which subtle variation of normal should be considered potentially pathologic.

Following a complete general survey of the patient's past health record, the examiner should undertake a detailed and systematic examination of the entire masticatory apparatus such as the one that follows:

1. From a short distance away, study the patient's face for facial symmetry of hair, lips, whiskers, and proper facial moisture. Determine if the patient holds its head in a peculiar fashion.

2. Watch the patient walk and move about in order to notice atypical movements of the head, which is a common sign of oral disorder.

3. Look at the eyes for discharge, droopy eyelids, photophobia, and protruding or bulging eyes. Look the patient in the eye for signs of alertness, depression, uneasiness, fear, apparent pain, and so on.

The manual examination procedure beings with the head and neck, proceeds to the face and lips, enters the oral cavity, traversing the buccal mucosa and contiguous structures to the hard and soft palates, the tonsillar region, the floor of the mouth, the tongue, the gingivae, and finally the teeth. The examination should be carried out systematically and routinely in this manner so that nothing will be overlooked.

THE HEAD AND NECK

4. With the patient secured with a minimum of physical restraint or

chemical sedation, palpate and percuss the sinus areas, looking for inordinate tenderness or actual response to pain.

5. Run your fingers over the bony portion of the head, face, and jaws, searching for bony asymmetry, irregularity, hemiatrophy, hemihypertrophy, or soft-tissue lesions, tumors, or discharges. Is there infection, neoplasia, or muscular enlargement?

6. Feel the motion of and within the temporomandibular joint, looking for crepitus, obstruction, tenderness, clicking, or snapping sounds.

7. Palpate the thyroid region of the trachea for the thyroid gland, outlining the gland for size and degree of firmness, and then run your fingers down the surrounding region of the neck, looking for enlarged cervical lymph nodes.

LIPS AND BREATH

8. Use the entire length of the thumb against the opposing index finger for this procedure. Begin in the upper right corner of the mouth and proceed around the lops to the upper left and then lower left and finally lower right. Palpate all of the lips for evidence of cracking, fissuring, ulceration, or swelling of the soft tissues, salivary glands and ducts, and muscles in the area. Missing teeth, anatomic peculiarities, and incorrect positioning of the teeth will perpetuate a variety of mucocutaneous lesions on the lips. Inspect the physiologic and anatomic features of the lips for form, position, function, color, and texture. Look at the skin around the lips for ectodermal dysplasia, color uniformity, and condition of the hair, coat, and whiskers. Finally, examine the nostrils inside and out for lumps, trauma, foreign bodies,

discharge, and normal moisture.

9. Pull the lips forward and invert them with the fingertips. Inspect the labial and buccal mucosa for color, texture, ectopic salivary glands, ductal orifices, and attachments of the frenula. Look and feel for foreign bodies, sialoliths, or fibrous nodules.

10. With the lips retracted, smell the breath. Under ordinary circumstances, the breath of a patient with a normal healthy mouth does not attract attention of the examiner. Good oral health has no odor. Halitosis may be found in association with poor oral hygiene related to a chronic dietary lack of abrasivity, periodontal disease, rhinitis, sinusitis, necrotizing gingivitis, bronchiectasis, lung abscesses, and gastrointestinal upset. As a general rule, any oral, gastric, or respiratory diseases or disorder may result in an obvious oral odor.

11. Examine the alignment and articulation of the dentition for evidence of trauma, and/or malocclusions, and symmetry (particularly the midline at the central incisors). Feeling through the cheek, palpate along the biting plane of the teeth (plane of occlusion) for irregularities in alignment, which is a good quick indication of the ability to effectively masticate food.

INSIDE OF THE MOUTH

12. Prop the mouth open. Notice the consistency of the saliva (thin, watery, ropy, thick, syrupy, discolored). Excessive saliva tends to obscure dental disease, so it is best to wipe off the excess before proceeding. Inspect the palate, rugae, oropharynx, tonsillar tissue, and throat for form, color, and function.

13. Grasp the tongue with a dry gauze sponge and examine it for symmetry and taste bud pattern, tumors, self-inflicted trauma or cuts, foreign bodies, and bruises, particularly the posterior lateral surfaces. Do not pull the tongue forcefully! It is relatively easy to injure its nerve supply or to tear one or more of the numerous delicate muscle attachments. Notice what a normal tongue looks like, particularly the underside.

14. Palpate the medial and lateral walls of the mandible for exostoses or signs of fracture. Palpate the floor of the mouth by pressing the finger of one hand into the palm of the other hand held under the chin. This thin oral mucosa under the tongue may adhere to a dry gloved finger or to a dry gauze, so be careful not to tear the mucosa during this procedure.

THE DENTITION

15. Next look at the periodontium. Note the overall "cleanliness factor" of the oral cavity. With a fingertip, compress the attached gingiva in an obviously healthy region and note the capillary refill rate. Notice any alteration of gingival coloration, level of gingival epithelial attachment, depth of gingival crevice, and any mobility of teeth.

Finally, look at and count the teeth. Note the difference between actual dental formula and expected dental formula (missing and/or supernumerary teeth are much more common than most clinicians expect). Gently hold the tongue out of the way, examine the teeth for proper and expected tooth form, alignment, enamel covering, discolored teeth, carious lesions (decayed teeth), abrasions, or unusual

function contours of the teeth. Feel the teeth with the fingertips for sharp points, fractures, split or loose teeth, irregularities in the plane of occlusion. As the final step, retract both cheeks and analyze the overall functional ability of the masticatory apparatus.

The instruments and materials required to accomplish the examination are minimal and need include only a small reflective mouth mirror, a sharp explorer or small needle held at the tip of a hemostat, a periodontal probe to measure gingival pocket depth, and a few dry gauze sponges. A mouth prop can be made from a 1cc syringe casing that can be quickly trimmed to the desired length with a standard toenail-trimming instrument and placed between opposing canine teeth or premolars. Twist a length of quarter-inch adhesive tape around the middle to act as a "rip-cord" in case it needs to be retrieved suddenly. This type of mouth prop is not only radiolucent, but provides an excellent anchor to which the endotracheal tube may be tied in order to eliminate undesirable irritation of the trachea which results from movement of the tube while working in the mouth. Of course, good illumination is a primary prerequisite for any examination. The patient also should be positioned comfortably for ease of access to all areas of the mouth. For carnivores, a supine position possibly in a "v" trough is convenient. Information about the equipment and instrumentation necessary to provide treatment is given elsewhere and is readily available.

ADDITIONAL INFORMATION CONCERNING THE DENTITION

The teeth encountered by a veterinary dental clinician represent as many variations and extraordinary forms as there are different species. The alligator has a very simple cone-shaped tooth, whereas the leopard seal has a row of premolars

shaped like Poseidon's three-pronged scepter with beautifully sculptured miniature flame-shaped enamel cusps.

INVERTEBRATE DENTITION

Not all members of the invertebrate class have teeth, but when teeth are present, they are analogous to the teeth of vertebrates because they are usually oral organs that perform the same function as the denticles of vertebrates. They are not homologous with the teeth of vertebrates, however, because they may not have the same tissue of origin or even a similar structure (for example, the claw of a crab). The dentition of invertebrates varies in number from none to one (the claw of the lobster) to over 40,000 in the mouth of a snail.

VERTEBRATE DENTITION

The teeth of vertebrates are generally confined to the oral cavity in the bones and cartilage of the head and face, or in the esophagus in some of the snakes. Vertebrate denticles come in an enormous variety of sizes, shapes, and quantities. They vary in number from zero in the anteater, to 1 in the narwhal, to 6 in the elephant, to 32 in man and the old world monkeys, to more than 100 in some cetaceans. Regardless of their quantity, they can all still be characterized as one of the four functional forms noted below. This is even true with respect to the "denticle" or beak characteristic of avian species. The eagle may only have one hooked "tooth" attached to the end of its stiff upper lip, but it still functions as a denticle.

The predominant feature of most mouths is generally the teeth. A tooth is a small, bone-like structure usually found attached to or imbedded in the jaws. Teeth

serve a number of important functions including: capture of food, deglutition in some fishes and snakes, incising of food into bite-sized pieces, crushing of food to begin digestion through insalivation, weapons for protection, primary tools (e.g. the beaver), sexual stimulants, and the facilitation of some reproductive behavior.

The original architectural form of the primitive tooth-like projection, or denticle, is that of a solitary cone. Embryologically, all denticles originate from ectoderm and are therefore considered to be specialized dermal structures like hair and fingernails. Teeth are composed of a combination of three dental tissues: enamel - the white, compact, and very hard calcium crystalline rods that cover and protect the crown of the tooth; dentin - the chief substance or tissue of teeth that consists of a solid organic substratum, infiltrated with calcium hydroxyapatite salts, and permeated by numerous branching tubules that contain processes of the cells that line the tooth's pulp chamber (odontoblasts); and cementum - the thin layer of bony tissue covering the root of the tooth which differs from ordinary bone in that it contains no Haversian systems.

All teeth can be divided into three functional parts: a clinical crown, or portion protruding into the mouth above the soft tissue of the jaw. A root, or portion covered with cementum that is used to attach the tooth to the jaw bone; and a neck, the region where the enamel ends.

By modification in response to functional demands, teeth have evolved into four functional forms which may be classified structurally. The incisor is a wedge-shaped form with a long, conical root used to cut objects. The canine is an elongated conical form that is used to puncture, hold, or tear objects. The premolar is a transitional form with a crown usually composed of two or three small cones fused together usually with one or more long roots. The molar is a broad, squarish

form designed to grind or crush objects and with a crown composed of multiple small cones called cusps.

HOW TEETH ARE ATTACHED

The teeth of vertebrates are all attached by one of four basic methods. (1) A fibrous membrane is present in sharks and rays. (2) An elastic hinge functions for most fish, although some fish and reptiles utilize the third method. (3) Ankylosis, or a continuous ossification between the tooth and jaw bone with no intervening membrane. The ankylosis method is divided into three styles depending upon how the tooth relates structurally to the surrounding bone (that is, on a pedestal, to the side of the jaw, or in a socket).

The ankylosis method of attachment is common to <u>all</u> mammals and some reptiles. It involves the use of an intervening ligamentous structure called the periodontal ligament. This ligament is embedded into the cementum layer of the tooth on the one end and extends to anchor the tooth to the surface of the surrounding specialized bone, called the alveolar process, on the other end. The unique feature of this method of attachment is that the alveolar bone is invaginated to intimately surround the entire root of the tooth in order to form a bony socket or crypt that is architecturally very sound. It is a very sophisticated suspension apparatus which has more in common with a wrist or ankle joint than with the other types of tooth attachments. Of interest is the fact that the continuously growing incisor teeth of rodents and elephants have the ligamentous attachment.

The ligament represents a very effective method of absorbing and distributing the forces of mastication without undue injury to the surrounding bone. It is because of the unique relationship between the periodontal ligament and the

surrounding bone that mammalian teeth can be easily repositioned or relocated within the jaw by the light forces induced by orthodontic appliances.

Sudden, sharp, or excessive forces to the tooth can, and in fact occasionally do, injure the ligament, much like a similar force would injure or "sprain" an ankle joint. The muscles of mastication in humans are capable of closing the mouth with about 250 to 300 pounds per square inch of biting force. When this load is applied suddenly onto the cusp tip, perhaps 1/100th of a square inch in cross section, it is not at all unlikely to develop a local stress of 25,000 to 30,000 psi --- certainly enough to injure the ligament or fracture a tooth. In the larger or stronger carnivores the load is proportionately greater.

THE MASTICATORY APPARATUS

The manner in which all these teeth, in all these different species, come together is referred to as their method of articulation, or interdigitation, or occlusion. It is this articulation that enables the individual denticles to operate as a single functional apparatus that structurally occupies the upper end of the digestive system. This apparatus comes in a wide variety of sizes and shapes designed to do an infinite variety of operations. For the veterinary dental clinician, however, some generalization is in order to summarize the matter. It may prove helpful to think of the masticatory apparatus as if it were a picket fence. The owner inherits basically three things:

1. The size, shape, and number of pickets or teeth (the dental formula: 0 to 40,000).
2. The length and shape of the fence or jaw bone (for example the short curved jaw of the Boxer dog versus the long thin jaw of the Caiman

alligator).

3. The way the fences fit together (the temporomandibular joint, and the occlusion).

It is more complicated than this, of course. However, the multitude of details available from numerous texts on comparative anatomy and osteology are not relevant here. What is needed here is a method to enable the clinician to correlate treatment alternatives with anatomic variations in order to develop an effective treatment plan to correct the patient's problem.

The masticatory apparatus in all vertebrates functions in response to the balanced interplay between three independent, but related, biological entities:

1. The teeth, or the number of pickets along the fence.

2. The temporomandibular joint, or the hinge that facilitates the articulation of the fences.

3. The major muscles of mastication, or the movers of the fence along the hinge axis during articulation, which in mammals, includes the following:

a. Masseter--short stroke/high power.

b. Internal pterygoid-short stroke/high power.

c. External pterygoid-moves the articular disc.

d. Temporalis-long stroke/medium power.

e. Buccinator-holds bolus of food on the occlusal table of teeth.

A TOOTH IDENTIFICATION SYSTEM

Most dentists treating humans use a system of nomenclature known as the "universal tooth number system" to identify teeth. This system assigns each of the

human's permanent teeth a number from 1 to 32 and each of the 20 primary teeth a letter from a to t. This system works quite nicely for humans because the majority of them have 32 teeth. However, the diverse nature of the veterinary dental patient population requires a more versatile system of nomenclature.

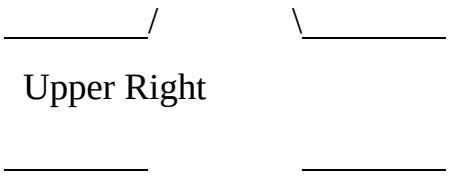
Palmer's Method:

The Palmer Notation System has been used by some dentist for many years. It easily meets all veterinary dental clinical requirements. The system is quite versatile, easy to use and understand, and precisely identifies a tooth by virtue of its location and function.

Individual teeth are identified according to the following three factors:

1. The function of the tooth (i=incisor, c=canine, p=premolar, and m=molar);
2. Its location with respect to its distance from the patient's midline; and
3. The quadrant of the mouth in which it is located (upper versus lower and right versus left)

Imagine that you are looking at the mouth of the patient through the cross hairs of a telescope which divides the mouth vertically along the midline or midsagittal suture line and horizontally along the patient's plane of occlusion. Then the four quadrants of the dental arch (sometimes incorrectly referred to as an arcade, which is in fact an arched, covered passageway), are referenced with a right angle symbol:



Upper Right Upper Left

\ /

Lower Right Lower Left

When the vertical line is to the left of the tooth symbol, \ c , the designation represents a tooth or the quadrant on the left side of the patient. When the vertical line is to the right side of the tooth number, c /, the designation represents a quadrant on the right side of the patient's mouth. Tooth numbers above the horizontal line refer to maxillary, or the upper arch teeth, whereas tooth numbers below the horizontal line represent mandibular, or lower arch teeth. Putting it all together, the upper right third incisor is designated in this way: i3 /. This nomenclature system can be applied to any species with any number of teeth. Moreover, the system is quite similar to the method generally used by veterinarians and other scientists to express the dental formula for a particular species. For example, the following is the permanent dentition or "dental formula" for humans and the Great Apes:

i, 2 / \ 2 ; c, 1 / \ 1 ; p, 2 / \ 2 ; m, 3 / \ 3
2 / \ 2 1 / \ 1 2 / \ 2 3 / \ 3

= 32

This is the formula for the rat:

i, 1 / \ 1 ; m, 3 / \ 3 =16
1 / \ 1 3 / \ 3

RADIOGRAPHS

Radiographs, when correlated with the case history and clinical examination, represent a most important supplemental diagnostic aid. There are numerous

pathologic entities that cannot be detected by any other method, such as cysts, tumors and neoplasms. For these and other reasons, a radiographic series should be routinely taken whenever the opportunity provides itself or if disease is discovered or suspected. Detailed radiographic procedures are described by a number of authors (see references). Regardless of the technique used, however, any good radiographic series should include a sharp image of the anatomic region desired, with minimal distortion and proper contrast between tissues of differing densities. Sufficient normal area surrounding the pathologic region should also be included in order to provide adequate comparison.

A good, quality radiographic series is a tremendously valuable supplemental diagnostic aid, and its radiographic interpretation is invaluable. Unfortunately, poor radiographs yield very little in the way of dependable information, and they quite often provide misinformation. If you plan to take x-rays, complete the series accurately, interpret the results completely, and make notes in the patient's records that can be understood at a later date.

Keep in mind that this is an examination of the entry mechanism to the digestive and respiratory systems. There are a number of good texts available that provide additional details on the subject of oral diagnosis (see references).

Generally, carnivores are easier to examine than herbivores because they are able to open their mouths wider. The examination of herbivores usually requires greater manual dexterity. But it is possible to develop the sense of touch to the point that a great deal of information can be gathered by palpation.

It must be emphasized that any examination of a supposedly healthy patient must be thorough and careful, for the early detection of disease demands that minute

and inconspicuous deviations from the norm be recognized early. The detection of disease should occur during the examination procedure. From a practical point of view, clinicians employ one of the following three types of examination procedures, depending upon circumstances: (1) the comprehensive examination; (2) the screening examination; and (3) the emergency or limited examination. Although the latter two types represent a justifiable compromise with respect to the comprehensive examination in light of limitations of time or resources, the general inaccessibility of the patient in veterinary practice suggests that one should make the most of the opportunity for examination whenever it presents itself. A complete, thorough examination is not, by definition, a time-consuming and expensive procedure, particularly if there is no disease present.

DIAGNOSIS

The term "diagnosis" originates from a Greek word meaning to distinguish or to discern. For the clinician, it refers to the process of identifying a disease by analysis of the signs and symptoms presented by the patient. The procedure for making a diagnosis includes the following four primary steps:

1. Collection of the facts.
2. Analysis of the data for relative importance.
3. Correlation between synthesized data and descriptive features of suspected diseases.
4. Selection of the disease that best explains the collected facts and apparently disturbed physiologic processes of the patient.

The process of diagnosis usually results in the identification of a specific disease. It is well to remember that a name is only a shorthand method of

describing a set of signs and symptoms or characteristics of a particular diseased state. The word diagnosis describes not just a "disease identified," but the diagnostic label itself tends to lead the clinician to the treatment alternatives limited to that specific diagnosis. If the diagnosis is incorrect, the clinician can be severely misled. Consider a spontaneously bleeding gingivitis diagnosed as acute necrotizing ulcerative gingivitis as opposed to hemophilia. The patient is best treated if the clinician is focused upon the clinical facts collected, not on the name of the disease selected.

Oral disease in animals results from an extremely diverse variety of environmental, dietary, and genetic circumstances. The clinical appearances of the disease process can vary considerably within a single species and may vary enormously from one species to another, particularly considering the contrasts between environments. In spite of all this potential for diversity, from a practical point of view, the vast majority of disorders associated with the masticatory apparatus of animals belong to one of four basic groups, which tends to imply specific categories of treatment planning.

1. Developmental and congenital defects (includes dental caries).
2. Maxillofacial trauma.
3. Periodontal disease.
4. Trauma to the teeth.

Although dental treatments can be relatively complex, their successful implementation is a matter of preparation, with availability of proper materials and access to the necessary instruments and equipment. The specific details of treatment are available in numerous references.

Today, the clinical practice of veterinary dentistry must concern itself with the

growing discipline of disease prevention; and as a consequence, the importance of accurate diagnosis is imperative.

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