How I use Lasers with Dental Implants for Soft and Hard Tissue Management, making the whole process easier (0052)

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Disclosure:

I have no commercial relationships with any of the various manufacturers. Any products you see in the presentation were paid for by myself.

RH
Why use Lasers with Implants?

- Can expose implants easily-atatraumatically
- Reduced trauma at prep
- Less post op pain
- Faster healing
- Better osteogenesis/less failures

- Less bleeding. Better vision
- Can sculpt tissues for better aesthetics
- Can treat peri-implantitis
- Less need for suturing
- Easier to do!
Implant Exposure

Tissue Punch-Like Technique- 3w H 40hz 20%water 30% air

Incision and Reflection- 2.5w H 40hz 20%water 30% air

Bisect thin band of Keratinised mucosa, vertical release if needed. Align tip to reflect flap. Use Periosteal elevator to reveal implant. Clear surface of implant with laser. You may need to remove a thin layer of bone.
Is It Safe?

Safety Limit is set at 5-8cm for the various hard/soft tissue lasers (erbium family).

Effective cutting range is between 1-2mm.

Precise and clean cuts.

Minimal risk of thermal trauma.

Superb control of all parameters.
Why Use a Laser?

- Superb surgical instrument, clean, excellent operator control, precise
- Reduced need for LA
- Easy to use
- Minimal trauma to tissues, less post op sensitivity, rapid healing
- Disinfects the tissues
- Creates excellent bonding surfaces
- Patients like the technology
- Expands your clinical repertoire
How Does it work?

Ablation: Mechanical disruption caused by the expansion of water, (hydrophotonic activation)

Highly localised thermal reaction: Vapourisation, coagulation and Haemostasis

Photon initiated photo activated streaming
Failing Post Crown

Immediate extraction, placement and temp.
Immediate Placement

Nobel Active Implant

Narrow profile titanium abutment

Can use as final with cemented crown
How Does it work? What Effects Happen from it.

Most Metabolic Pathways depend on Mitochondrial Metabolism

Better Inflammatory Response

Quicker healing better quality tissue

Less Scarring

Better Bony regeneration around implants

Enhanced resolution of periapical pathology after RCT
One Year Review
Management of Soft Tissue around Implants

Normal Surgery (cold steel) results in Tissue Zone effects - Laser Surgery gives Cell boundary Effects

Tissue Zone - cell lysis, fibrin clot, inflammatory cascade, wound repair, then tissue regrowth/repair

Cell Boundary - lysis only at tissue edge, no sig bleeding, no fibrin clot, no inflammatory response, tissue goes straight to regrowth/regeneration.

Leads to half the healing time and less scarring/shrinkage - no loss of bone to first thread.
Implant Procedures

This means that it is now usually predictable and safe to place an immediate implant following extraction.

Remove the root atraumatically, assess the socket

Remove all inflammatory tissue from socket - always a granuloma in any RCT tooth.

Remove Junctional Epithelium completely

Place Implant - use photobiomodulation then and at review.
Laser as Sculpting Tool

20yr old - difficult ortho case, impacted UR3 causing problems with UR1 and 2
no space for UR3 prosthetically- v diff to create more Rads, Wax-up, Ridge sounding, placement, remake shape for emergence profile and papillae.
UR3 had caused resorption of UR1 and UR2 root apices
small residual defect following debridement
Fairly flat very thin ridge
after placement
Modified burn out cylinders as healing abutments. Laser sculpt until they fit passively.
Copings in place immediately post sculpting
one week later ready for final impression
copings modified for better contour
Ti/Ceramic abutments
Final Result
Laser Aids minimally invasive technique

I usually don’t raise a flap (90%+)

I rarely use grafting

I almost never suture

I rarely use Dexamethasone

Patients score on average 2 out of 10 for pain on day of surgery and are pain free in 2 days

failure rate to date is under 2%(11 years, 1500 plus)
Technique

Full assessment of problem, CT scan, s/models, perio condition, time parameters, patient’s wishes.

Emergency Denture if required (or Maryland)

Laser as periotome to remove tooth, debride socket, remove infected soft tissues, start sculpting tissues and then LLLT following surgery.

If healed site then Laser to open site (poss with drilling guide from CT) then Laser to decorticate osteotomy and start sculpting to make enough room for temporary.
Technique 2

At review, usually 3 weeks, LLLT and then depending on the case repeated LLLT and possibly sculpting if more required.

Final fit sculpt too, surprising how often soft tissue gets in the way of a final fit, my associates often get into fit difficulties because of this but they are starting to believe the ‘Old Guy’ now.

Finally check occlusion, two worse things are per problems and occlusal interferences for long term success.
Charity Cycle Trauma

- London to Paris Cycle
- Fell in Paris
- Trauma to UL1 UL2
- prev unrestored-proud of her nice smile 70yrs
- ex-receptionist of mine
UR1 has fracture too
RFill, Pips technique, NobelActive placed, narrow profile abutment and temp.
seating final crown
Final crown, poss external resorption starting on UL1

KUO
Final crown torqued into place
Bone Regeneration

• bone loss in area with not much room for normal placement
• Laser debridement and subsequent LLLT
• then normal placement
• review at 5 years
extraction at another practice
socket debridement with laser, no augmentation
NobelActive to 45ncm
5 years on
screw retained crown 5 years on
Thank you!