Simple Efficient Effective

Dr. Sacheev Nanda

Notes

Problem – Missing teeth
Patients Preference – Fixed Prosthesis, shorter treatment duration
Patient wants to avoid – Repeated Painful procedures, multiple appointments
Dentists Preference – Simple , Reliable , Effective solution

Push for Immediate Loading

Dental Implants have revolutionalised Fixed Prosthdontic options for edentulous cases, Immediate Loading has revolutionalised dental Implantology Immediate Loading concept been around since the very beginning of dental Implantology. The First Implants were single piece and Immediately Loaded 2 piece implants became the driving force since prof Brenemark published his 10 year study on titanium screws which were left in the bone for a period of 3 months exhibited Osseointigration. Major Breakthrough was use of Titanium as the material of choice for dental Implants. Titanium has a unique oxide layer that renders it absolutely inert in the bone, this allows bone to over it. The concept of leaving the implant submerged for a period of about 3 months - which basically prevented any external forces from disturbing this integration on bone on implant surface like a fracture healing – no micro movement.

Turning point, which caused re emergence of immediate loading Better understanding of characteristics of Surface treatments to titanium Understanding of Implant macro design – implant body / screw thread design and its implications, Learning from Orthopaedic surgery and bone physiology pioneers like Linkow, Garbaccio, Tramonte

Immediate loading a reality:

Aggressive thread design of dental implants, allow them to be inserted into bone with minimal drilling

The Implant pushes into the bone, compacting it along its sides as it screws into the bone.

This increases greatly the quality of BIC, provides a high stability at insertion

High stability at insertion allows us to load the implant with a tooth and allow forces to be exerted onto it , as these forces do not create micro movement at the bone implant interface, hence the bone remodelling takes place at the bone implant interface just as it would in a delayed implant

The Catch....

Preventing Micro Movement at BIC in an immediately loaded implant is the key to osseointigration of this immediate loaded implant – which then will result in long term successful results Force Distribution / Prevention of Micro Movement at BIC key to Immediate Loading. Immediate Loading is a Science It has rules – Follow the rules the result will be constant

Lederman in 1970 reported a 91.2% survival rate for 476 implants in 138 patients
Schroeder et al 1983 – 98.1%
Babbush et al 1986 – 96.1%

Single Piece Implants Do all our patients want the same amount of treatment? Do they want to undergo long tedious procedures or will accept a practical treatment? Does your Implant system have too many parts and require many steps to complete the treatment?

Difficulties / Complexities of 2 Piece Systems:
The Connections are the weakest Link

Cement VS Screw retained Prosthesis:
Screw Retained – RetrievableHelps correct any problems that may occur in future with implants or prosthesis
Requires special impression techniquesMultiple Try in'sSpecial lab equipments and skill.

More Steps-More Chances of errors-Need to Retrieve

Cement Retained:
Easy Impressions
Simple Lab Steps

Less Steps – Less Mistakes – Need to Retrieve??
Concern factors
Retrievable Prosthesis
Use of Semi Permanent Cement
Hygienic pontic design / modified ridge lap
Friction fit / Telescopic connectors

Residual Cement in gingival sulcus or implant
Single Piece Implants - The way to Simplicity & Efficiency

- No Connections
- No Screw Loosening / Breakage
- No Crestal Bone Loss
- Faster and a much better patient experience -- Platform Switch to respect Biological Width

Compression Screw Design
Minimal osteotomy – Self taping
Compresses the bone
- Improving bone quality
- Increasing BIC

Narrow polished neck provides platform
Switch
More safety through compression!

Dental Implant Treatment Planning

Prosthetic driven and not Surgically focusedSurgery is just a prosthetic tool
The power of a treatment lies in diagnosis and treatment planning

Surgical planning based on prosthetic design Where and how many Implants should be put to get the prosthesis to work for the patient Number and positioning of implants Prosthesis Nature of dentition of apposing arch & Musculature Bone quantity and quality Immediate or delayed loading
Bone Bone more prone to remodel in Max as increased blood supply Mandible has denser bone which is more resistant to occlusal forces
Conventional Implants – Individual / Splinted Require both quantity and quality for Aesthetics and Function
Designed for Alveolar Bone

Compression Implants
0.5 mm of bone must be present on buccal and lingual at the Crest. eg. in 4mm width, a 3 mm diameter Implant inserted slightly subcrestally.
3 mm distance between 2 implants
Insertion torque between 45 – 75 Ncm

Basal Implants –Splinted
Require Quality (Basal bone) and rigid splinting for function
Aesthetics can be achieved by prosthesis or sculpting of natural tissue

Immediate loading – Compromised bone
Full Arch Maxilla - Fixed

10 implants for a 7 – 7 prosthesis
6/8 Implants for a 6 – 6 prosthesis
Full Arch Mandible - Fixed
8 Implants for a 7 – 7 prosthesis
6 Implants for a 6 – 6 prosthesis

Segments
Lower incisors, Upper Lateral (C3012 – C3514)
Lower Pre Molar (C3512 – C4512)
Molar (2X C3012 – 2 X C3512 ; C4512 – C5512)

Lower Molars – 3 Implants for 2 Molars , minimum C3512 @ >45Ncm
Upper Molars – 3 /4 Implants depending on height and width available

If the available bone lacks in quality or quantity, & apposing arch is stronger – increase number of implants

What has our experience taught us - Case Selection & Implant selection Most Important factor for Success

Sure P®

The Single unit implant retention and restoration protocol. The Single unit implant retention and restoration protocol is a philosophy that address the unique ability and characteristics of the single piece implant and gives a protocol for the successful retention (surgical protocol) and restoration (prosthetic protocol) of single piece basal and compression implants.

Retention Protocol

Philosophy - Primary stability and prosthetic convenience.
Key Points - Surgical
Implants must be anchored in good Quality Bone Drilling instruments should be sharp to prevent trauma and thermal injury Implants must have an aggressive thread design / self tapping Increased number of implants decrease chances of overload in immediate loading....

Prevention of micro movement

Surgical - Immediate

- High Primary Stability (50 -70 Ncm)
- Bi Cortical Anchorage (crestal & apical cortical, lingual cortical can also be engaged by slight lingual / palatal placement)

Splinting - During healing phase

- Metal reinforced restoration
- Acrylic

Restoration Protocol

Philosophy : Rigid Splinting and harmonious occlusion.
Key points - Prosthetic

All occlusal anomalies – over extruded, severely tipped or rotated teeth should be removed or modified to create proper occlusion Full arch immediate loading cases should utilise a one piece fixed prosthesis In posterior teeth the overlap of the buccal cusps of maxillary molars should be flattened Narrow occlusal table with 0 -15 degree inclined planes Group Function occlusion with a short anterior guidance

Post Surgical Prosthodontics

Making Impressions, Jaw relation Records & Occlusal Adjustments Making an Impression Compare pre surgical plan and outcome
Alter restorative plan if required
Take necessary records to fabricate prosthesis
Impression Techniques

Option 1
Check abutment position Angulation 0- 15 deg. Can be corrected by bending (Progressive insertion torque >50 Ncm)
Height to be reduced by cutting on guide rings
Impression taken with TRA & ANA height cut till corresponding guide ring and model poured

Option 2
Check abutment position (2)
Angulation >25 deg. and or torque <40 Ncm , weak fragile bone
Prep the abutments with a cross cut carbide – ss white / coltene
Place TRA , inject light body through the access on the top
Take putty pick up

Option 3
Angulation of each implant very divergent and torque <40 Ncm
Prep Abutments
Take regular crown and bridge impression (examine ext socket thoroughly for residue)
Lab to put 2 layers of spacer

Correcting non-parallel implants

Telescopic Lab copings
Abutment Preparation Guides
Pre Milled Angulation adapters
Angulation correction done by lab fabricated copings
Individual copings cemented on abutments to correct Angulation
Pre Milled Angulation adapters

Face bow

Should take especially when existing occlusal plane needs correction
Helps orient the maxilla in the articulator

- Accurate arch of closure
- Correction of cant's & proper positioning of anterior teeth

Occlusal Scheme

Canine Guidance
Group Function
No balancing side contacts
No or minimal horizontal overlap
Disocclude posterior teeth on ecentric movements

Adjusting the Occlussion Preferential grinding - BULL Principal
Maintain cusp slopes and fosse
Patient's bite will change – recall in 7/15 days

How strong should the bite be ?
Full mouth Implants – Uniform harmonious contacts – less distal to 6

Centric contact bilaterally
Protrusion – anterior contact / Posterior Disocclude
Lateral – only working side contacts

Partial / Segment
Between apposing implants 200Um
Between Tooth and Implant 100Um

Maintenance of Prosthesis

Check bite every 4 months for first year
Once a year there after
Very important to maintain hygiene and occlusion to prevent any unpleasant surprises

Thank you