The Cases

1. Primary Failure of Eruption Patient
2. The Class III Malocclusion Patient (Part 1, 2, and 3)
3. The Worn Dentition Patient
4. The Dark Tooth Patient
5. The Gummy Smile Patient
6. The Goofy Look Patient
7. The Unhappy Patient
8. The Appliance Dependent Patient
9. The Traumatic Avulsion Patient (Part 1and 2)
10. Multidisciplinary Dentistry and the Cleft Lip/Palate Patient
11. Multidisciplinary Dentistry and the Aging Face Patient

A Systematic Approach to Diagnosis and Treatment Planning

- Make a Diagnosis
  - Based on existing clinical condition
- Establish the Treatment Goals
  - Based on diagnosis and patient desires
- Develop a Treatment Plan
  - That will accomplish the treatment goals
- Determine the Sequence of Treatment
  - Based on the treatment plan

Diagnosis:
Primary Failure of Eruption

Treatment Goals:
Create some posterior occlusion if possible

Treatment Plan:
Limited orthodontic alignment in the anterior segment
Conservative restoration of canines, premolars, and tooth #30 with composite and porcelain tops

Sequence:
Orthodontics followed by restorative

Diagnosis:
Class III Malocclusion in anterior crossbite with an unattractive smile

Treatment Goals:
Restore worn teeth and failing restorations
Correct class III cross bite without surgery if possible
Increase incisor display
Improve smile aesthetics
Improve overall appearance

Treatment Plan:
Open bite sufficiently to gain space to increase incisor length and correct cross bite without surgery
Porcelain veneers and crowns to restore worn teeth and failing restorations and to improve smile aesthetics and overall appearance

Sequence:
Hygiene
Appointment for diagnostic wax-up criteria
Restorative phase

Reasons for Altering Vertical Dimension

- To improve aesthetics
- To improve occlusal relationships
- To gain space for restorations

Bite Opening to Gain Space

Step 1: determine incisal edge position

"The incisal edge of the maxillary central incisor is the most important determinant in the creation of a smile. The position of the incisal edge acts as the parameter upon which the rest of the treatment is built."

Gurel G. The Science and Art of Porcelain Laminate Veneers. London: Quintessence

Methods for Determining New Vertical

- Trial Appliance
- Facial Proportion
- Freeway space
- Tens
- CEJ to CEJ Measurement

"Choose the vertical dimension that requires the least amount of opening to accomplish the aesthetic and functional goals of the case"

Frank Spear, DDS, MSD

The diagnostic wax-up integrates the aesthetic goals with the functional goals

Aesthetic Goals
- Size
- Shape
- Position
- Color

Functional Goals – Stable Occlusion
- Overbite
- Overjet
- Occlusal planes
- Anterior guidance – posterior disclusion

Diagnostic Wax-up Criteria

- Study Models
- Centric Relation Bite
- Face Bow Transfer
- Incisal Edge Position
- Length of Centrals
- Impression and Pictures of Mock-up
- Series of Photographs
- Written Rx

Diagnosis:
Class III Malocclusion with an unattractive smile
Treatment Goals:
Restore worn teeth and failing restorations
Correct class III cross bite without surgery if possible
Increase incisor display
Improve smile aesthetics
Improve overall appearance
Treatment Plan:
Open bite sufficiently to gain space to increase incisor length and correct cross bite without surgery
Porcelain veneers and crowns to restore worn teeth and failing restorations and to improve smile aesthetics and overall appearance
Sequence:
Hygiene
Appointment for diagnostic wax-up criteria
Restorative phase

Evaluation of Intra-oral Mock-ups and Provisional Restorations

The Three F's

- Facial esthetics
- Function
- Fonetics (phonetics)

Benefits of Provisionals

Template For The Final (Trial Smile)

- Laboratory communication
  - Incisal edge position
  - Length of centrals
  - Color
  - Shape and arrangement
- Patient Feedback/Acceptance
  - (too long, too short, too dark, too light-I like the left side, I like the right side better etc.)
- Allows Dentist to Evaluate:
  - Aesthetics
  - Function
  - Phonetics

Diagnosis:
Class III Malocclusion with an unattractive smile
Treatment Goals:
Restore worn teeth and failing restorations
Correct class III cross bite without surgery if possible
Increase incisor display
Improve smile aesthetics
Improve overall appearance
Treatment Plan:
Open bite sufficiently to gain space to increase incisor length and correct cross bite without surgery
Porcelain veneers and crowns to restore worn teeth and failing restorations and to improve smile aesthetics and overall appearance
New lower partial denture
Sequence:
Hygiene
Appointment for diagnostic wax-up criteria
Restorative phase

Diagnosis:
Incisal wear due to attrition with a protrusive grinding pattern
Treatment Goals:
Restore worn incisors
Increase incisor display
Create overbite and overjet in harmony with envelope of function
Improve overall aesthetics
Treatment Plan:
Composite mock-up to determine incisal edge position and length of centrals
Diagnostic wax-up to open bite sufficiently to accomplish aesthetic and functional goals
Porcelain restorations on all anterior and posterior teeth
Sequence:
Hygiene, Appointment for diagnostic wax-up criteria, Restorative

- Aesthetic Component
  - Incisal Edge Position
  - Tooth Display
  - Gingival Levels

  — established intra-orally with mock-ups, provisionals, etc.
- Functional Component
  - Ant. Guidance
  - Overbite and Overjet
  - Occlusal Planes

  — determined with a diagnostic wax-up on mounted models
- Structural Component (options to gain structure and/or space)
  - Orthodontic Intrusion or Extrusion
  - Periodontal Crown Lengthening
  - Bite Opening
  - Endo with Post and Core
- Biologic Component
  - Periodontal Health
  - Pulpal Health
  - Caries Removal

Characteristics of Attrition

- Wear facets match
- Wear is located in areas of contact
- Wear facets have sharp edges
- Wear of enamel and dentin is even

Characteristics of Horizontal Wear Patterns

- Wear facets cross incisal edges and cusp tips
- Tooth length is reduced
- Overbite is reduced or eliminated
- Compensatory eruption is common

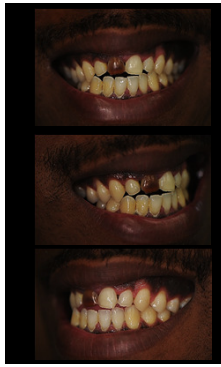
Goals of Treatment for Horizontal Wear Patterns

Design an occlusion and restorations that fit the grinding patterns of the patient

Minimize overbite
Shallow guidance
Group function (bruxers)

Stable Occlusion

- Centric stops on all teeth (when possible)
- No posterior contact in excursive movements
- Anterior guidance in harmony with the envelope of function
- Condyles work from an orthopedically stable position (centric relation)



Diagnosis:
Dark endodontically treated central incisor and maxillary intrinsic acid erosion

Treatment Goals:
Lighten dark tooth
Restore worn incisors
Close open bite
Correct reverse smile arc
Improve overall aesthetics

Treatment Plan:
360 degree veneers on teeth #s 5-12 to mask dark tooth, restore acid wear, correct reverse smile, and improve aesthetics

Sequence:
Restorative

Characteristics of Erosion

- Wear in locations of no occlusal contact
- Wear facets are dull with dentin cupped and rounded
- Acid will erode tooth structure but not restorations

Clinical Signs of Intrinsic Erosion

GERD (gastroesophogeal reflux disease)

Erosion on lingual surface of maxillary teeth

Erosion may be present on occlusal of mand. molars

Asymmetric wear due to head position during sleep

Bulimia

Erosion on lingual surface of max. anterior teeth

Little erosion of mand. teeth

Little or no wear on posterior teeth unless condition exists for extended periods of time

Frank Spear DDS, MSD

Advantages of Lithium Disilicate as a Monolithic Material

- Strength (360-400 Mpa)
- Can be pressed or milled
- Versatility - can be used for veneers ,thin veneers, crowns, anterior bridges, inlays, onlays, and implant abutments and restorations
- Ease of fabrication
- Can be bonded or cemented when thickness is adequate
- Most aesthetic of the higher strength materials especially when cut back and layered

Universal Adhesives

- Combine etching, priming, and bonding in one bottle
- Can be used with total-etch, self-etch, or selective-etch techniques
- Can be used for direct and indirect restorations
- They have a low film thickness
- They are compatible with light-cure, dual-cure, and self-cure composites and resin cements (SBU, PBE, and CUB require a DCA)

Cement or Bond

Cement

- Efficient
- Easy clean up
- Regenerative ability

Bond

- Retention
- Strengthen material
- Aesthetics

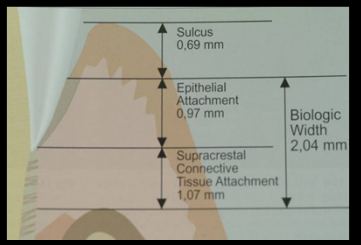
Diagnosis:
Altered Passive Eruption

Treatment Goals:
Decrease gingival display
Increase incisor length
Maintain incisal edge position
Whiter, brighter smile

Treatment Plan:
Crown lengthening to decrease gumminess and increase tooth length while maintaining the existing incisal edge position
Porcelain veneers on teeth #'s 4-13

Sequence:
Periodontist, Restorative

Biologic Width



Gargiulo AW, Wentz FM, Orban B. Dimentions and relations of the dentogingival junction in humans. J Periodontol 1961;32:261-267

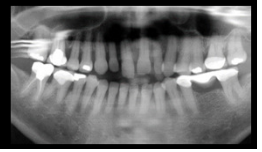
Cohen DW. Periodontal preparation of the mouth for restorative dentistry. Presented at the Walter Reed Army Medical Center, Washington, DC, 1962.

Diagnosis:
Unattractive smile due to tooth size and shape, flaring, spaces, and periodontal involvement

Treatment Goals:
Close spaces, decrease overjet, decrease negative space, and improve aesthetics

Treatment Plan:
RP&C
Porcelain veneers to close spaces, decrease overjet, decrease negative space, and improve aesthetics
Splint #'s 8 & 9

Sequence:
Perio, restorative



Benefits of a Mock-Up

- Can help determine incisal edge position
- Can help to establish proper arch form
- Can serve as a guide for gingival height symmetry, tooth proportion, and facial contours
- Will aid in evaluating aesthetics, function, and phonetics
- Can be used as a template for provisionals in the absence of a wax-up
- Can be beneficial for laboratory communication and patient feedback

Diagnosis:
Non consonant smile arc

Treatment Goals:
Increase incisor length of teeth #'s 7-10 to improve the smile arc
Match the shade of existing restorations
Utilize a conservative restorative approach

Treatment Plan:
Conservatively veneer existing porcelain crowns 7-10 to improve the smile arc by increasing incisal length and to match shade of existing crowns

Sequence:
Intraoral composite mock-up to visualize end result and determine appropriate length
Restorative

Diagnosis:
Anterior open bite due to long time appliance wear and multiple failing restorations due to recurrent decay

Treatment Goals:
Close anterior open bite non-surgically if possible
Eliminate dependence on appliance if possible
Restore failing restorations aesthetically and functionally if possible

Treatment Plan:
Full mouth restorations at the vertical dimension established by the appliance

Sequence:
Perio
Intraoral composite mock-up to determine incisal edge position
Functional diagnostic wax-up
Restorative

Diagnosis:
Traumatic avulsion of three permanent incisors

Treatment Goals:
Long term aesthetic treatment plan for optimal outcome involving oral surgery, orthodontics, and restorative

Treatment Plan:
Autotransplantation of mandibular 2nd premolars to central incisors with composite bonding to reshape
Orthodontics to properly align
Orthodontic canine substitution for lateral incisor #7 with composite reshaping
Future restoration with porcelain veneers

Sequence:
Oral surgeon, ortho, restorative

Diagnosis:
Traumatic avulsion of central incisors

Treatment Goals:
Place a non-removable long term temporary prosthesis

Treatment Plan:
Bond ribbond strips with composite centrals to the lateral incisors

Sequence:
Restorative

Diagnosis:

Tooth size, shape, position, and color discrepancies on the maxillary left side

Treatment Goals:

Restore and reshape the central incisor #9 to match # 8, the canine #11 to simulate a lateral incisor, the 1st premolar #12 to simulate a canine, and the molars #'s 14 and 15 to simulate premolars

Increase incisor length

Whiter, brighter smile

Treatment Plan:

Porcelain veneers to accomplish treatment goals

Sequence:

Ortho, orthognathic surgery, plastic surgery, restorative

Diagnosis:

Unattractive Smile with old and failing restorations

Treatment Goals:

Increase incisor display

Decrease negative space

Improve aesthetics and function

Create a more youthful smile

Treatment Plan:

Porcelain veneers and crowns to increase incisor display, decrease negative space, and to retreat old and failing restorations to improve aesthetics and function

Sequence:

Ortho, orthognathic surgery, restorative, and plastic surgery