Full-mouth Rehabilitation of an Edentulous Patient Based on Soft Tissue Facial Analysis

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Since 2001

Introduction

Edentulous patient presents a significant challenge in prosthetic dentistry, not only due to the loss of dentition but also due to the resultant facial collapse and altered soft tissue profile.
In restoring function and esthetics, soft tissue facial analysis provides a valuable framework for evaluating vertical dimension, facial proportions, lip support, and overall harmony. These assessments allow clinicians to tailor prosthetic designs that address not only intraoral stability but also extraoral esthetic balance. This case report presents a full-mouth rehabilitation of a completely edentulous patient, guided by soft tissue diagnosis. Vertical dimension was restored, lip support re-established, and facial harmony improved — demonstrating how soft tissue-based diagnosis can optimize outcomes in edentulous prosthetic cases.

Purpose / Objective

The purpose of this case is to demonstrate how soft tissue-based diagnostic parameters can guide the comprehensive rehabilitation of a fully edentulous patient.
Key objectives include:
•Re-establishing appropriate vertical dimension of occlusion (VDO) using soft tissue analysis
•Improving facial esthetics through restoration of perioral support
•Achieving stable centric relation and functional occlusion
•Utilizing cephalometric analysis for precise treatment planning

Case

Patient Information & Patient-Specific Pathology

- Age: 55yr8m, Male
- Date of First Visit: **20240129**
- Primary Concern:
  Discomfort with existing 10 year old dentures, decreased chewing ability, and a desire for improved aesthetics (appearance related to aging)
- Medical History: mild hypertension
  No allergies, medication for high BP

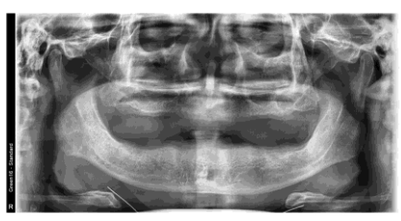
Age-related alterations,

edentulous state

Increased aesthetic expectations

Necessitates a new prosthetic solution for social engagement

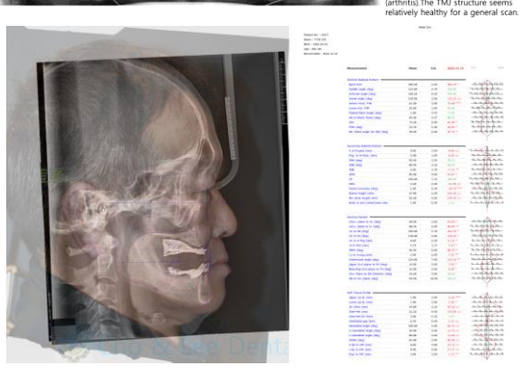
Initial Orthopantomogram

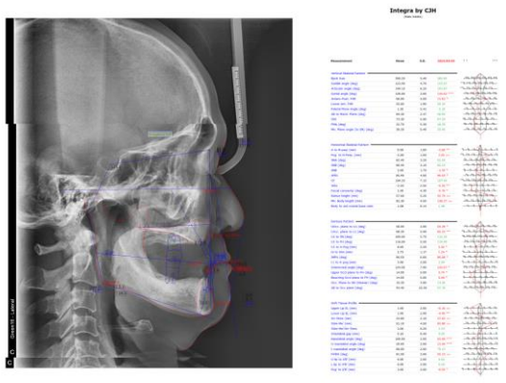


Symmetry: The overall jaw structure looks fairly symmetrical.Bone Structure: Good bone density overall; the cortical bone lining appears intact.
Mandible: No obvious fractures or large lesions are visible.Maxillary sinuses: The floor of the maxillary sinuses seems intact (no clear signs of infection or cystic changes).
Temporomandibular Joints (TMJs):Condyles (head of mandible) appear fairly rounded bilaterally.Joint spaces:The joint spaces look relatively symmetrical.No obvious dislocations or severe narrowing.Bony Changes:I don't notice obvious flattening, osteophytes (bone spurs), or erosion of the condylar heads, which could suggest severe degenerative joint disease (arthritis).The TMJ structure seems relatively healthy for a general scan.

Initial

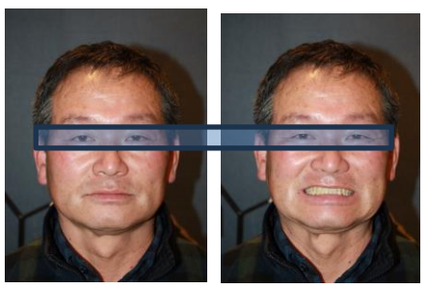
Ceph. Analysis
Skeletal Class III features seen with current dentures.
Analysis of facial ratios shows a decrease in lower facial ratio (due to decrease in denture VD).

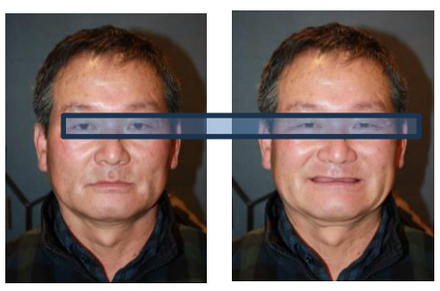




VD determination with Preliminary wax dentures
Patient was diagnosed with a Set of wax dentures with estimated VD. A ceph. was taken and analysed

Initial Facial Photos





Right 45° dentured

Right 90°

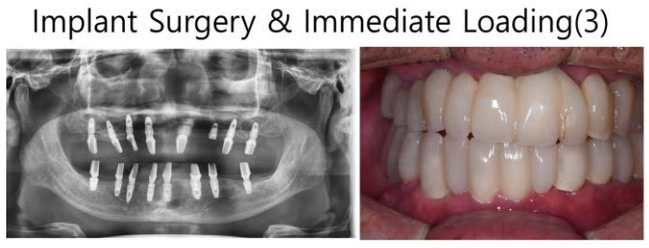
Left 45° dentured

Left 90°

Facial Photo after surgery

Implant Surgery & Immediate Loading(4)

Implant Surgery & Immediate Loading(3)

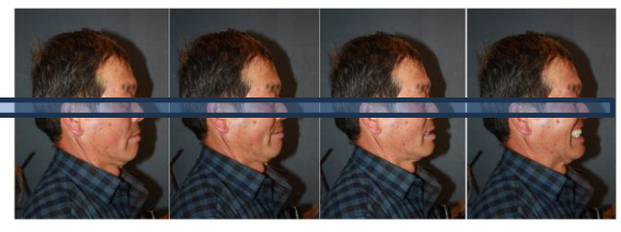


Right 45° Right 90° Left 45° Left 90°

2nd. Provisional Bridge

Facial Evaluation 2nd Provisional Bridge(1)

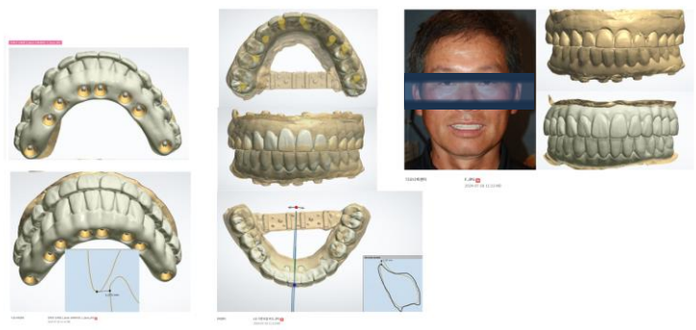
Facial Evaluation 2nd Provisional Bridge(3)



Facial Evaluation 2nd Provisional Bridge(2)

Facial Evaluation 2nd Provisional Bridge(4)

Planning for final Zr. Bridges

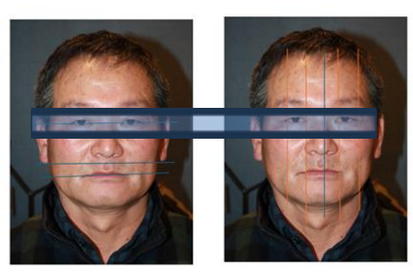


Final Zr. Bridges

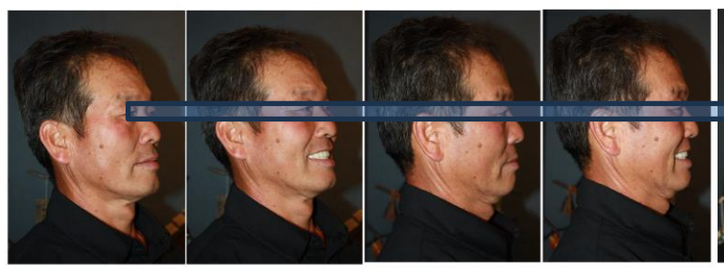
Facial Evaluation Final Zr. Bridge(1)

Soft Tissue Profile
Sn–Stms: 25.00 mm → Slight increase in upper lip height
Stmi–Me': 102.04 mm → Reduction from pre-treatment (was 124.50 mm), showing effective VD correctionNasolabial angle: 102.40° : Returned to esthetic norm
Upper / Lower Lip to E-Line: -1.98 mm / -4.18 mm → Closer to ideal lip projection
Labiomental angle: 82.60° → Improved soft tissue balance in the lower face

Before Treatment



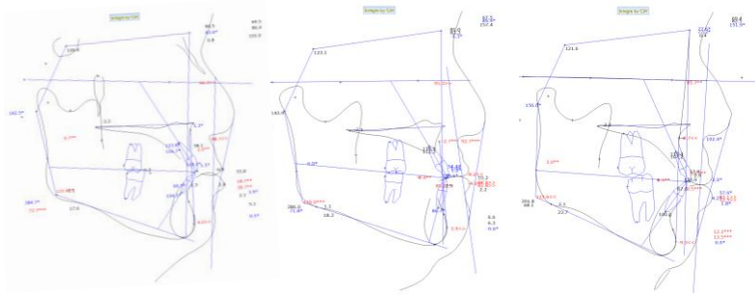
Facial Evaluation Final Zr. Bridge(2)



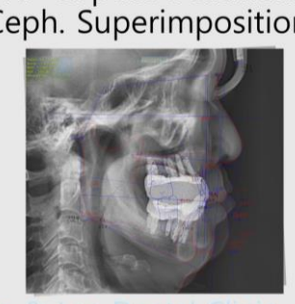
Facial Evaluation Final Zr. Bridge(3)

Initial to final Cephalogram

Initial to final ceph. tracing



Pre- & post-treatment Ceph. Superimposition



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Conclusions

After Before

•Facial proportions normalized:
  - Pre-treatment: Disproportionate lower facial height (Sn–Stms : Stmi–Me' ≈ 1:1.8)
  - Post-treatment: Approached ideal ratio (≈ 1:1.4)
•Perioral soft tissue support restored
•Lip contour and volume significantly improved
•Facial profile transitioned from collapsed to balanced (concave → orthognathic)
•Vertical dimension of occlusion (VDO) increased and stabilized

A soft tissue–centered approach to full-arch rehabilitation is not only feasible but essential for achieving functional, esthetic success in edentulous cases. This method provides a reproducible framework for planning and delivering high-quality prosthetic outcomes. This case highlights the critical role of soft tissue analysis in full-mouth rehabilitation for edentulous patients.