Operative Dentistry

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Lecture (1)

Patient Assessment, Diagnosis and Treatment Planning (Part I)

Pretreatment considerations consisting of patient assessment, examination and diagnosis, and treatment planning are the foundation of sound dental care.

Excellence in dental care is achieved through the dentist's ability to assess the patient, determine his needs, and design an appropriate plan of treatment.

Infection Control

Before the examination and diagnosis, attention is given to infection control. Before, during and after any patient visit, appropriate infection control measures must be instituted. Barrier protection of personnel using masks, protective eyewear, gloves and gowns is now a standard requirement for dental procedures.

Patient Assessment

Medical History

The medical systemic care phase includes aspects of treatment that affect the patient systemic health. Comprehensive medical history that helps to identify conditions that could alter, complicate or contraindicate dental procedures. For example, the dentist may identify

1. Contagious diseases that require special precautions, procedures, or referral
2. Allergies or medications that may contraindicate the use of certain drugs;
3. Systemic diseases and cardiac abnormalities that demand less strenuous procedures or prophylactic antibiotic coverage; and
4. Physiologic changes associated with aging that may alter clinical presentation and influence treatment.

Chief Complaint

It is generally the first information obtained. Chief complaints are symptoms or problems expressed by the patient in his own words relating to the condition that prompted the patient to seek treatment. The patient should be encouraged and guided to discuss all aspects of the current problem, including onset, duration, symptoms, and related factors.

By this discussion, the dentist accomplishes many important goals:

1. The patient feels that his problem have been recognized and the doctor-patient relationship begins positively.
2. This information is vital to establish the need for specific diagnostic tests and to determine the cause and treatment of the complaint.
3. By writing C.C (chief complaint) the dentist is assured that it will not be omitted from the problem list.

Dental History

A brief history of past dental treatment can provide useful information about patient's tolerance for dental treatment. Questions about previous episodes of fractured or lost restorations, trauma, infection, sensitivity and pain can give information that will alter the dentist to possible problems and guide him to clinical and radiographic examination. Patients may not volunteer this information; hence specific questions regarding thermal sensitivity, discomfort during chewing, gingival bleeding and pain are warranted. When there is a history of symptoms indicative of pulpal damage or incomplete tooth fracture, specific diagnosis tests should be performed during the examination.

Clinical Examination

Clinical examination is the "hands-on" process of observing both normal and abnormal conditions. Diagnosis is a determination and judgment of variations from normal.

The intraoral assessments involve an examination of the periodontium, dentition and occlusion.

The clinical examination is performed systematically in a clean, dry, well-illuminated mouth. Proper instruments including a mirror, explorer, and periodontal probe are required.

An accurate examination can occur only when the teeth are clean and dry. This may require initial scaling, flossing, and a toothbrushing prophylaxis before clinical examination of the teeth.

Elements of the clinical examination include:

1. EVALUATION OF THE DENTITION

A. Assessment of caries risk and plaque: the determination of baseline caries risk and plaque levels at the time of initial examination provides a basis for communication with the patient and the dentist, and it is important information in establishing a prognosis for restorative care. The patient can be given instructions for good oral hygiene. Once plaque assessment completed an examination of other areas can be accomplished

B. Detection of caries lesions:

- Pit and fissure caries lesions: it may begin in small enamel defects that lie near DEJ, so it is difficult to detect early on radiograph (it must be extensive to be detected radiographically).

Tactile examination with firm application of sharp explorer into fissure and a sticky sensation felt on removal of the explorer has been the classic sign of pit and fissure caries. Clinical studies have shown this method to be unreliable, producing many false-positive and false-negative diagnosis, in addition an explorer can cause cavitation in a demineralized pit and fissure, preventing the possibility of remineralization.

Visual observation with magnification of a clean dry tooth has been found to be reliable non destructive method. Pit and fissure lesions appear as a gray or gray-yellow opaque area that show through the enamel.

Fiberoptic transillumination may be helpful in visualizing pit and fissure lesion.

A variety of new technologies are being evaluated for detection of caries lesions like air abrasion and laser.

- Smooth-surface caries lesions: proximal caries are the most difficult to detect clinically, it is inaccessible to both visual and tactile examination, proximal lesions usually detected by radiograph in posterior teeth wile in anterior teeth may be diagnosed radiographically or with visual examination; using transillumination. Smooth caries on buccal and lingual surface can be easily detected by visual and tactile examination.

C. Assessment of the pulp: each tooth that has extensive restoration and teeth with pulps of questionable vitality; should be tested.

1. **The application of cold and hot** is a valuable method of vitality testing. A cotton pellet saturated with an aerosol refrigerant spray such as (tetrafluoroethane), is placed on the tooth to determine vitality or a pencil of ice made by freezing water inside a sterilized anaesthetic cartridge. Hot application is also helpful by applying a heated piece of gutta-percha on the tooth surface.
2. **Electric pulp tester** another method of vitality test. However this test has limitations, it cannot be used in a wet field or on teeth with metallic restorations unless measures are taken to insulate adjacent teeth. Also the method does not reflect the health of the pulp or its prognosis.
3. **A test cavity**: used when previous thermal and electric pulp tester failed to provide a clear picture of pulp vitality and a restoration is indicated. So the preparation initiated without using anesthetic. If pain or sensitivity is elicited when dentin is cut with a bur, pulpal vitality is confirmed.

Other tests that should be conducted during examination are

Percussion test: This test is performed by gently tapping the occlusal **or** incisal surfaces of the suspected tooth and adjacent teeth with the end of the handle of a mouth mirror to determine the presence of tenderness. Pain on percussion suggests possible injury to the periodontal membrane from pulpal or periodontal inflammation. Care must be taken when interpreting a positive response on maxillary teeth because teeth in close proximity to maxillary sinuses also may exhibit pain on percussion when the patient has maxillary sinusitis.

Palpation: This test is performed by rubbing the index finger along the facial and lingual mucosa overlying the apical region of the tooth, an alveolar abscess in an advanced stage or other periapical pathosis may cause tenderness to palpation.