Customizing Implant Rehabilitation for a Rare Heterodont

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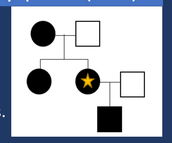
References

Patient Presentation

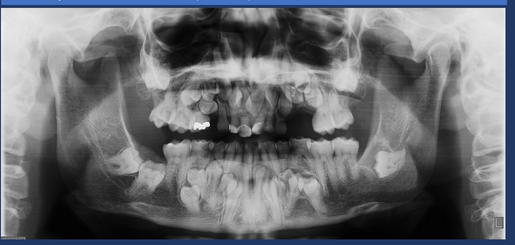
50 yo F Patient with Cleidocranial Dysplasia (CCD)

A 50-year-old female with CCD was referred by MMC OMFS for prosthetic rehabilitation. Since 2006, her impacted dentition was surgically extracted, and edentulous areas were augmented with exogenous bone grafts. In 2022, she presented with RPD/RPD and wanted to explore fixed treatment options. Clinical exam and CBCT analysis indicated that she was a candidate for implant therapy.



AD inheritance of RUNX2 pathogenic[1] variant (1:1,000,000)

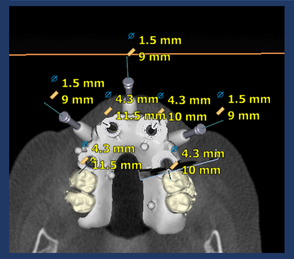
Pre-operative Pano (2006)



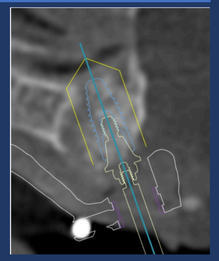
Clinical Presentation (2022)

DTX Studio Surgical Guide Design

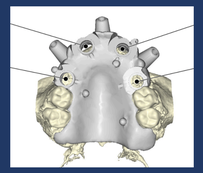
Maxilla



Bone supported surgical guide using a dual-CBCT scan protocol

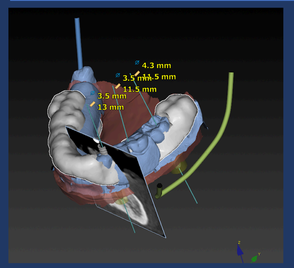


Multi-unit Abutment (MUA) selection

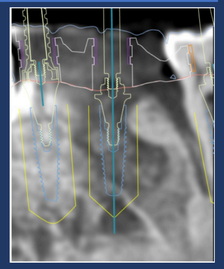


#4 – straight RP MUA
#7 – straight RP MUA
#10 – straight RP MUA
#13 – 17 deg RP MUA

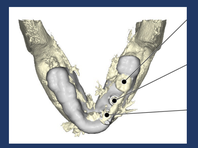
Mandible



Tooth borne surgical guide using an IOS and CBCT protocol



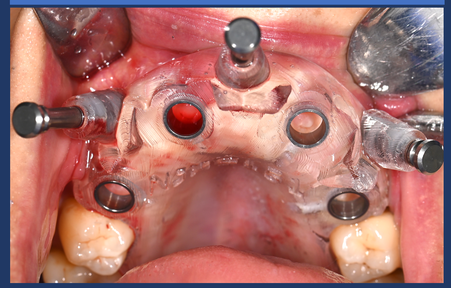
Multi-unit Abutment (MUA) selection



#19 – straight RP MUA
#20 – straight NP MUA
#22 – straight NP MUA

Guided Implant Surgery

Maxillary Bone Supported Guide



Maxillary implant surgery involved raising a FTF after initial osteotomies

Mandibular Tooth Supported Guide

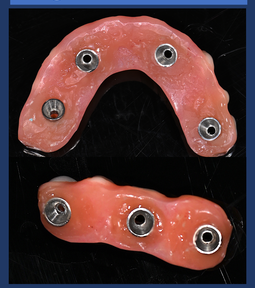
Mandibular implant surgery included exo of retained #K with furcation involvement

Immediately Loaded Provisionals

Cameo

Converted new RPDs with the SMART Denture Conversion

Intaglio



Flat, polished intaglio surfaces to promote hygiene care

Custom milled artificial teeth to emulate deciduous dentition

Abutment Supported Provisionals

Treatment Discussion

Prosthetic Considerations

MUAs were selected in DTX Studio and verified during surgery with clear PMMA prosthetic templates. Due to the patient's limited opening, the immediately loaded provisionals were not stackable with the guides. Instead, new RPDs fabricated with custom milled artificial teeth (to emulate her rare form of heterodontism) were converted to fixed provisionals. Prosthetically driven surgical planning utilizing the new, customized RPDs ensured that all prosthetic screw accesses were in favorable positions.

Post-operative Pano (2023)

Provisional Delivery (2023)

Therapeutic Goals Achieved:

1. Replaced RPDs with fixed prostheses
2. Increased the inciso-gingival length of her teeth
3. Maintained her occlusion
4. Restored the buccal corridors
5. Enhanced masticatory function and esthetics