



•
•

COMPLICATIONS ASSOCIATED WITH IMMEDIATE IMPLANT PLACEMENT

DR MOHAMMAD ZEYNODDINI

○
○



IMMEDIATE IMPLANT STUDIES

- IMMEDIATE PLACEMENT IMPLANTS WERE FIRST REPORTED BY LAZZARA IN 1989 IN HIS STUDIES, HE DOCUMENTED THE PLACEMENT OF IMPLANTS AT THE TIME OF EXTRACTION WITH THE USE OF BARRIER MEMBRANES.
- BECKER ET AL. IN 1999 REPORTED A 93.3% SURVIVAL RATE FOR IMPLANTS PLACED AT THE TIME OF EXTRACTION AND GRAFTED WITH BARRIER MEMBRANES AFTER 1 AND 5 YEARS AFTER LOADING.
- ARROCHA-DIAGO ET AL.¹³ EVALUATED IMMEDIATE VERSUS NONIMMEDIATE PLACEMENT OF IMPLANTS FOR FULL-ARCH FIXED RESTORATIONS. THEY DETERMINED THAT THE IMMEDIATE GROUP HAD A HIGHER SUCCESS RATE (97.7%) VERSUS THE NONIMMEDIATE GROUP (96.3%).

- Immediate = at time of extraction
- Early = 4–6 weeks after extraction
- Delayed = 3–4 months after extraction
- Late = >4 months after tooth extraction

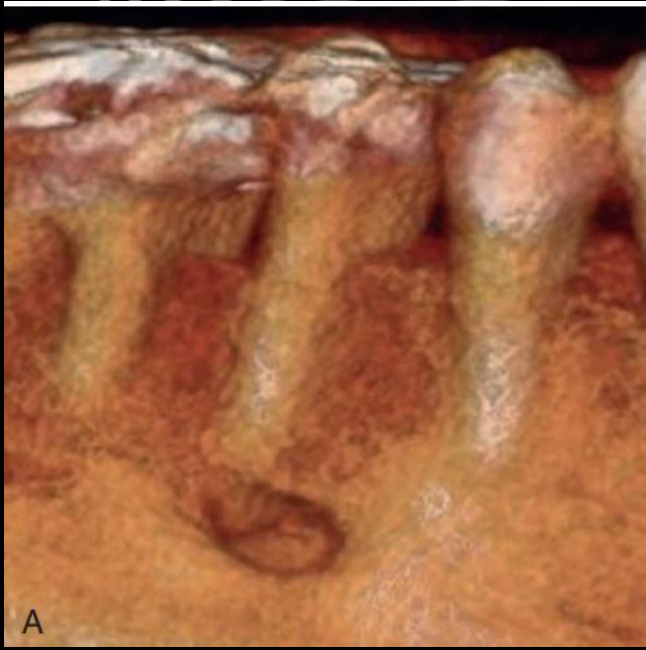
ADVANTAGES OF IMMEDIATE IMPLANT PLACEMENT

- Decreased Treatment Time and Cost
- Decreased Need for Bone Augmentation
- Preservation of the Soft Tissue Drape
- Improved Implant Positioning



DISADVANTAGES OF IMMEDIATE PLACEMENT

- Site Morphology
- Surgical Technique Is More Complicated
- Lack of Primary Closure
- Presence of Acute/Chronic Pathology
- Anatomic Limitations





TREATMENT PLANNING CONSIDERATIONS

1- AVAILABLE BONE

BONE HEIGHT

BONE WIDTH

BONE LENGTH

BONE ANGULATION

2-Esthetic Risk

3-Type of Prosthesis

4-Bone Density

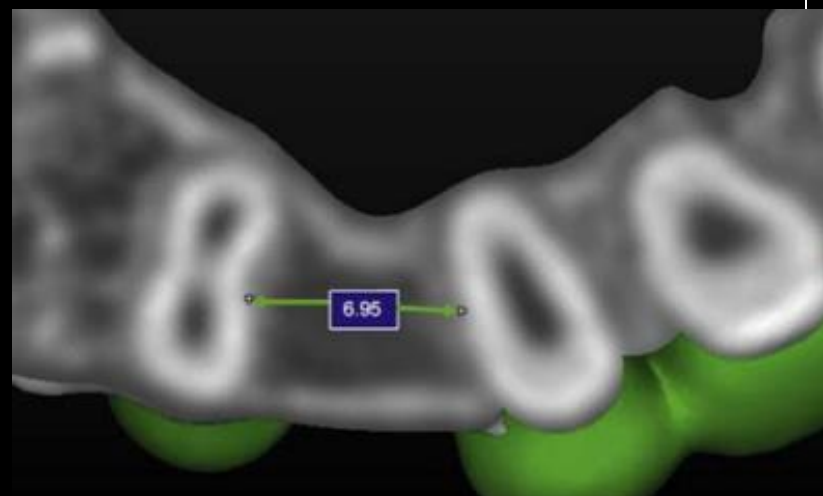
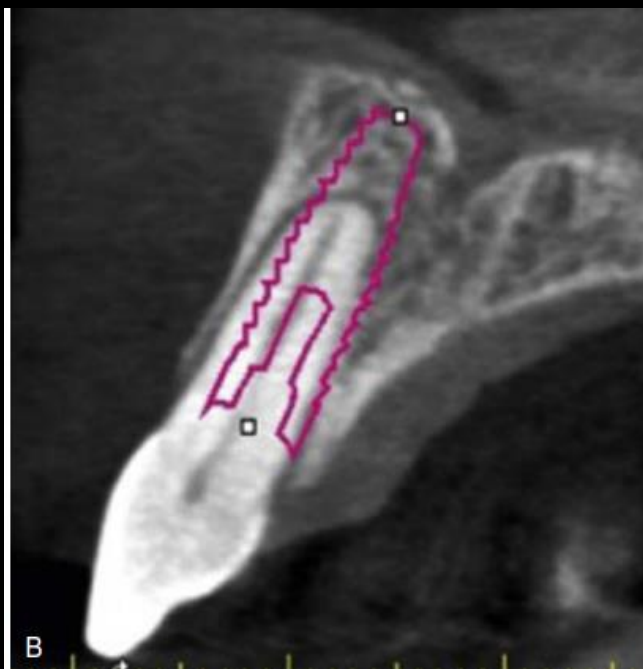
5-Existing Crown Form

6-Anatomic Location

7-Tissue Thickness

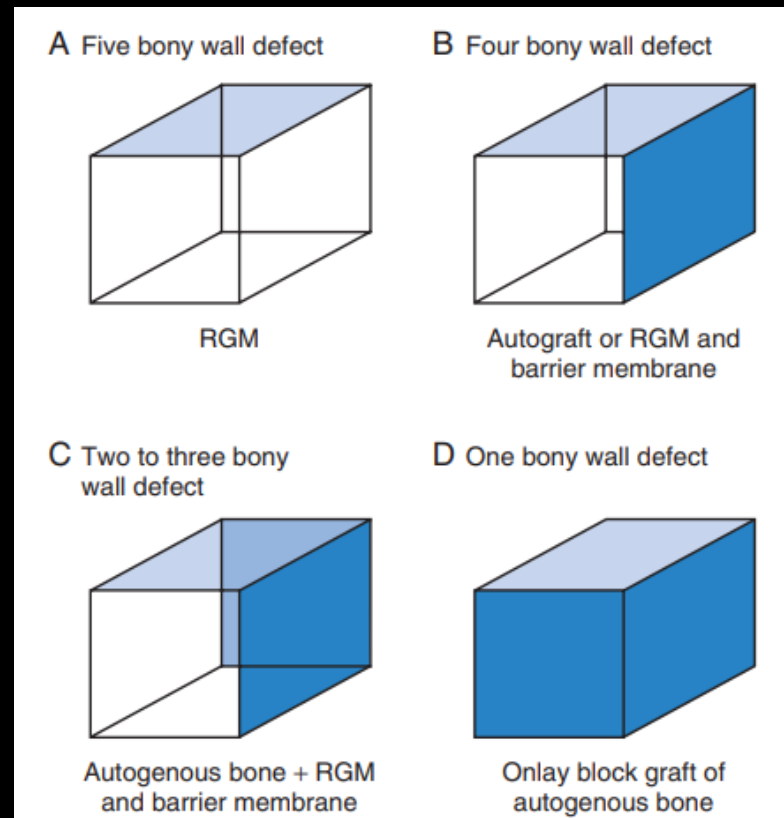
8-Buccal Bone Thickness

9-Implant Position



TREATMENT OPTIONS

- Thick five bony wall defect
- four- to five-wall bony socket.
- Two to Three Bony Wall Defects.
- One Bony Wall Defects



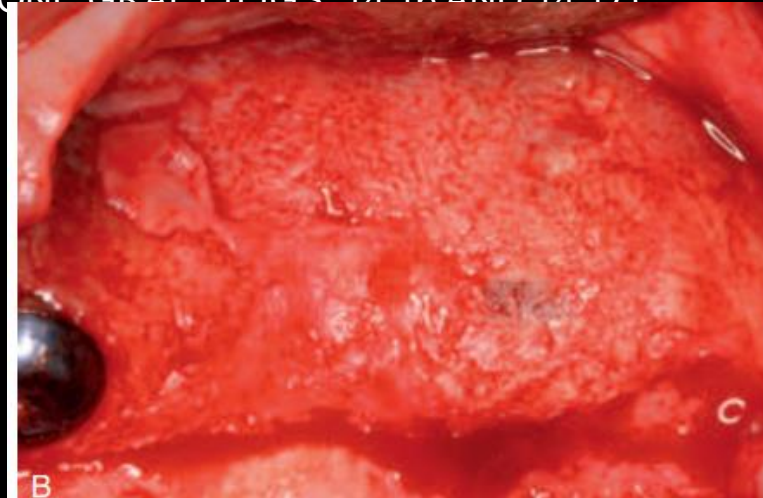


IMPLANT INSERTION AND GUIDED BONE REGENERATION

- THE PROCEDURE IS LESS AT RISK WHEN THE GBR IS FOR WIDTH ONLY, NOT FOR BOTH WIDTH AND HEIGHT.
- TENT SCREWS, AUTOGRAFT, THE SECOND LAYER OF DEMINERALIZED FREEZE DRIED BONE (DFDB) (30%), FREEZE DRIED BONE (FDB) (70%), PLATELET RICH PLASMA (PRP), AND THE TOP OF THE GRAFT ARE COVERED WITH A BARRIER MEMBRANE WITH PRIMARY CLOSURE OF THE SOFT TISSUE
- ENSURE THAT THE IMPLANT IS POSITIONED FOR THE PROSTHESIS WITHOUT COMPROMISE
- **THE IMPLANTS ARE USEFUL FOR THE PROSTHESIS, NOT THE BONE GRAFT**

IMPLANT INSERTION AND GUIDED BONE REGENERATION

- THE GBR PROCEDURE MAY BE USED WHEN AN IMPLANT IS IMMEDIATELY PLACED AFTER A TOOTH EXTRACTION WHEN CONDITIONS PERMIT THE IMPLANT TO BE POSITIONED WITHOUT COMPROMISE TO THE PROSTHESIS.
- THE OSTEOTOMY FOR THE IMPLANT IS MADE TO THE OPPOSING LANDMARK. THE AUTOGRAFT IS POSITIONED OVER THE IMPLANT AND COMPLETELY FILLS THE EXTRACTION DEFECT.
- THE SECOND LAYER OF GRAFT MATERIAL IS PLACED OVER THE FACIAL THIN OR MISSING BONE. THE BARRIER MEMBRANE IS PLACED OVER THE MISSING (OR THIN) BONY WALL, USUALLY THE FACIAL. WHEN A FACIAL PLATE OF THE BONE IS MISSING, PRIMARY CLOSURE OF THE SOFT TISSUE IS PREFERRED (FIG. 14.15). INABILITY TO MAINTAIN PRIMARY CLOSURE WILL DIRECTLY INFLUENCE THE SUCCESS OF THE BONE GRAFT (FIGS. 14.16 AND 14.17).

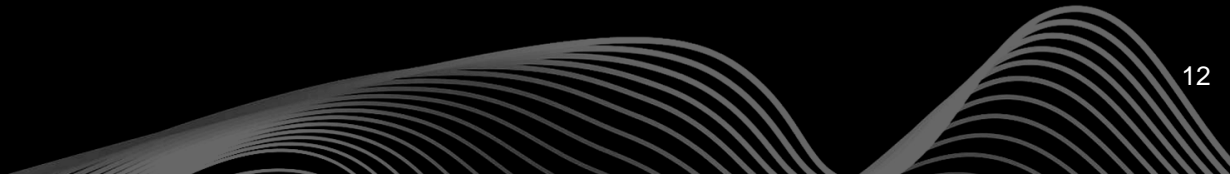
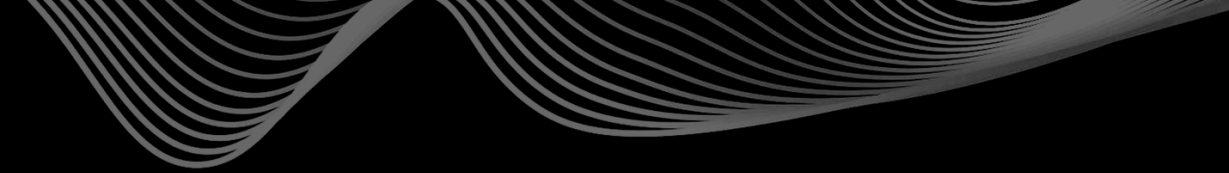


INABILITY TO ACHIEVE PRIMARY STABILITY

- during implant healing a micromotion between 50 and 150 μm may negatively influence osseointegration and bone remodeling by forming fibrous tissues at the bone-to-implant interface thereby inducing bone resorption Consider comparing the beginning of the era to the end of the era
- Primary implant stability may be difficult to achieve in extraction sites where the trabecular bone density is less than ideal. Even for healed sites

Prevention

- Complete Osteotomy Preparation in Appropriate Location and Sequence
- Underprepare Osteotomy Width and Over Prepare Osteotomy Length.
- Clinically Confirm Primary Stability
- implant design and initial stability.

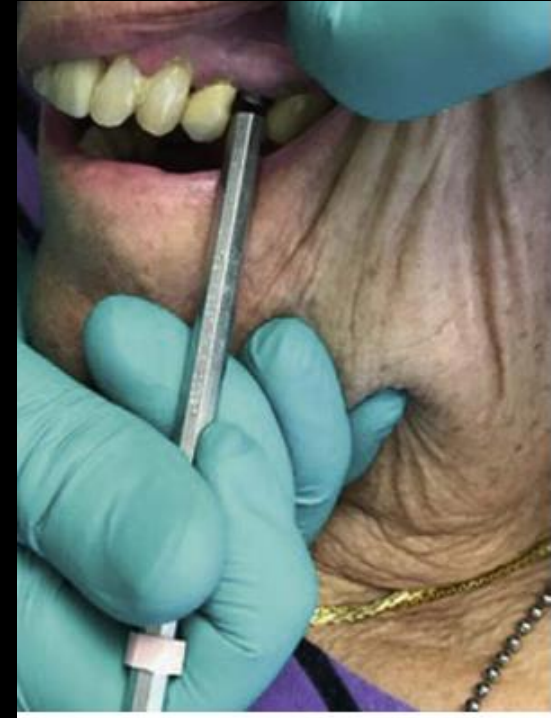


CLINICALLY CONFIRM PRIMARY STABILITY

- Accurate assessment of primary stability is crucial in the immediate placement protocol
- percussion testing, insertion torque (IT), percussion testing, reverse torque testing, resonance frequency analysis (RFA), and surgical experience

STABILITY

- **PERCUSSION** IS THE FIRST TEST METHOD IN THE LITERATURE TO BE USED TO ASSESS PRIMARY STABILITY AND ESTIMATE THE AMOUNT OF BONEIMPLANT CONTACT.
- THIS TECHNIQUE IS BASED ON VIBRATIONAL-ACOUSTIC SCIENCE,
- “HIGH PITCHED” SOUND SIGNIFIES INTEGRATION AND A “LOW-PITCHED” SOUND MAY BE INDICATIVE OF LACK OF INTEGRATION.



STABILITY

- **PERIOTEST** IS A TESTING METHOD THAT HAS BEEN PROPOSED TO BE A MORE OBJECTIVE METHOD FOR ASSESSMENT OF IMPLANT STABILITY.
- ALTHOUGH MUCH BETTER THAN THE PERCUSSION TEST, THE PERIOTES HAS BEEN SHOWN TO HAVE INACCURACIES IN THE LACK OF RESOLUTION, POOR SENSITIVITY, AND SUBJECT TO OPERATOR VARIABILITY





STABILITY

- A MORE RECENT METHOD IS THE USE OF **INSERTION TORQUE** THAT CAN BE MEASURED WITH LOW-SPEED INSERTION TOOLS (I.E., SURGICAL HANDPIECE) OR MANUAL WRENCH RATCHET.
- IT HAS BEEN SHOWN THAT FOR A SUCCESSFUL IMMEDIATE LOADING PROTOCOL, THE INSERTION TORQUE SHOULD BE BETWEEN 35 AND 45 N/CM

STABILITY

- **RESONANCE FREQUENCY ANALYSIS**
- THIS TEST CAN BE USED IN A CONTINUOUS AND OBJECTIVE MANNER DURING THE HEALING PHASES OF THE IMPLANT. RFA WAS INITIALLY PRESENTED **BY MEREDITH** ET AL.⁶² IN 1996.
- RFA HAS BEEN SHOWN TO HAVE QUANTITATIVE AND REPRODUCIBLE MEASUREMENTS ON THE PRESENCE OF INTEGRATION, IMMEDIATE LOAD FEASIBILITY, AND FOLLOW-UP EVALUATION AT THE PREDICTION OF AN IMPLANT FAILURE
- THE HEALTH OF THE IMPLANT IS MEASURED ON AN IMPLANT STABILITY QUOTIENT (ISQ) THAT IS CALCULATED ON A SCALE FROM 1 TO 100. THE FULL INTEGRATION OF AN IMPLANT IS USUALLY MEASURED IN THE RANGE FROM 45 TO 85 ISQ. MEASUREMENTS OF LESS THAN 45 ARE INDICATIVE OF IMPLANT FAILURE, WHEREAS AN ISQ VALUE OF 60 TO 70 INDICATES SUCCESS.
 -
 -



POSTOPERATIVE COMPLICATIONS

•

•

TRANSITIONAL PROSTHESIS IMPINGEMENT :a fixed transitional prosthesis is more predictable for the process

NEUROSENSORY IMPAIRMENT

INCISION LINE OPENING

○
○

THANK YOU FOR YOUR ATTENTION

:

