Diagnosis and treatment planning for Cr/Co RPD

Diagnosis is defined as determination of nature of disease.

Treatment planning is defined as the sequence of procedures planned for the treatment of a patient after diagnosis.

The dentist duty is to provide any dental treatment that patient needs, both the need perceived by the patient and those demonstrated through clinical examination and patient interview. Although similarity have been noted between partially edentulous patient a significance differences exist making each patient and the ultimate treatment plan unique.

Description of each patient uniqueness occurs through patient interview and clinical examination. These include four distinct processes: -

1. Understanding the patient desire or chief concern complain.
2. Determining the patient dental need through a diagnostic clinical examination.
3. Developing treatment plane that reflects the best management of desire and need.
4. Executing appropriately sequenced treatment with planed follow up.

Patient interview

The interview, an opportunity to develop connection with the patient, involves listening to and understanding the patient's chief complaint or concern about his or her oral health.

The chief complaint is referred to the illness as described by the patient word. This can include clinical symptoms of pain, difficulty with function, concern about appearance, problems with an existing prosthesis, or any combination of symptoms related to the teeth, periodontium, jaws, or previous dental treatment. It is important to listen carefully to what the patient has stated is the reason for presenting for evaluation; this is because all subsequent information gathered will be used to discuss these concerns and to relate whether the proposed treatment will affect the patient in any way. Such a discussion at the outset of patient care helps to outline realistic expectations.

It is mandatory that the dentist clearly understand what brings the patient to the clinic.

Failure to do so leads to the chance that the patient will be unhappy with the treatment result, as it might not see the correction for its chief complain. With experience, this subtle point becomes a major component of a clinician's management focus.

The patient interview (and clinical examination) should follow a sequence that includes:

1. Chief complaint and its history
2. Medical history review
3. Dental history review, especially related to previous prosthetic experience(s)
4. Patient expectations

After the previous point being discussed, the time come to make a decision for the most appropriate type of prosthodontics treatment, and

this must be done in company with the patient by using a communication model termed (shared decision making).

The objectives of prosthodontic treatment

The objectives of prosthodontic treatment must be maintained which include: -

1. The best method of restoring the lost function within the limits of tissue tolerance of the patient .
2. Maintain or improve on the appearance of the mouth. As the first objective is satisfied, so the 2nd requirement is comfort in an esthetically pleasing manner. (esthetically pleasing restoration (
3. The preservation and maintenance of the health of the remaining teeth and oral tissues (which will enhance the removable partial denture design).

Oral examination

It should include visual and digital examinations of teeth and surrounding structure with mouth mirror, periodontal probe and tweezers.

Sequence of oral examination

1) Reliefs of pain discomfort and caries lesion by placements of temporary fillings, preliminary examination to determine the need for management of acute needs and whether prophylaxis is required to conduct a thorough oral examination.
2) A thorough and complete oral prophylaxis. best doing prophylaxis to obtain: -
    - Teeth free from accumulation of calculus and debris.
    - Accurate diagnostic cast of dental arches can be done

3) Complete intraoral radiograph

The objectives of a radiographic examination are: -

a. To locate areas of infection and other pathosis that may be present.

b. To reveal the presence of root fragments, foreign objects, bone spicules, and irregular ridge formations.

c. To reveal the presence and extent of caries and the relation of carious lesions to the pulp and periodontal attachment;

d. To permit evaluation of existing restorations as to evidence of recurrent caries, marginal leakage, and overhanging gingival margins;

e. To reveal the presence of root canal fillings and to permit their evaluation as to future prognosis (the design of the partial denture may hinge on the decision to retain or extract an endodontically treated tooth);

f. To permit an evaluation of periodontal conditions present and to establish the need and possibilities for treatment;

g. To evaluate the alveolar support of abutment teeth, their number, the supporting length and morphology of their roots, the relative amount of alveolar bone loss suffered through pathogenic processes, and the amount of alveolar support remaining.

4) Impression for making accurate diagnostic cast to be mounted for occlusal examination, mounting preferably on semiadjastable articulator.

5) Examination of teeth and residual ridge by instrument and visual means *Visual examination will reveal many of the: -*

1. signs of dental disease consideration of caries susceptibility are of primary importance the number of restored teeth present signs of recurrent caries initial examination,
2. examination of periodontal disease, gingival inflammation, the degree of gingival recession, and mucogingival relationships should be observed

3. The number of teeth remaining, the location of the edentulous areas, and the quality of the residual ridge will have a definite bearing on the proportionate amount of support that the partial denture will receive from the teeth and the edentulous ridges.

4. Tissue contours may appear to present a well-formed edentulous residual ridge; however, palpation often indicates that supporting bone has been resorbed and has been replaced by displaceable, fibrous connective tissue. Such a situation is common in maxillary tuberosity regions. The removable partial denture cannot be supported adequately by tissues that are easily displaced. In preparing the mouth this tissue should be recontoured or removed surgically, unless otherwise contraindicated. A small but stable residual ridge is preferable to a larger unstable ridge for providing support for the denture.

5. The presence of tori or other bony exostoses must be detected and an evaluation of their presence in relation to framework design must be made. Failure to palpate the tissue over the median palatal raphe to ascertain the difference in its displaceability as compared with the displaceability of the soft tissues covering the residual ridges can lead to a rocking, unstable, uncomfortable denture and to a dissatisfied

patient. Adequate relief of the palatal major connectors must be planned, and the amount of relief required is directly proportionate to the difference in displaceability of the tissues over the midline of the palate and the tissues covering the residual ridges. Or select major connector design not interferes with the presence of tori.

6. During the examination, not only each arch but also its occlusal relationship with the opposing arch must be considered separately.

A situation that looks simply when the teeth are apart may be complicated when the teeth are in occlusion. For example, an extreme vertical overlap may complicate the attachment of anterior teeth to a maxillary denture. Extrusion of a tooth or teeth into an opposing edentulous area may complicate the replacement of teeth in the edentulous area or may create occlusal interference which will complicate the location and design of clasp retainers and occlusal rests.

Such findings subsequently will be evaluated further by careful analysis of mounted diagnostic casts.

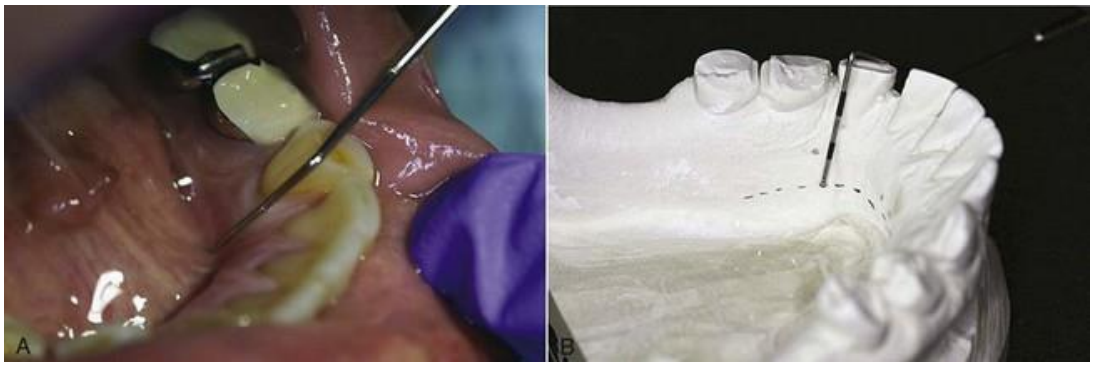
Such an examination will not provide sufficient information to allow a definitive diagnosis and treatment plane. For this purpose, a complete charting (case sheet) that includes all previous information

7. Determination of height of the floor of the mouth to locate inferior borders of lingual mandibular major connectors. Two methods used in determining the of the floor of the mouth

- ✓ Direct method
- ✓ Indirect method

The first method is to measure the height of the floor of the mouth in relation to the lingual gingival margins of adjacent teeth with a

periodontal probe. When these measurements are taken, the tip of the patient's tongue should just lightly touch the vermilion border of the upper lip. Recording of these measurements permits their transfer to both diagnostic and master casts.



The second method is to use an individualized impression tray for which lingual borders are 3 mm short of the elevated floor of the mouth, and then to use an impression material that will permit the impression to be accurately molded as the patient licks the lips. The inferior border of the planned major connector can then be located at the height of the lingual sulcus of the cast resulting from such an impression.

A diagnostic cast should be an accurate reproduction of the teeth and adjacent tissues. In a partially edentulous arch this must include the edentulous spaces because these also must be evaluated in determining the type of denture base to be used and the extent of available denture-supporting area. Diagnostic cast made through an impression making with alginate and cast pour with dental plaster but some time with dental stone better than plaster because it's not easily abraded.

Diagnostic casts serve several purposes as an aid to diagnosis and treatment planning. Some of these are as follows:

a. Diagnostic casts are used to supplement the oral examination by permitting a view of the occlusion from the lingual, as well as from the buccal aspect.

b. Diagnostic casts are used to permit a topographic survey of the dental arch that is to be restored by means of a removable partial denture. The cast of the arch in question may be surveyed individually with a cast surveyor to determine the parallelism or lack of parallelism of tooth surfaces involved and to establish their influence on the design of the partial denture .

c. Diagnostic casts are used to permit a logical and comprehensive presentation to the patient of present and future restorative needs, as well as of the hazards of future neglect. Occluded and individual diagnostic casts can be used to point out to the patient (a) evidence of tooth migration and the existing results of such migration; (b) effects of further tooth migration; (c) loss of occlusal support and its consequences; (d) hazards of traumatic occlusal contacts; and (e) cariogenic and periodontal implications of further neglect .

d. Can be used in the fabrication of individual trays .

e. Diagnostic casts may be used as a constant reference as the work progresses. Penciled marks indicating the type of restorations, the areas of tooth surfaces to be modified, the location of rests, and the design of the partial denture framework, as well as the path of placement and removal, all may be recorded on the diagnostic cast for future reference .

f. Unaltered diagnostic casts should become a permanent part of the patient's record because records of conditions existing before treatment are just as important as are preoperative roentgenograms. Therefore, diagnostic casts can be used as permanent record.

Interpretation of Examination Data

As a result of the oral examination and diagnosis, certain data should be recorded, much of which are based on decisions that are the result of the diagnosis and reflect the patient's present and predictable health status. These are as follows:

1) Roentgenographic interpretation

Many of the reasons for roentgenographic interpretation during oral examination are outlined and are considered in greater detail in other texts. The aspects of such interpretation that are the most pertinent to partial denture construction are those relative to the prognosis of remaining teeth that may be used as abutments.

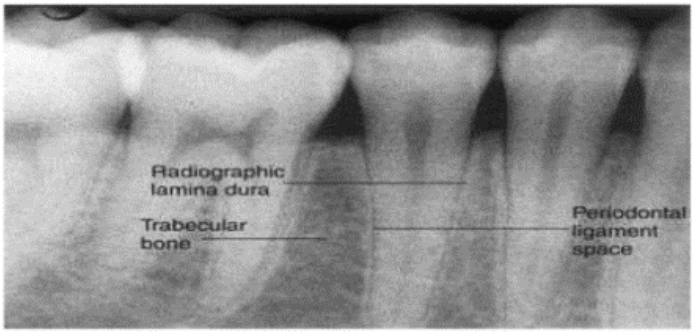
The quality of the alveolar support of an abutment tooth is of primary importance because the tooth will have to withstand greater stress loads when supporting a dental prosthesis. Abutment teeth providing total abutment support to the prosthesis, be it either fixed or removable, will have to withstand a greater load and especially greater horizontal forces. Abutment teeth adjacent to distal extension bases are subjected not only to vertical and horizontal forces but to torque as well because of the movement of the tissue supported base.

2) Value of interpreting bone density

Its importance to the dentist when evaluating the quality and quantity of the alveolar bone are the height and the quality of the remaining bone structure

Roentgenographic evaluation of bone quality is often necessary. Optimum bone qualities are ordinarily expressed by normal sized

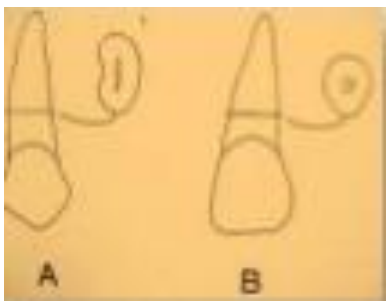
interdental trabecular spaces, the normal interproximal crest is ordinarily shown by a relatively thin white line crossing from the lamina dura of one tooth to the lamina dura of the adjacent tooth.

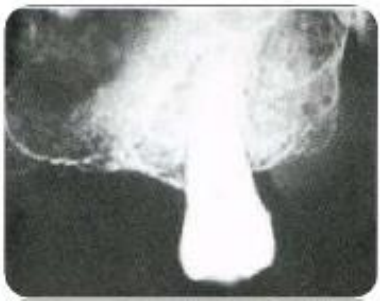


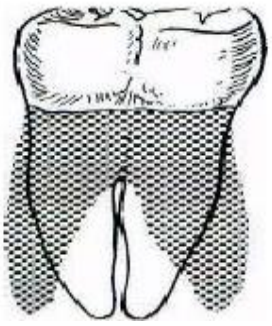
Roentgenographic findings should serve the dentist as an adjunct to clinical observations. Therefore, roentgenographic findings should always be confirmed by clinical examination.

Root morphology

The morphologic characteristics of the roots determine to a great extent the ability of prospective abutment teeth to resist successfully additional rotational forces that may be placed on them. Teeth with multiple and divergent roots will resist stresses better than teeth with fused and conical roots, because the resultant forces are distributed through a greater number of periodontal fibers to a larger amount of supporting bone







Periodontal considerations

An assessment of the periodontium in general and abutment teeth in particular must be made before prosthetic restoration. One must evaluate the condition of the gingiva, looking for adequate zones of attached gingiva and the presence or absence of pockets. The condition of the supporting bone must be evaluated, and mobility patterns recorded. If mucogingival involvements, osseous defects, or mobility patterns are recorded, the causes and potential treatment must be determined. Qral hygiene habits of the patient must be determined, and efforts made to educate the patient relative to plaque control. In addition, the patient must be advised of the importance of regular maintenance appointments after treatment. The most decisive evidence of oral hygiene habits is the condition of the mouth before the initial prophylaxis. Good or bad oral hygiene is basic to the patient's nature, and although it may be influenced somewhat by patient education.

Mucous membrane consideration:

Mucous membrane attaches to bone composed of two layers

- Mucosa
- Sub mucosa

Types of Mucous membrane

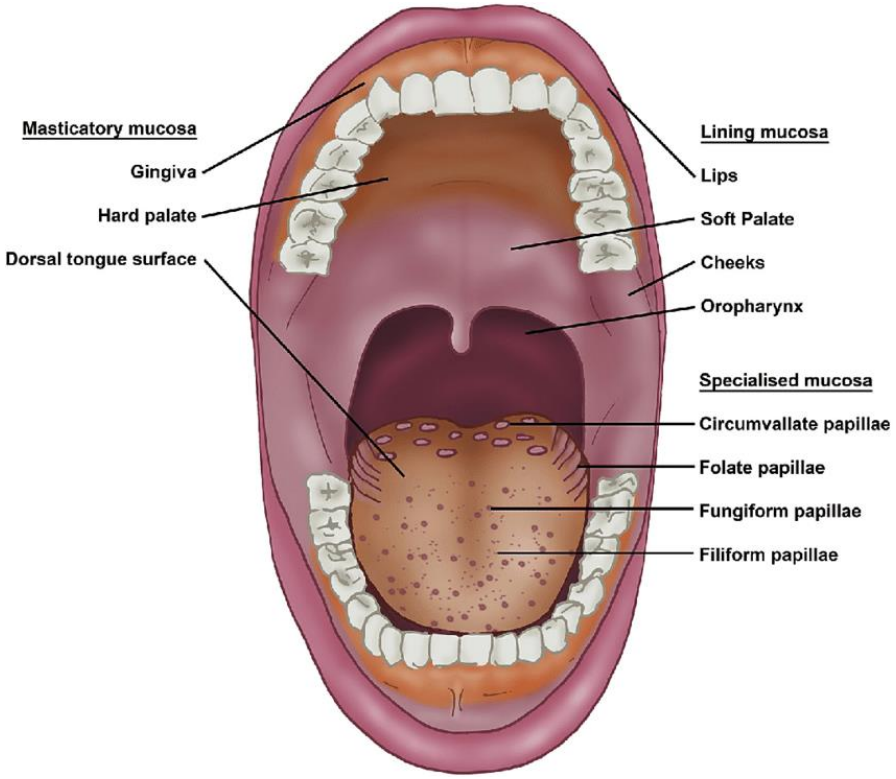
1- Lining mucosa (Stratified Squamous epithelium none keratinized Sub mucosa loosely or tight attach to the underlying mucosa lip, cheek, under side of tongue, usually comes in contact with denture border.

2- Masticatory mucosa (keratinized stratified Squamous epithelium).

Mucosa of soft palate

Stratified Squamous epithelium non keratinized, Sub mucosa with numerous glands supporting membrane. It is a transition between loosely and fixed type of mucosa.

In the mandibular arch the distal end of the gingival area is well marked a pear-shaped area papilla. It is, pale, easy distinguish from retromolar pad firm, soft red.



Need for extraction

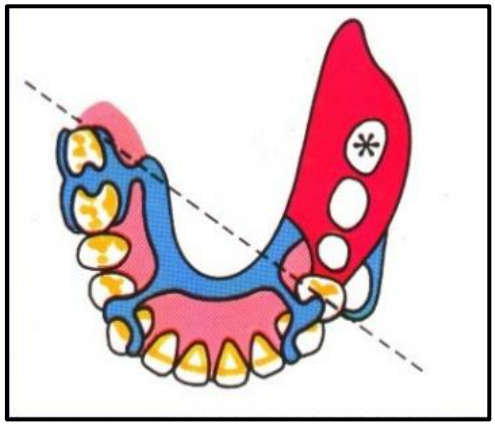
Need for extraction of teeth for the following reasons

1. If the tooth cannot restore to a state of health, extraction may be unavoidable.
2. A tooth may be removed if its absence will permit amore serviceable and less complicated partial denture design.
3. A tooth may be extracted if it is so anesthetically located as to justify its removal to improve appearance.

Indications for RPD

There are several specific indications for the use of removable partial denture- :

1) The most common situations are partial edentulous space Cl I and Cl II which have an edentulous space on the opposite side of the arch is often conveniently present to aid in the required retention and stabilization of the partial denture.
2) The replacement of teeth recent extraction cannot be accomplished satisfactory with fixed restoration.
3) Along span may be totally tooth supported if the abutments and the means of transferring the support to the denture are adequate and if the denture framework is rigid.
4) Need for bilateral stabilization



5) The removable partial denture may act as a periodontal splint through its effective cross arch stabilization of teeth weakened by periodontal disease.

6) Excessive loss of residual bone
7) Economic considerations

The Recommended Infection Control Practices for Dental Treatment

1. Gloves should be worn in treating all patients.
2. Masks should be worn to protect oral and nasal mucosa from splatter of blood and saliva.
3. Eyes should be protected with some type of covering to protect from splatter of blood and saliva
4. Sterilization methods known to kill all life forms should be used on dental instruments. Sterilization equipment includes steam autoclave, dry heat oven, chemical vapor sterilizers, and chemical sterilants.
5. Attention should be given to cleanup of instruments and surfaces in the operatory. This includes scrubbing with detergent solutions and wiping down surfaces with iodine or chlorine (diluted household bleach solutions).
6. Contaminated disposable materials should be handled carefully and discarded in plastic bags to minimize human contact. Sharp items,

such as needles and scalpel blades, should be contained in puncture-resistant containers before disposal in the plastic bags.

Differential diagnosis for fixed or removable partial denture

Although replacement of missing teeth by means of partial denture either tooth or implant supported is generally the method of choice, there are many reasons why a removable partial denture may be better method of treatment for specific patient. The choice of treatment must meet the economic limitations and personal desires of the patient. Although uncommon, unilateral RPD in place of fixed partial denture. This type of prosthesis places excessive stresses on abutment teeth. Possibly more important, the risk for aspiration is significant if such prosthesis dislodge during use. For these reasons, the use of unilateral RPD is strongly discouraged.

Types of RPD base material

Plastic

Acrylic

1) hot cure
2) cold cure
3) light cure

Polystyrene

Metal

1) Gold alloy
2) Chromium cobalt alloy
3) Titanium