Complete and Partial Edentulism

Examination, Diagnosis and Treatment Planning for Edentulous Patients

PhD Oleg Solomon.
INTRODUCTION

- Successful complete denture therapy begins with thorough assessment of patient’s physical and psychological condition and determining a treatment that will deliver functional complete denture therapy & satisfies patient’s expectations.
Procedures Carried Before Denture Treatment

- General information
- Chief complaint & patient expectations
- Medical history & current medication
- Dental history
- Visual & manual examination of the mouth and head and neck
- Radiographic examination
Continue

- Referring for additional tests or medical consultation
- Referring for second opinion
- Making alginate impressions & preparing mounted study models
- Discussion of diagnosis, treatment planning & prognosis with patient
- Finalizing the fees & obtaining a signed consent
The First Meeting

- Most important
- Prior to meeting, you should review general information
- Your confidence is as important as the treatment itself
- You should be a good listener
- Your communication should be in a simple & truthful manner
Recording General Information

1. Name
2. Race
3. Occupation
4. Address and telephone no.
5. Previous dentist
Age

With advancing age*:
1. Decrease capacity of tissue to tolerate stress
2. Tissue takes longer time to heal
3. Many diseases are prevalent in older age
4. Women at postmenopause may have psychological disturbances (exacting or hysterical)
5. Men at this age may be concerned with only comfort & function (indifferent)
Psychological Evaluation (House Classification of Denture Patients)

- Philosophical patient: well motivated, cooperative, calm & composed even in difficult cases.

- Exacting (critical): likes each step in detail, makes alternative treatment for dentist, makes severe demands.*
Indifferent: not very interested in treatment, blames the dentist for any mishap, not follow instructions, been coerced to come by friend, relative....*
- Hysterical: easily excited, highly apprehensive, unrealistic expectations*
- Skeptical: bad results from previous treatment, doubtful, often have severely resorbed ridges and poor health, might have psychological disturbances from recent personal tragedy #
Medical History*

- Diabetes Mellitus
- Cardiovascular diseases
- Diseases of joints: osteoarthritis
- Diseases of skin: pemphigus
- Neurological disorders (Bells balsy and Parkinson)
- Sjogren’s syndrome
- Transmissible diseases
Radiation Therapy Vs. Dentures

- Consequences of Radiation therapy
- Preprosthetic surgery
- Wearing of previous denture *
- Denture Fabrication #
Denture Fabrication in Radiation Therapy Patient

- Avoid impression material that dry tissue (impression plaster) or heavily flavored materials (ZOE)
- Consider non-anatomic teeth
- Teeth set in neutral zone
- Slight reduction in vertical dimension
- Soft liners are controversial due to porosity and possibility of candida
Current Medication

- Insulin *
- Anticoagulants
- Antihypertensive: dryness & postural hypotension
- Corticosteroids: dryness, confusion & behavioral changes
- Antiparkinson agents like Norflex and Akineton: dryness, confusion & behavioral changes
Dental History

- History of tooth loss: cause, time*

- Edentulous period
“Bag of Dentures” *
Extraoral Examination

- General appearance (healthy, signs of proper nourishment?)
- Facial symmetry
- Skin: color, deep wrinkles
- Palpation of the head & neck (lymph nodes & muscles)
Extraoral Examination

- Muscle tonus
- Neuromuscular coordination*
- TMJ examination
Classification of Frontal Face Forms (House, Frush & Fisher)
Classification of Lateral Face Forms

- Normal
- Retrognathic
- Prognathic
Lips

- Length*
- Thickness
- Mobility
- Smile line
Lip (smile) line *

High smile line

Normal smile line
Intraoral Examination

Cheeks, tongue, floor of the mouth (FOM), maxillary tuberosity, hard palate, soft palate, arch relationship, residual ridge form, saliva, undercuts
Cheeks

- Draping of the cheeks over the buccal flanges essential for peripheral seal
- Opening of Stenson’s duct
- Location for many lesions (lichen planus, submucosal fibrosis, leukoplakia, malignancies as squamous cell carcinoma (SCC))
Leukoplakia
The Tongue

- Favorable tongue is average sized, moves freely, covered by healthy mucosa.
- Normally, it should rest in a relaxed position on lingual flanges, this will retain denture & contributes to denture stability by controlling it during speech, mastication & swallowing.
Tongue Size

- Normal
- Large *
How to Manage Large Tongue?

1. Lower the occlusal plane
2. Use narrower teeth
3. Increase the intermolar distance
4. Grind off the lingual cusps
5. Avoid setting a second molar
Tongue Position

- Normal: normal size and function. Lateral borders rest at level of mandibular occlusal plane while dorsum is raised above it. Apex rests at or slightly below the incisal edges of mandibular anteriors.
Tongue Position

- Retruded tongue position deprives pt of border seal of lingual flange in sublingual crescent and also may produce dislodging forces on distal regions of lingual flange
Tongue Mucosa

The specialized mucosa covering the tongue is said to be a "window" on systemic diseases. *
Frenal Attachments

- Fold of mucosa found at different locations in the sulcus region of upper & lower ridge

- Classification
  Class I: sulcal or low attachment
  Class II: midway betw. sulcus & crest of ridge
  Class III: crestal attachment (frenectomy)
Floor of the Mouth

- If FOM is near the level of the ridge crest, retention & stability of denture is less.
- Hyperactive FOM reduces retention & stability
- If great ridge resorption, FOM in sublingual and mylohyoid regions spills on the ridge
- Patency of submandibular ducts *
Other diseases and conditions of the teeth and supporting structures

Classification of edentulism based on the etiology of tooth loss

- Trauma
- Extraction
- Periodontal Disease
Complete Edentulism
Complete Edentulism
Complete Edentulism

- Edentulism, defined as total tooth loss, is more prevalent among persons with less than a high school education, those without dental insurance, non-Hispanic blacks, and current everyday smokers (CDC, 1999)
- Between the 1950s and the early 1990s the prevalence of edentulism in the United States decreased from 50% to 42% among people aged 65 and older, from 28% to 11% for 45- to 64-year-olds, and from 5% to 2% for persons 18 to 44 years old (Oliver & Brown, 1993)

Other diseases and conditions of the teeth and supporting structures

- Classification of complete edentulism based on the severity of the completely edentulous predicament
Complete Edentulism

Classification System for Complete Edentulism

McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH, Smith CR, Koumjian JH

Classification System for the Completely Edentulous Patient

**Class I**
- Ideal or minimally compromised

**Class II**
- Moderately compromised

**Class III**
- Substantially compromised

**Class IV**
- Severely compromised

**Diagnostic Criteria**
1. Bone height--mandibular
2. Maxillomandibular relationship
3. Residual ridge morphology--maxilla
4. Muscle attachments
Diagnostic Criteria

1. Bone height--mandibular
2. Maxillomandibular relationship
3. Residual ridge morphology--maxilla
4. Muscle attachments
1. Bone Height

Mandibular
Type I

Residual bone height of 21mm or greater measured at the least vertical height of the mandible.
Type IV

Residual vertical bone height of 10 mm or less measured at the least vertical height of the mandible
2. Residual Ridge Morphology

Maxilla
Type A

- Anterior labial and posterior buccal vestibular depth that resists vertical and horizontal movement of the denture base

- Palatal morphology that resists vertical and horizontal movement of the denture base

- Sufficient tuberosity definition that resists vertical and horizontal movement of the denture base

- Hamular notch is well defined to establish the posterior extension of the denture base

- Absence of tori or exostoses
Type D

- Loss of anterior labial and posterior buccal vestibules
- Maxillary palatal and/or lateral tori-rounded or undercut- that interferes with the posterior border of the denture
- Hyperplastic, redundant anterior ridge
- Palatal vault morphology that does not resist vertical or horizontal movement of the denture base
- Prominent anterior nasal spine
3. Maxillomandibular Relationship
Class I

Maxillomandibular relationship allows tooth position that has normal articulation with the teeth supported by the residual ridge.
Class III

Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation; i.e., crossbite—anterior or posterior, tooth position not supported by the residual ridge.
4. Muscle Attachments
Type A

Adequate attached mucosal base without undue muscular impingement during normal function in all regions.
Type D

- Adequate attached mucosal base only in the posterior lingual region
- All other regions are detached
Diagnostic Classification of Complete Edentulism
Class I

This classification level describes the stage of edentulism that is most apt to be successfully treated by conventional prosthodontic techniques with complete denture prosthesis.

All four of the diagnostic criteria are favorable.
Class I

- Residual bone height of 21 mm or greater measured at the least vertical height of the mandible
- Class I maxillomandibular relationship
Class II

This classification level distinguishes itself with the noted continuation of the physical degradation of the denture supporting structures and in addition is characterized with the early onset of systemic disease interactions, localized soft tissue factors and patient management/lifestyle considerations.
Class II

- Residual bone height of 16-20 mm measured at the least vertical height of the mandible

- Class I maxillomandibular relationship

- Residual ridge morphology that resists horizontal and vertical movement of the denture base—Type A, B—Maxilla
Class III

This classification level is characterized by the need for surgical revision of denture supporting structures to allow for adequate prosthodontic function.

Additional factors now play a significant role in treatment outcomes.
Class III

- Residual bone height of 11-15 mm measured at the least vertical height of the mandible

- Class I, II and III maxillomandibular relationship

- Residual ridge morphology has minimum influence to resist horizontal or vertical movement of the denture base—Type C—Maxilla

- Location of muscle attachments with moderate influence on denture base stability and retention—Type C—Mandible
Class IV

- This classification level depicts the most debilitated edentulous condition.
- Surgical reconstruction is almost always indicated but can not always be accomplished due to the patient’s health, desires, past dental history and financial considerations.
- When surgical revision is not selected, prosthodontic techniques of a specialized nature must be used in order to achieve an adequate treatment outcome.
- Residual bone height of least vertical height of the mandible
- Class I, II and III maxillomandibular relationships
- Residual ridge offers no resistance to horizontal or vertical movement – Type D—Maxilla
- Location of muscle attachments with significant influence on denture base stability and retention—Type D and E—Mandible
Completely Dentate
Partial Edentulism
Partial Edentulism
Partial Edentulism
525 Other diseases and conditions of the teeth and supporting structures

- 525.5 Classification of partial edentulism based on the severity of the partially edentulous predicament
Partial Edentulism

Classification System for Partial Edentulism


*J Prosthodont*. 2002 Sep;11(3):181-93
Classification System for the Partially Edentulous Patient

Diagnostic Criteria
1. Location and extent of the edentulous area(s)
2. Condition of the abutment teeth
3. Occlusal scheme
4. Residual ridge

Class I
- Ideal or minimally compromised

Class II
- Moderately compromised

Class III
- Substantially compromised

Class IV
- Severely compromised
DIAGNOSTIC CRITERIA

1. Location and extent of the edentulous area(s)
2. Condition of the abutment teeth
3. Occlusal scheme
4. Residual ridge
<table>
<thead>
<tr>
<th>Location &amp; Extent of Edentulous Areas</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>Class IV</th>
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<tbody>
<tr>
<td>Ideal or minimally compromised-single arch</td>
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<td>Moderately compromised-both arches</td>
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<td>Substantially compromised- &gt;3 teeth</td>
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<td>Severely compromised-guarded prognosis</td>
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<td>Congenital or acquired maxillofacial defect</td>
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<td>Moderately compromised-local adjunctive tx</td>
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<td>Substantially compromised-mod adjunctive tx</td>
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<td>Severely compromised-extensive adjunctive tx</td>
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<td>Substantially compromised-occlusal scheme</td>
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<td>Severely compromised-change in VDO</td>
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<tr>
<th>Residual Ridge</th>
<th>Class I Edentulous</th>
<th>Class II Edentulous</th>
<th>Class III Edentulous</th>
<th>Class IV Edentulous</th>
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<th>Conditions Creating a Guarded Prognosis</th>
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<th>Class II</th>
<th>Class III</th>
<th>Class IV</th>
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<td>Severe oral manifestations of systemic disease</td>
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<td>Maxillomandibular dyskinesia and/or ataxia</td>
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<td>Refractory patient</td>
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Partial Edentulism
Committed to developing a dental educational curriculum that is diagnosis driven

The only dental school in the third largest city in the US providing service to more than 100,000 patient visits per year

Need for clinical studies that have a common, transparent and systematic diagnosis. Achieved by employing the evidence-based process to assemble, organize and synthesize clinical research in a rigorous and transparent fashion. This body of evidence, coupled with clinical expertise, will lead to the creation of guidelines designed to enhance clinical judgment and decision-making
Concluding Remarks

- The codes being proposed are part of normal diagnostic data collection that occurs for all patients, meeting with the existing standard of care in dentistry.
- The proposed new codes are within the scope and conventions of the existing classification.
- By adopting these codes into the public domain, dental educators, researchers and clinicians will be able to contribute significantly to the body of evidence.