Oral Diagnosis/ Oral Medicine

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3rd Edition

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Preface

Oral diagnosis/oral medicine is the foundation upon which the dental curriculum as well as dental practice rests. It represents the application of the basic biologic sciences to daily practice. Although the subject stands as an entity in the conventional dental curriculum, it is an integral part of each clinical discipline. Oral diagnosis and oral medicine involve the recognition of the disease and subsequent management of the patient.

To the beginning student, *the* diagnosis becomes an all too elusive and frustrating objective of the initial examination. In Section I a logical, systematic approach to diagnosis is outlined, permitting the novice to conduct an adequate examination early in his clinical training and to advance as rapidly as his program permits. The introduction to radiographic interpretation is especially designed to prompt early interest in this field.

The experienced dentist may find that Section I furnishes a useful review, or he may wish to proceed directly to subsequent sections on more advanced concepts of diagnosis and patient care. A working knowledge of the basic biologic sciences is assumed, since this is fundamental to the recognition and management of oral disease. Throughout the book, clinical signs and symptoms are correlated with basic concepts of disease.

Section II gives attention to important epidemiologic and genetic considerations which guide one toward correlation of the past history of the patient with the presenting physical findings. The physical examination proceeds in an orderly fashion through anatomic regions, and appropriate diagnostic techniques and instruments are discussed. Common, easily recognized diseases which occur in each region are illustrated. A comprehensive compilation of diagnostic tests available in oral and clinical pathology laboratories may be used by the reader in accordance with his training and experience.

After extensive consideration of the diagnosis and emergency management of painful conditions occurring in dental patients, Section III deals with the recognition of specific diseases, and conditions of increasing complexity which involve the various anatomic regions. Special emphasis is placed on the approach to clinical diagnosis. Detection of the lesion, determination of the

primary tissue affected and the probable basic pathologic process involved, represent sequential steps leading to a differential (or definitive) diagnosis. Cross references both to text and illustrations in other chapters allow the reader to consider a subject item from various aspects.

In Section IV, analysis of diagnostic findings, treatment planning, and hospital dentistry are discussed. Chapter 18 deals with legal implications related to dental practice and offers an introduction to forensic dentistry. Chapter 19 covers the diagnosis and management of medical emergencies which may be encountered in the dental office.

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We humbly and respectfully acknowledge the guidance and leadership of the late Dr. David F. Mitchell to whom this edition is dedicated.

S.M.S.
T.B F.

Contents

Section I

Introduction to Oral Diagnosis/Oral Medicine

This section is directed primarily to the student or the dentist seeking an overview of the parameters of oral diagnosis/oral medicine as well as a concise working knowledge of the procedures to be followed in the oral examination. Specifically, this section is designed to: (1) review the interrelationships of local and systemic disease and the clinical manifestations of the fundamental disease processes (Chap. 1), and (2) outline a systematic approach to the oral physical examination and radiographic interpretation (Chap. 2).

Oral diagnosis is the art of using scientific knowledge to identify oral disease processes and to distinguish one disease from another. *Oral medicine* is concerned with diagnosis and treatment, with consultation and referral and other phases of patient management; it deals especially with the relationship between oral and systemic diseases.

This field of *oral diagnosis/oral medicine* is fundamental to the practice of dentistry. Through effective diagnosis and patient care the dentist gains the respect of patients and colleagues alike, and receives the primary reward for any practitioner of the health professions—the knowledge that he is helping people.

Rapport should be established during the first contact. This implies a pleasant relationship with a ready exchange of information between patient and practitioner. The matter of rapport is equally important if the patient is first met by auxiliary personnel. Emphasis must be placed on cleanliness, and when instruments are involved, on sterility.

If auxiliary personnel are used, their duties must be defined and limited in accordance with the particular state dental practice laws. The practitioner or student overseeing them must be recognized as the responsible person.

Whether findings are written or dictated, they should be recorded in ink or by typewriter for permanence and medicolegal purposes. Accuracy is all-important. Patients should not be allowed to review their own records at any time.

Following are the basic components of diagnosis as practiced by any member of the health science team.

Anamnesis—the previous medical and dental history obtained from the patient during systematic interrogation.

Subjective symptoms and signs—as recognized and reported by the patient, *e.g.* pain, paresthesia, anesthesia, nausea, past occurrence of bleeding or swelling.

Objective findings—as detected by the examiner, *e.g.* hemorrhage, discoloration of teeth or soft tissues, swelling, and abnormal consistency of a part.

Technical aid—any technique, special test or instrument used to help establish a

diagnosis, such as the radiograph, pulp testing procedures, biopsy and the therapeutic trial.

If these four methods of obtaining information are used properly, with or without the aid of another opinion or reference to the literature, a diagnosis usually can be established.

Other terms commonly used in this field are described below.

Tentative diagnosis—a preliminary "educated guess" as to the nature of a condition before all diagnostic data are assembled. Sometimes treatment or therapeutic trial may be instituted on the basis of such a "working" or provisional diagnosis.

Differential diagnosis—when a condition may be due to two or more different diseases or forms of abnormality, the careful consideration and listing of these possibilities.

Definitive diagnosis—the final diagnosis based on a demonstrably accurate appraisal of all available data.

The process of making a final (definitive) diagnosis is essentially problem solving and as such lends itself to standard problem-solving techniques. An organized and orderly approach to data collection, testing, and analysis of findings is essential in order to obtain a high incidence of success in an efficient manner, as diagrammed below.

Subjective Symptoms
Objective Signs
Cerebration
Test

Differential Diagnosis

Differential Diagnosis
Tests
Cerebration

Final Diagnosis

Final Diagnosis
Treatment Plan
Treatment

SUCCESS

Prognosis—a forecast as to the outcome of a disease, made with or without therapy.

Consultation—obtaining the advice of others on the diagnosis of a specific oral condition, or on the management of a patient having some additional condition not directly related to the oral complaint. If the oral diagnostician recognizes the many possible systemic afflictions that may manifest themselves in the tissues apparent to him, and if he will conscientiously strive to detect them, categorize them in some way and seek effective consultation, he will render his patients an invaluable service. Thus, in any given case, the advice of another general practitioner of dentistry, the patient's physician, or a specialist in any field of dentistry or medicine might be sought.

When medical consultation is needed, it usually is wise to work with the patient's family physician, who in turn may refer the patient to a specialist of his choice. Nonetheless, it is ethical for the dentist to refer the patient to any specialist.

Referral—sending a patient to another person for consultation and/or treatment. This is best done by letter but may be accomplished in person or by telephone. If one receives a patient by referral, it is a matter of courtesy to acknowledge the fact and the outcome, again preferably in writing.

The recognized specialties of dentistry and medicine are listed below as an aid in referral.

American Specialty Boards (1969)

Dentistry

Endodontics
Oral Pathology
Oral Surgery
Orthodontics
Pedodontics
Periodontics
Prosthodontics
Public Health

Medicine

Anesthesiology
Colon and Rectal Surgery

Dermatology
Family Practice
Internal Medicine
a. Allergy
b. Cardiovascular Disease
c. Gastroenterology
d. Pulmonary Disease
Neurologic Surgery
Obstetrics and Gynecology
Ophthalmology
Orthopedic Surgery
Otolaryngology
Pathology
Pediatrics
a. Allergy and Cardiology
Physical Medicine and Rehabilitation
Plastic Surgery
Preventive Medicine
Psychiatry and Neurology
a. Child Psychiatry
Radiology
Surgery
Thoracic Surgery
Urology

Chapter 1

Fundamental Disease Processes and their Clinical Characteristics

THE APPROACH TO CLINICAL DIAGNOSIS

The recognition of oral disease of either local or systemic origin is accomplished by *observation, interrogation, physical examination* and *interpretation.* From the information collected and recorded (which may include radiographic and laboratory studies), the fundamental disease process (*e.g.* inflammation) is first established and the specific disease entity (*e.g.* marginal gingivitis) is then identified.

While a great many oral diseases are easily recognized by their typical features, others require a more systematic approach for interpretation.

DETECTION OF ABNORMALITY

There is a wide, grey, unknown area (Fig. 1-1) between normalcy and abnormality which narrows as more is learned from the diagnostic findings, and as the skills of the examiner improve.

It is wise to develop a systematic approach to the problem-solving task of making a diagnosis—particularly in the more difficult situations. Without an organized approach, the data collected often are meaningless. Thus, the first step is to identify the symptoms suggestive of abnormality (subjective):

1. Pain and sensitivity
2. Paresthesia
3. Abnormal smells and tastes
4. Abnormal sounds
5. Hallucinations
6. A feeling of pressure or tension

Next, identify the signs of abnormality (objective):

1. Changes in morphology of a tissue, organ, or structure
2. Change in consistency of a tissue, organ, or structure
3. Change in color of a tissue, organ, or structure
4. Change in mobility of a tissue, organ, or structure
5. Change in function of a tissue, organ, or structure
6. Change in temperature of a tissue, organ or structure

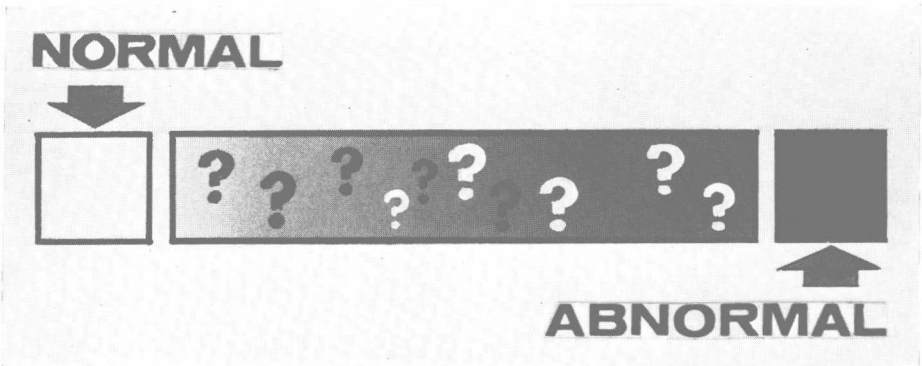

Fig. 1-1. Wide grey area separating the normal from the abnormal.

With this information, it is usually possible to identify several fundamental disease processes which are producing the sign/symptom complex. Once accomplished, testing procedures may be used to develop a differential and then a final diagnosis.

Basic Fundamental Disease Processes

1. Developmental Disturbances
   - Disturbances in growth and development
   - Hereditary disorders
   - Familial diseases
   - Congenital defects
2. Degenerative and Reactive Processes
   - Atrophy
   - Necrosis
   - Hypertrophy
   - Hyperplasia
3. Physical and Chemical Injuries
   - Traumatic injury
   - Iatrogenic disease
   - Factitial injury
4. Inflammatory and Infectious Diseases
   - Acute, chronic inflammation
   - Bacterial, viral and mycotic infections
   - Immunologic disturbances
   - Hypersensitivity and drug reactions
5. Neoplasia
   - Benign neoplasms
   - Malignant neoplasms
6. Blood Dyscrasias
7. Metabolic Disturbances
8. Dermatoses
9. Neural, Neuromuscular and Psychogenic Disorders

In the study of diseases per se, it is helpful to have a system of classification. Oral pathologists use various systems, some based upon regional locations (*i.e.* diseases of lips, palate, and tongue) and some on appearance (*i.e.* red lesions, white lesions, and ulcers). A common method for categorizing disease is based primarily upon underlying fundamental disease processes, hence the category headings read very similarly to the list of fundamental disease processes. It is at this point where the traditional study of clinical diagnosis and that of academic oral pathology interface and become a continuum.

Categories of Disease

1. Congenital—Developmental
2. Infectious—Inflammatory
3. Neoplastic
4. Arthritic
5. Neurogenic—Psychogenic
6. Degenerative
7. Traumatic
8. Other

The astute oral diagnostician first identifies the symptoms and signs and then attempts to determine the basic disease processes acting to produce the findings.

Whether establishing a tentative, differential, or definitive diagnosis, the experienced examiner then mentally reviews the broad categories of disease and, by exclusion, eliminates the more unlikely possibilities. Since the presenting signs and symptoms are reflections of the underlying basic pathologic

processes, knowledge of the associated clinical features of a disease serves as the basis for diagnosis.

This chapter will consider some interrelationships of local and systemic disease and clinical manifestations of the fundamental disease processes.

INTERRELATIONSHIPS AND MULTIPLE ORIGINS OF DISEASE

Whenever an abnormality is detected in a patient, the alert practitioner should search diligently for other related abnormalities; this search must sometimes extend to other members of the patient's family, or even to his social or occupational contacts.

Developmental abnormalities often are bilateral, so if a dental anomaly is detected on one side its counterpart should be suspected on the other. Further, certain dental and oral anomalies are associated with developmental defects of other bodily parts and systems, often with serious connotations. An example is the bifid rib-multiple jaw cysts-basal cell nevus syndrome (Fig. 4–4). Dentinogenesis imperfecta or amelogenesis imperfecta encountered in a patient should prompt an investigation of other mesodermal or ectodermal structures, respectively, both of the patient and other members of his family.

One endocrine imbalance may be associated with another. By virtue of the "master gland" role of the anterior pituitary in relation to the other endocrine glands, complex interrelationships of endocrinopathies may occur. For example, between 30 and 40 percent of patients with acromegaly, if untreated, become diabetic and develop the associated cardiovascular, retinopathic and neuropathic complications characteristic of the latter disease.

Because of the delicate physiologic interrelationships of the many constituents of blood, a deficiency or oversufficiency of one factor or cell often results in an imbalance of others. For example, the overgrowth of leukemia cells in the bone marrow typically crowds out megakaryocytes, thus resulting in a secondary thrombocytopenia with its associated bleeding problems.

A patient who has had one malignant tumor is more likely to have another than is a similar patient who has not had cancer. Benign neoplasms (*e.g.* neurofibroma) are also sometimes multiple in origin as in von Recklinghausen's disease of skin (multiple neurofibromatosis) (Fig. 14–60).

Nutritional deficiencies likewise are multiple more often than not. The emotionally disturbed individual may develop injurious habits which lead to new symptoms and further reinforce his anxiety and potentiate the development of cancerphobia. Arthritis of a temporomandibular joint obviously may be a reflection of other joint involvement, just as stomatitis may often be associated with dermatitis. A patient known to be hypersensitive to some food or medicament is likely to have or to develop other allergies or idiosyncrasies. Even contagious diseases may overlap one another. Thus, a patient known to have one venereal disease is a likely candidate for another.

ORAL MANIFESTATIONS OF LOCAL AND SYSTEMIC DISEASES

The vast majority of diagnostic problems encountered by the dentist are of "local" origin, *i.e.* they arise primarily from the teeth, periodontium, oral mucosa, bone or other oral and contiguous structures. However, the oral findings in some generalized or systemic diseases may simulate oral disease of local origin. The concept of total or comprehensive patient care requires that the dentist be alert to the patient's general health problems and knowledgeable about the oral manifestations of systemic disease.

A surprisingly large number of systemic diseases are known to present signs and symptoms that may be detected by the dentist. While he is not expected to be familiar with all of these, he is expected to detect abnormality, to suspect possible cause or causes, and to obtain such aid as necessary

from others so that an early diagnosis can be established and adequate treatment instituted. For example, acute lymphocytic leukemia in children diagnosed and treated early with combinations of chemotherapy and radiation has responded very favorably in recent times. This "borderline" between dentistry and medicine is broad, intangible, and of particular importance to patient care by both professional groups.

Once the basic pathologic process is identified, regardless of whether the disease is of "local" or "systemic" origin, it is logical next to identify, usually by exclusion, the broad category of disease involved. In this manner, it is possible to determine management of the patient with some authority and to select such additional diagnostic procedures (*e.g.* biopsy, aspiration, therapeutic trial) as may be necessary to establish a definitive diagnosis.

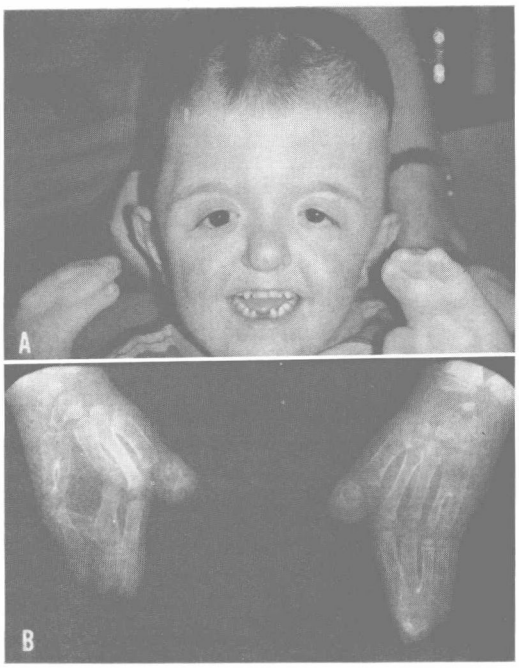

Fig. 1-2. *A*, Apert's syndrome or acrocephalosyndactyly. Craniofacial changes shown include antimongoloid slant of eyes, low-set ears, bulbous nose and tooth loss. *B*, Radiograph of hands showing syndactyly.

Developmental Disturbances

Disturbances in growth and development may be manifested clinically by *aplasia* or failure of formation (*e.g.* anodontia, facial or oral clefts, aplasia of salivary glands); *hypoplasia* or incomplete formation (*e.g.* microdontia, microglossia); *dysplasia,* with abnormal arrangement of tissues and organs (Fig. 1–2); *hamartomas* (*e.g.* hemangioma, supernumerary teeth, exostoses) (Figs. 1–3, 7–27); and generalized under- or overdevelopment of body tissues and structures (*e.g.* hemiatrophy, hemihypertrophy) (Fig. 11–1). The clinician detects most developmental abnormalities by gross and radiographic observations.

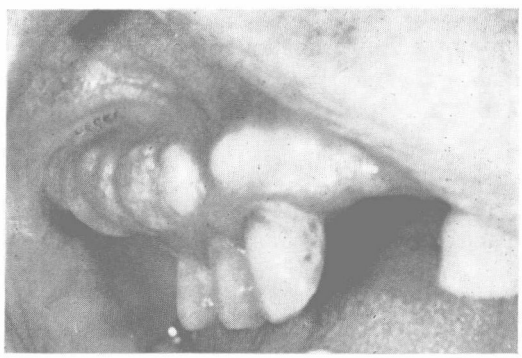

Fig. 1-3. These unusually prominent exostoses are very hard and white to yellow beneath the thin mucosa. They are bilateral and unimportant except in patients needing prostheses.

Hereditary disorders refer to abnormalities which tend to follow a genetic or inherited pattern (see Chap. 4). *Familial diseases* are those which tend to run in families and are probably hereditary, even though the mode of inheritance is not clearly established. *Congenital disturbances* are those which are present at birth but are not necessarily of hereditary origin. Some congenital diseases may actually be present at birth but not become clinically evident until later in life, such as certain of the inborn errors of metabolism. Congenital defects range in severity from the grossly deformed monster to lesser variations and anomalies.

Hereditary ectodermal dysplasia may be

accompanied by deficiencies of teeth and major and minor salivary glands (Fig. 4–17). Severe periodontal disease may develop in a child as a part of the hereditary syndrome of Papillon-LeFevre (Fig. 4–18). Congenital syphilis may be associated with malformed permanent incisors and molars afflicted by the disease during the morphogenic and appositional stages of their development.

The history of a lesion or condition dating back to the birth of the patient, or the occurrence of similar lesions in other members of his family, is most important in categorizing such conditions (Fig. 1–4).

The developmental cysts are very common in the jawbones and oral region. A cyst,

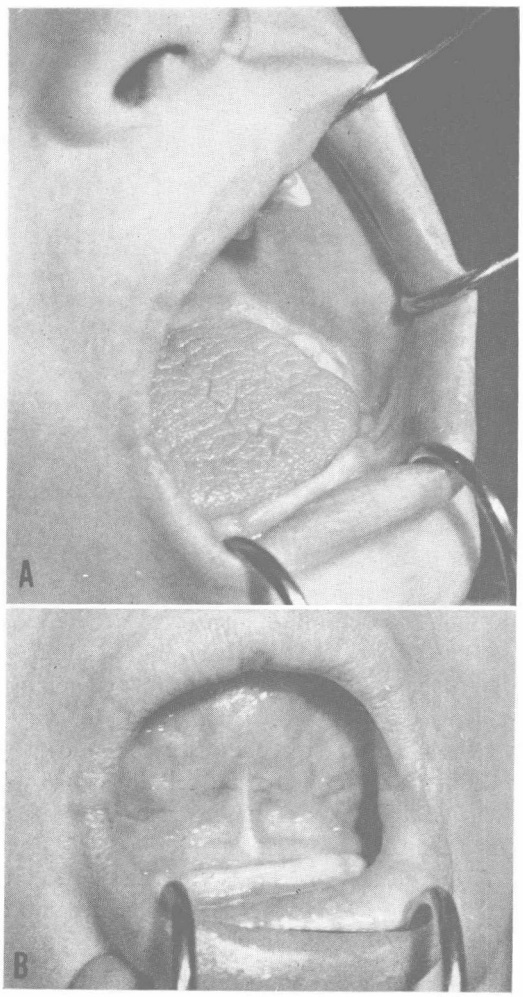

Fig. 1-4. *A*, This 16-year-old boy has lost nearly all of his teeth from rampant caries. The mouth was quite dry and the orifices of the major salivary gland ducts could not be found. Notice the unusual surface of the tongue and the absence of the left parotid papilla. *B*, The edentulous ridge of the anterior mandible is shown and the absence of the sublingual papillae is apparent. (Wood and Mitchell, Oral Surg. Oral Med. Oral Path., *15*, 1075, 1962.)

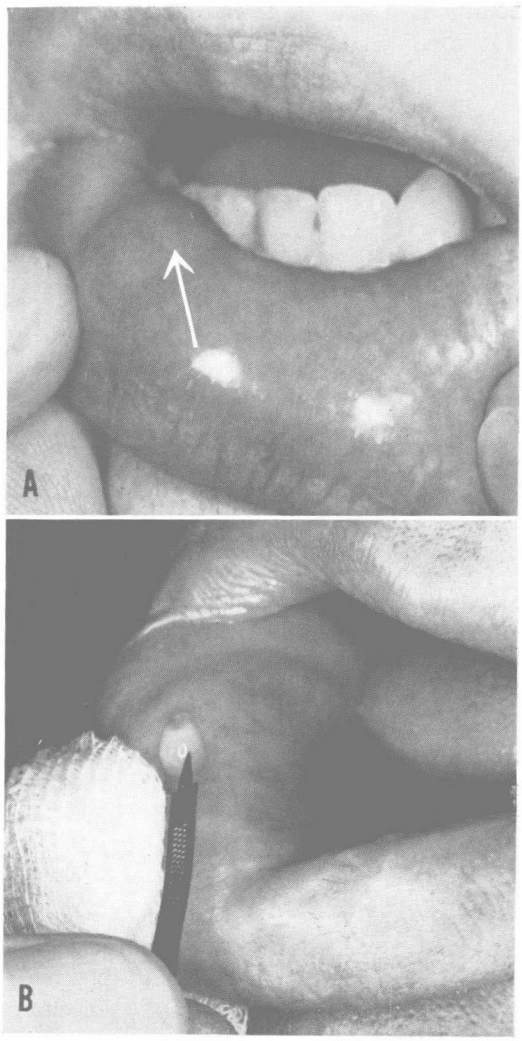

Fig. 1-5. *A*, Mucocele of lower right lip. The mucosa over this deeply situated lesion is of normal color. If the lesion were more superficial, the color would be lighter. *B*, A mucocele has been lanced and a clear, mucoid material is emitted. While this procedure aids in establishing the diagnosis, appropriate treatment is complete excision.