

Diagnosis and Treatment plan of Complete Denture:

It is the critical or scientific evaluation of existing conditions, which is made towards the end of the examination. Diagnosis, being a continuous procedure, is not accomplished in a short time.

Diagnosis defined as:

- 1- The act or process of deciding the nature of a diseased condition by examination.
2. The determination of the nature, location and causes of disease.

The factors that should be evaluated to arrive at a proper diagnosis and treatment planning:

1. Patients mental attitude.
2. Patient systemic status.
3. Past dental history.
4. Local oral condition.

Mental Attitude (Psychological factor):

The success of dental prosthesis is related to many factors, includes functional, biological, technical, esthetic, and psychological. Psychological factor include the willingness of the patient and their mental attitudes toward dentures, their relationship with and attitude toward the dentist and their ability to learn how to use the dentures. Prosthodontist must fully understand their patient because such understanding predisposes the patient to accept the kind of the treatment they need.

House classified patients into four categories:

- 1-Philosophical patient.
- 2- Exacting patient.
- 3- Indifferent patient.
- 4- Hysterical patient.

1-Philosophical Patient: The best mental attitude for denture acceptance is the philosophical type. These patients are rational, sensible, calm, and composed in difficulty situations. Their motivation is generalized as they desire dentures for the maintenance of health and appearance and feel

that having teeth replaced is a normal acceptable process. They are easy going, cooperative, well-adjusted to life and they understand and accept advice. They do not imagine or anticipate any particular difficulty.

2-Exacting patients:- Those patients may have all of the good attributes of the philosophical patients; however, they may require extreme care efforts and patience on the part of the dentist, they like each step in the procedure explained in details, they require extra hours spent prior to treatment in patient education until an understanding is reached is the best treatment plan.

3. Indifferent patients:

They have little concern of their teeth or oral health and do not appreciate the efforts and skill of the dentist. They will give up easily if problems are encountered with the denture. These patients show least concern and often go without dentures for years. They have no desire to wear dentures and do not care much about the need for dentures and function. In most of them, questionable or unfavorable prognosis may be expected. An educational program in dental conditions and treatments is recommended before denture construction.

4. Hysterical patients:

This type is emotionally unstable, excitable, apprehensive and hypertensive. They are neglectful of their oral health and unwilling to try to adapt to wearing dentures. Although these patient may try to wear a denture, they fail to use it because they expect it to look and function like the natural teeth. The prognosis is often unfavorable and additional professional help (psychiatric) is required prior and during the treatment.

Social information:

A. Name: It should be asked to enter in the record. When the patient asked by his name it brings him some confidence. The name also gives an idea about the patient family and community.

B. Age:

A young patient will be more adaptable to new situation such as new denture than an older person. Problem in advancing age can be anticipated with:

1. Adaptation to the new denture.

2. Coordination.
3. Bone resorption.
4. Tissue sensitivity.
5. Healing.
6. Balanced nutrition.

C. Gender:

In general women are more difficult to please with the appearance of their denture than men. They are more aware of their face and lips than men. Males are less concerned with esthetics, they do expect comfort and function.

D. Occupation and social position:

In general the higher the social position, the more demanding the patient about esthetics. A lecturer who speaks too much would be concerned about speech pattern. While a musician who plays a wind instrument, will care for tooth position.

Systemic (medical) status:

No prosthodontic procedures should be planned until the systemic status of the patient is evaluated. It must be realized that dentistry is part of health services and that oral health is closely associated with the general health of the patient. Except in cases of accident, individual who are losing their teeth are manifesting pathological conditions because their loss may be because of systemic factors or associated with unfavorable systemic conditions. Some systemic diseases have direct relation to the denture success even though no local manifestations are apparent.

1. Debilitating diseases: Diabetes, blood dyscrasias, tuberculosis are examples. These patients require extra instruction on oral hygiene, eating habits and tissue rest. Consultation of physician is advisable. Supporting bone may be affected so frequent recall is needed to keep the denture base adapted and the occlusion corrected.

Diabetes:

- There may be wasting of tissues.

- Patients need functional rest to the tissues; therefore, they can be advised less time of wear.
- In severe diabetes, acetone is secreted in the mouth, which leads to poor fit of the denture. Hence, the patients are advised to reduce the time of wear of denture.
- Diet rich in vitamin B and vitamin C would have to be recommended. Calcium will have to be supplemented in the diet regime.
- A physician should also be consulted for appropriate control of blood sugar level.
- The condition indicates careful consideration of impression procedure, teeth selection and type of occlusion.

2. Cardiovascular Disease

- Patient should be given early morning appointments in order to avoid the tissue changes that occur due to medication during the latter part of the day.
- The duration of each appointment should be short in order to reduce the stressful condition.
- Patients with such disease may require consultation with cardiologist as some denture procedures may be contraindicated.
- Such patient must be controlled before dental treatment.

Anaemia

- Soft tissue overlying bone becomes fragile with possibility of enhanced bone loss.
- Decrease in bearing capacity of foundation tissue.
- Decrease in healing capacity.
- Advice patient for haemogram, with main emphasis to improve blood picture through administration of haematinic principle (Vitamin B12).

3. Joint diseases: joint involvement particularly osteoarthritis present different problems. If the disease involved the temporomandibular joint, alteration in the treatment plan may be essential. In extreme conditions special impression tray and technique are often necessary because of the limited access from reduced ability to open the jaws; furthermore jaw relation records are difficult and occlusion correction must be made often because of subsequent changes in the joint. In

case of involvement of finger joints, there may be decreased ability to maintain denture hygiene and insertion.

4. **Neurological disorders:** some neurological involvement as Bell's palsy or Parkinson's requires some attention, dentist have to deal with some problem related to denture retention, maxillomandibular records and supporting musculature.

5. **Skin diseases:** many of dermatological diseases may have oral manifestations such as pemphigus. Medical support mostly needed because these oral lesions are painful that prevent proper work. Pemphigus have oral manifestation which vary from ulcer to bullae. Such painful condition make the denture use impossible without medical treatment. The constant use of dentures is contraindicated.

6. **Oral malignancies:** Some complete denture patient with oral cancer may require radiation therapy. A waiting period should elapse before denture construction. Tissue having bronze color and loss of tonicity are not suitable for denture support. Once the denture is constructed, the tissue should be examined frequently for radio necrosis. Xerostomia can also occur due to radiotherapy. Hence, sialagogues and use of denture adhesives may have to be considered.

7. **Menopause condition:** This condition can cause glandular changes, osteoporosis, burning sensation and psychological changes in the patient. These can influence treatment planning and the efficiency of the complete denture.

Past dental history:

Success or failure in the provision of prosthodontic care is frequently the direct result of the adequacy of the taking of the patient's dental history.

An understanding of the etiology of teeth loss by a patient will help a dentist to estimate patient's appreciation of dentistry and contribute to the prognosis for prosthodontic success. Patients who lost their teeth in an accident might be much more unhappy about their edentulous state than patients who lost their teeth as a consequences of decay resulting from neglect, similarly expectation for the amount of alveolar bone remaining would be greater for the patients with a

history of rapid tooth loss from decay than for patient with a long history of progressive periodontal diseases.

Dental history include:

1. Chief complain: It should be recorded because it gives ideas about the patient psychology.
2. Expectation: The dentist should evaluate the patient expectation about denture and classify them as realistic or unrealistic.
3. Period of edentulousness: This gives information about the amount and pattern of bone resorption. The cause of tooth loss should be known (caries, periodontitis etc. -----).
4. Previous dentures: The patient who keep changing dentures in a short period of time are difficult to satisfy and risky to deal with. Any existing prosthesis must be examined thoroughly in an objective manner; to condemn prosthesis on the complaint of the patient is often incorrect diagnosis. Patient oral hygiene can be reflected well by the old denture, and condition of the supported tissues also can be expected. Previous denture experience could be noted in terms of number, duration of time, information on esthetics, phonetics, mastication, retention, vertical dimension of occlusion and centric relation should be noted down. Similarly repairs that has been carried out earlier would include:
 - a. Repair to a denture.
 - b. Rebasing.
 - c. Relining.

Local oral condition (local factors):

The local factors usually evaluated during clinical examinations. . Examination must divided into:

Extra oral examination: The patient head and neck region should be examined for any pathological condition. It include facial examination, muscle tone, lips, TMJ.

- T.M.J: any patient gives a history of T.M.J problem must examine carefully because this type of patients may has a limitation in their jaw movements and opening.

Complaints of pain, subluxation, crepitus or a combination of two or three can be encountered. These could be encountered due to severe discrepancy of vertical dimension of occlusion, loss of teeth or loss of posterior stops, which causes the load to shift anteriorly.

Examination of TMJ

1. The bulk of index finger is placed in the external auditory meatus and equal pressure is applied while instructing the patient to open the mouth. If pain is felt, it indicates abnormal condition

2. Auscultation.

Muscle tone

- Class I: normal tissue tone and function.

- Class II: approximately normal function and tone and tactile sense have been preserved by the wearing of artificial dentures. Patients who have been wearing efficient dentures that restore the correct vertical dimension of occlusion belong to this class.

- Class III: subnormal function and tone, resulted from ill health, loss of teeth or wearing of grossly inefficient dentures.

(Muscle tone that is too tense makes cheek and lips manipulation difficult but if it is too loose, the lips and cheek may be displaced easily by impression material).

Neck palpation

Lymphatics: The first sign of oral cancer is often a palpable lymph node.

Facial examination:

A. Facial form: This is based on outline of face as square, tapering, ovoid, and square-tapering, this helps in tooth selection.

B. Facial profile:

Class 1: Normal or straight profile.

Class 2: Retrognathic profile.

Class 3: Prognathic profile.

Lips:

Patient with short lip will expose all of the upper anterior teeth and much of the labial flange of denture base. Also patient with thin lip present problem because any slight changes in labiolingual tooth position makes an immediate change in the lip contour.

Intraoral examination

A. Color of the mucosa: Healthy mucosa have a pink color, any amount of redness indicates an inflammatory changes. Inflamed tissues provide a wrong recording while making an impression.

B. Condition of the mucosa:

Class 1: Healthy mucosa.

Class 2: Irritated mucosa.

Class 3: Pathologic mucosa.

C. Thickness of the mucosa:

Class I: firm mucoperiosteum with a uniform thickness of approximately 1mm

Class II: thin mucoperiosteum covering supporting bone that is highly susceptible to irritation from denture pressure.

Class III: a thick flabby tissues leading to denture displacement from its supporting area and soreness. Stability and retention are difficult to secure.

Residual alveolar ridge:

A. Arch form

1. U-shape or square form which is the best form to prevent denture rotation.
2. Triangular (tapering) form which offers a less denture resistance to rotation.
3. Round (ovoid) form which gives little or no resistance to denture rotational movements.

B. ridge shape

In the cross section of the ridge there is:

1. Class I: U-shape ridge, the broad flat ridge crest offers excellent denture base resistance to vertical displacing forces.
2. Class II: V-shape ridge but its crest is still flat enough to offer some vertical support
3. Class III: knife edge ridge with a narrow sharp crest that can offer little or no vertical denture support.

C. Height of residual alveolar ridge

1. Class I: Adequate R.R height for denture support which can resist lateral movement of the denture base.

2. Class II: there is some R.R resorption but there is still enough remaining bone to resist lateral movement of the denture base.

3. Class III: resorbed R.R and there will be little or no denture resistance to lateral forces.

Interarch distance:

Class I: there is enough distance to accommodate the dentures.

Class II: there is excessive distance. The denture are usually less stable because the distance between the teeth and the supporting bone is great.

Class III: limited distance. Placement of the artificial teeth can be a difficult procedure.

Bony undercuts

1. Class I: Bony undercut are absent.

2. Class II: There are small undercuts over which the denture can be placed by changing the path of insertion or by relieving the complete denture after pressure indicating paste has been applied to reveal pressure area.

3. Class III: Prominent bilateral undercuts that must be corrected by surgery. Sometimes surgery can be limited to one side only.

Hard palate (shape of H.P):

- Broad flat h.p which offers the best maxillary denture vertical support and retention but can be easily dislodged by a laterally, anteriorly directed forces or rotating forces.
- U-shape h.p which gives adequate denture support, stability and retention.
- V-shape h.p which offers little vertical denture support. Retention is less as peripheral seal is easily broken.

Slope of soft palate (s.p):

*Class I: S.P slopes gradually down from the h.p which allows several millimeters of immovable part of the s.p to form a good posterior seal at its junction with the movable part of s.p.

*Class II: S.P slopes more sharply than Class I thus limiting the seal area and posterior denture length.

*Class III: S.P slopes sharply down from the h.p which restrict the seal area.

Tongue:

A. Size of tongue:

Class 1: the tongue adequate in size to fill but not overflow the floor of the mouth.

Class 2: the tongue slightly overflow the floor of mouth.

Class 3: the tongue completely overflow the floor and cover the ridge, impression making is difficult and denture stability decreased.

B. Tongue position:

Favorable tongue position is when the tip rest at the lingual surfaces of lower ant teeth and the lateral border of tongue contact the lingual surfaces of post teeth and denture base.

Unfavorable tongue position when it is retruded and the tip does not touch the lower denture or ridge. The seal will be broken causing difficulty in wearing denture.

Post mylohyoid space (Lateral throat form)

Class 1: deep lat throat form about 0.5 inch of space exist between the mylohyoid ridge and floor of the mouth. This is favorable for lower denture.

Class 2: Moderate lat throat form.

Class 3: Shallow lat throat form in which retention of lower denture is weak.

Saliva:

Class I: saliva is normal in amount & consistency.

Class II: excessive amount of thin watery or thick ropy saliva

Class III: insufficient saliva (xerostomia).

Radiographic examination:

Panoramic, cephalometric, occlusal, and periapical radiography are important because they capture retained root, unerupted teeth, cysts, tumors, foreign bodies, TMJ disorder, osteoporosis and bony pathological changes.

Diagnostic cast-Advantages:

In addition to construction of the special tray, diagnostic cast is used for:

1. Allow for an evaluation of anatomy and relationship in the absence of patient.
2. Evaluation of inter arch distance.
3. Confirmation of intra oral observation.
4. Arch size, anteroposterior relation, and lateral and cross bite relation especially posteriorly will be observed by the dentist.
5. Undercuts determination with surveyor.
6. Displacement from the pressure of old denture more obvious in dry cast.
7. Planning of pre-prosthetic surgery.
8. Education of patient.

Intra oral videography:

Digital videography could display well magnified image on a monitor, this will provide the dentist with rich visual information when developing a treatment plan.

Treatment planning:

The treatment plan: - is the process of matching possible *treatment options* with *patient needs* and *systematically arranging the treatment in order of priority* but in keeping with a logical or technically necessary sequence.

It is a consideration of all of the diagnostic findings, systemic and local which influence the surgical or any preprosthetic preparations of the mouth, impression making, maxillomandibular relations, occlusion, form and material of the artificial teeth, and instructions in the use and care of dentures.

Why Treatment plan?

To specifically state the treatment that will address a particular patient's need; this treatment must state in a logical sequences and care.

Prognosis:

It is the opinion and judgement given in advance of treatment of completely edentulous patient. Denture prognosis is a judgment or opinion of the prospects for success or otherwise in the fabrication and usefulness of the dentures.

Prognosis is influenced by the following factors:

1. Bearing surface anatomy, tongue position and floor of mouth posture.
2. Neuromuscular control.
3. Denture history.
4. Psychological classification.

Patient education:

An initial and continuing activity integral to, and supportive of a treatment plan.

Purposes of education:

1. Inform the patient of their dental health and its significance.
2. Match the patient expectation with reality of treatment potential.
3. Explain nature, use, and shortcomings of prostheses.
4. Identify alternative treatment and their consequences.