Module 2

Introduction to immediate full arch fixed implant treatment - surgical options
Objectives

- Identify the need and opportunity to treat full arch patients with fixed detachable prostheses
- Understand surgical treatment options based on a restorative-driven team approach
- Provide a plan to execute treatment in an efficient, predictable and profitable manner
- Case review (to be inserted by speaker)
Overview

• Patient considerations & evaluation
• Treatment workflow options
• Case Review
Why hybrids?

- Cost-effective full arch treatment
- Improved function and esthetics over existing situation
- Tilted implants can help to avoid the challenging anatomical structures (e.g. mental foramen, prominent maxillary sinus)
- Tilted posterior implant placement with the angle corrected utilizing the 17° or 30° Screw Retained Abutment
- Maximizing the A-P spread of the implant platforms.
In order to achieve the desired final restoration, several aspects need to be considered.
Patient expectations

- Function
- Esthetics
- Finances
- Streamlined treatment
Clinician’s perception

- Function
- Esthetics
- Streamlined treatment
Global market shifting towards shorter treatment times

- Patients expect less time-consuming and less expensive implant treatments
  - Want to recover faster, and have teeth sooner

- Dental professionals need to react to patient expectations by providing:
  - Immediate implant placement solutions
  - Immediate functional loading solutions
  - One-stage solutions
  - Solutions for individual situations and abilities

- Dental professionals benefit from new treatment options
  - Life-changing procedure for your patients
  - Reduced chair time
  - Potential for increased efficiency and profitability
  - When working in a collaborative team approach, there is increased efficiency, profitability, and improved patient outcomes
Implant-Retained Restorative Options

- Overdenture w/ LOCATORS®
- Immediate Fixed Hybrid
- Bar Supported Overdenture
- Directly Veneered Fixed Prosthesis
How might edentulism affect your practice?

By 2020:

- The adult population in need of 1-2 dentures will approach 37.9 million
- Adults aged 55-74 will increase by 86%
- Seniors aged 75+ will increase by 61%
- Retention rates for natural teeth will continue to increase
- 24% of people aged 55-65 will need 1-2 dentures
- The decrease in edentulous patients will be offset by the growth of people aged 55+

Douglas CW, Shih A, Ostry L.  
*Will there be a need for complete dentures in the United States in 2020?*.  
From Consensus Statements and Clinical Recommendations for Implant Loading Protocols:

- “The existing literature provides high evidence that immediate loading of microtextured dental implants with one-piece fixed interim prostheses in both the edentulous mandible and maxilla is as predictable as early and conventional loading.”
- “The number of implants used to support a fixed prosthesis varied from 2 to 10 implants in the mandible and 4 to 12 implants in the maxilla.”
- “Immediate, early, or conventional loading with one-piece fixed interim prostheses have demonstrated high implant and prosthesis survival rates and can be recommended for the mandible and maxilla.”
- “Patient-centered benefits of immediate loading include the immediate fixed restoration of function, the reduction of postoperative discomfort caused by removable interim prosthesis, as well as the reduction of overall treatment time.”

Typical number of implants needed

- LOCATOR® denture retained by 2-4 implants
- Hybrid prosthesis retained by 4-6 implants
- Bridgework retained by 6-8 implants
Component cost & lab fees

- Surgical practice works with the team to present a per case fee to the patient
  - simplifies treatment acceptance and understanding
Overview

- Patient considerations & evaluation
- **Treatment workflow options**
- Case Review
Treatment Steps

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Planning</th>
<th>Surgery</th>
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<tbody>
<tr>
<td>Interim</td>
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<tr>
<td>Definitive</td>
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Digital workflow

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<tbody>
<tr>
<td>CBCT Scan</td>
<td>Digital Plan</td>
<td>Guided Surgery</td>
<td>Immediate Load</td>
<td>CAD/CAM Bar</td>
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</table>

Images courtesy of Dr Runyon, Dr. Spagnoli and Hurst Dental Lab
## Treatment Steps

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Images courtesy of Dr Runyon, and Hurst Dental Lab
Patient Evaluation

Determining treatment factors:

- Patient expectations
- CBCT
- Rigid vs. resilient attachment
- Current status
- Smile line
- Opposing dentition
- Anatomy of ridge
- Vertical dimension / clearance
- Risk – Cost – Benefit – Value
## Treatment Steps

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[Image of dental procedures related to each step]
Treatment planning considerations

- Team discussions based on study models and CBCT evaluation
- Optimize A-P Spread
- Create optimal restorative clearance
- Angle implants properly
- Minimize buccal lingual footprint against the ridge
- Communication with the treatment team- Surgeon, Restorative Clinician and Lab Technician
Planning Guidelines

- **A-P Spread** – Distance from the center of the most anterior implants to the distal of the most posterior implants. **Minimum of 10 mm.** The goal is to maximize the A-P spread in the planning of the case.

- **Cantilever** – A beam connected only at one end. Length of the bar and prosthesis that extends distally to the most posterior implants. **Maximum of 15mm.** The formula for determining the length of the allowable cantilever is: \(1.5 \times \text{the A-P spread}\).
Optimizing the A-P spread

Images courtesy of Gary Orentlicher, DMD
Vertical clearance

- For the mandibular arch, a minimum of ¹:
  - 10 mm of bone height
  - 10 mm of A-P spread
  - 10 mm restorative clearance for a fixed bridge

- 15 mm restorative clearance is recommended for a hybrid prosthesis

Cooper LF, Limmer BM, Gates WD.
Implant positioning to optimize A-P spread while avoiding the sinus

Images courtesy of Gary Orentlicher, DMD
Restorative clearance

- Minimum distance from crest of ridge to incisal edge of planned prosthesis: 15 mm for a hybrid restoration

*Image courtesy Dr. Alfonso Pineyro and Dickerman Dental Prosthetics*
Buccal-lingual footprint

- Flat to convex design

*Images courtesy of Hurst Dental Lab.*
Determining the number of implants

- Which factors should be considered when planning the number of implants needed in each arch?
- How many implants are needed to promote long term success?
Determining Factors

*Risk Assessment Protocol - Factors identified

**Primary:**
- Opposing Natural Dentition
- Opposing Implant Bridge
- Poor Bone Density
- Bruxism
- Gender (male)
- Distal Posterior Implant Site

**Secondary:**
- Smoking
- Bone Volume

Intaglio surface

Image courtesy of Dr. Robert Levine
Planning - What is Missing?
Restorative driven planning using scanning appliances (Digital)

Images courtesy of Dr. Alfonso Pineyro, DDS & Diickerman Dental Lab
Successful execution of treatment

Image courtesy of Dr. Gary Orentlicher, DMD
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[Images of dental procedures]
Day of Surgery

Video Courtesy of Dr. Dr. med Dennis Rhoner cfc Hirslanden, Aarau and team. Peter Bucher, Dental Technician
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![Images of different stages of treatment steps](image_url)
Immediate Denture vs Immediate Load

- Two options for providing patient with teeth on the day of surgery:
  - Immediate denture
  - Immediate load/conversion of immediate denture
    - Direct
    - Indirect
Immediate Denture

- Pros:
  - Ideal if the patient is used to wearing a denture
  - Requires less chair time (reline v conversion)
  - Mandatory when primary stability cannot be achieved
  - In the definitive process, requires less chair time to remove the interim
  - Less cost to patient

- Cons:
  - The denture is less stable during the healing process
  - Mobility of denture can interfere with implant integration (transmucosal loading can occur)
  - Speech and function can be compromised
  - Possibility the patient may not be able to wear the denture over the surgical site, meaning they could be without teeth for a couple of weeks
Immediate load*

- **Pros:**
  - When teeth are extracted and implants are immediately placed, the patient can walk out with fixed dentition
  - Stimulate bone growth
  - Distribute forces evenly across the arch amongst all implants
  - Ability to work out issues (vertical dimension, CR-CO, etc.) in provisional stage
  - Stability can provide better speech, function and patient satisfaction

- **Cons:**
  - More costly to patient
  - Requires more chair time for conversion and subsequent appointments
  - Fewer teeth on converted denture (no cantilevers)

*when good primary stability is achieved*
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CAD/CAM vs. Cast

- **CAD/CAM:**
  - Stronger
  - Cost effective
  - More accurate
  - Predictable pricing

- **Cast:**
  - Pricing variable due to materials cost fluctuations in market
  - Additional component costs
  - Inaccuracies associated with casting
  - Potential for porosity
Overview

• Patient considerations & evaluation
• Treatment workflow options
• Case Review
Example Case

• Speakers should insert their own cases for case review here
Join us for Module 3!

Questions?