



# Cases Report

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# *Case Report 1*

## “Preprosthetic Esthetic Crown Lengthening”



# *Anamnesis*



# *Anamnesis (I)*

## 1. Personal Data:

 35 years old female

 Clerk at a dressing store


## 2. Reason for dental consultation:

 “Improve the aesthetic appearance of their anterior crowns”

# *Anamnesis (II)*

## 3. Personal history:

 No drug allergies or relevant medical history.

 No smoking

 Current medication: None

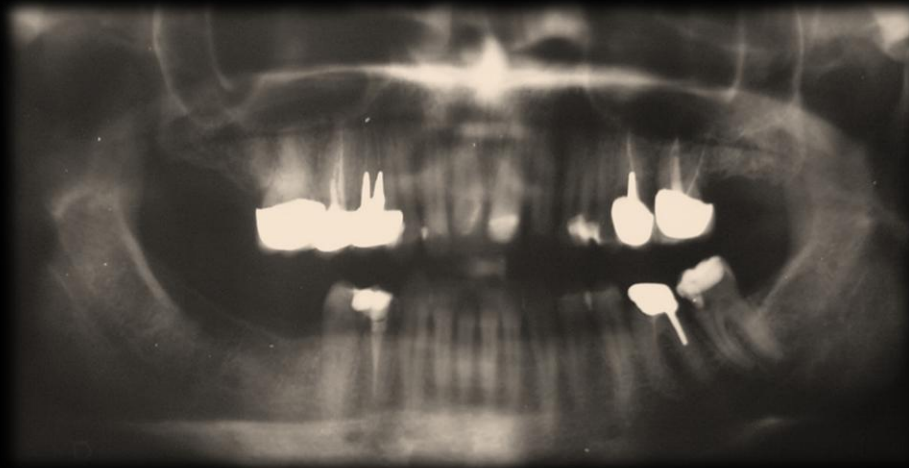
# *Anamnesis (III)*

## ➤ 4. Dental examination:

➤ Good periodontal health

➤ Panoramic Rx findings:

➤ Several old treatments to change it.



# *Treatment planning*



# *Treatment planning*

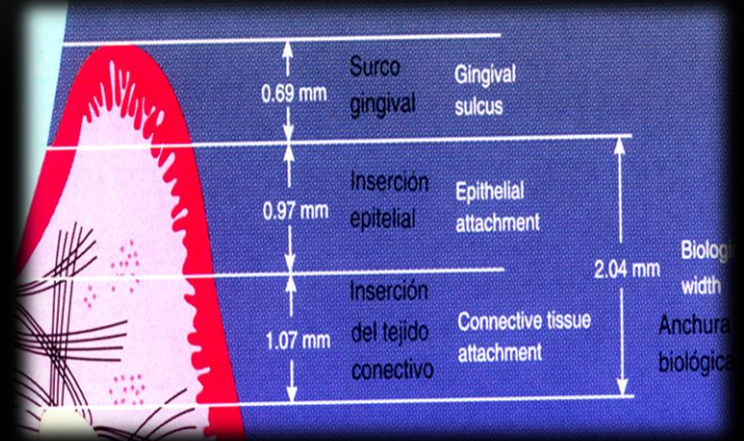
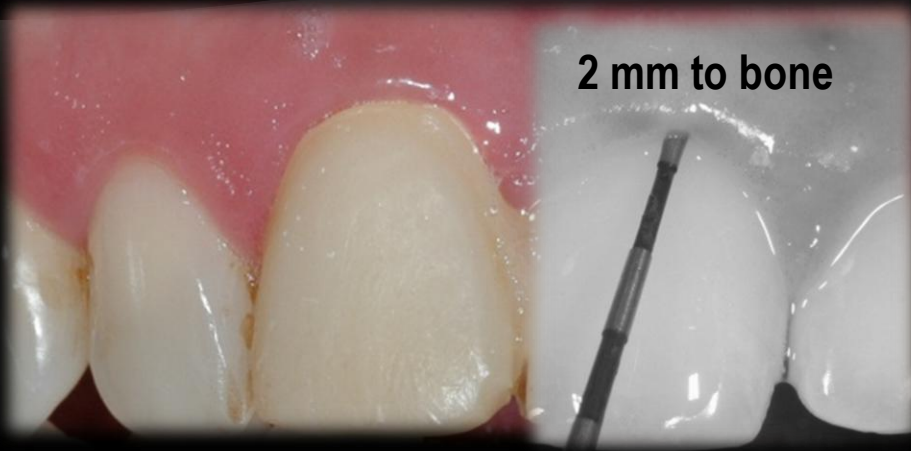
- Change old crowns by provisional.
- Determination for Biological Width.
- Esthetic Crown Lengthening.
  - Surgical procedure by Er,Cr: YSGG laser.
  - Gingival and osseous contour.
- Temporary crowns adapt to the new situation.
- New crowns at least 3 months later.

# *Provisionals*





# *Biological width*



**Ostectomy 3 mm.**

# *Surgical procedure (I)*

🌈 Gingivectomy and osseous resection using Er,Cr:YSGG laser.





# *Surgical procedure (II)*



- Gingivectomy: 2 watts / 20hz / 10% W / 30% A
- 600  $\mu$ m fiber tip
- Measurement of peak bone

# *Surgical procedure (III)*



- Ostectomy: 4 watts / 20hz / 40% W / 10% A
- Osseous recontouring with a curette
- Biological width conserved

# *Surgical procedure*



# *Surgical procedure (IV)*



- Review margins of anterior teeth
- Setting provisionals to the new situation

# *Clinical Course*

# *Clinical Course (I)*



- Waiting for 3 months
- Review the tissue margins
- Start a new fixed prosthesis



# *Clinical Course (II)*



- Test biscuit to check the final aspect
- Crowns cimentation

# *Final result*



- Aesthetic harmony restored
- Maintenance of tissues at the time




# *Discussion*



# *Discussion (I)*

## Er,Cr: YSGG laser

 Ability to perform coronary surgical lengthening of a minimally invasive way to avoid having to raise a mucoperiosteal flap approach (flapless technique)

 Lightweight thermal effects on soft tissue. Absence of bleeding.

Magid KS, Strauss RA. Laser use for esthetic soft tissue modification. Dent Clin North Am 2007; 51: 525-45.



# *Discussion (II)*

➤ Er,Cr: YSGG laser

➤ No charring of bone tissue occurs when performing the ostectomy.


➤ Histologically, the appearance of bone is the same as that of the surgical drill.


Zeinoun T, Namour S, Dourov N. Myofibroblasts in healing laser excision wounds. *Lasers Surg Med* 2001;28:74-9.



# *Discussion (III)*

## Er,Cr: YSGG laser

 CO<sub>2</sub> and diode lasers can be used only for soft tissue preparation. However, only the Er family of lasers can be used for osseous preparation

 Er, Cr:YSGG lasers represents an excellent alternative to the classical technique because it causes less postoperative morbidity, the tissue healing is faster and the wound showed less gingival retraction.

Schalter R. The Er,Cr:YSGG laser in various restorative treatments. J Acad Laser Dent 2005;13:26-29

# *Case Report 2*

## “Gingival Epulis”



# *Anamnesis (I)*

## 1. Personal Data:

 45 years old female

 Lawyer


## 2. Reason for dental consultation:

 “Remove the lesion on the gingiva that had relapsed after 2 years of having eliminated”

# *Anamnesis (II)*

## 3. Personal history:

 No drug allergies or relevant medical history.

 No smoking

 Current medication: None

# *Anamnesis (III)*

## ➤ 4. Dental examination:

- Severe malocclusion and multiple gingival recession
- Panoramic Rx: normal



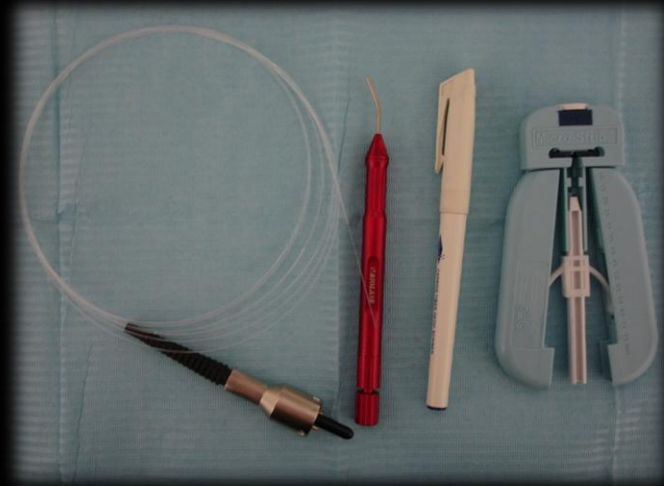
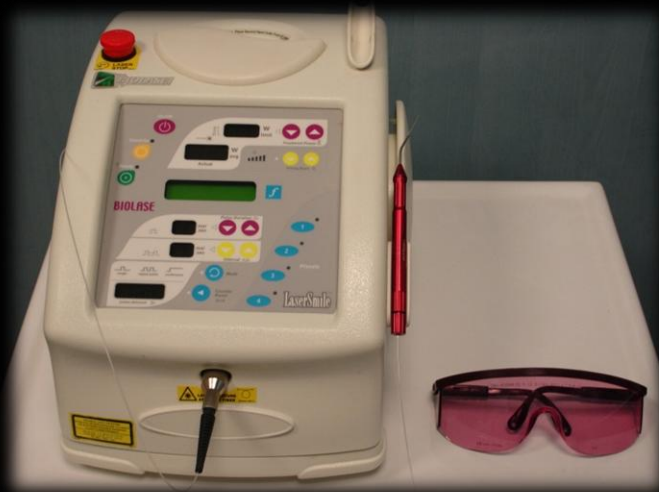


# *Treatment planning*



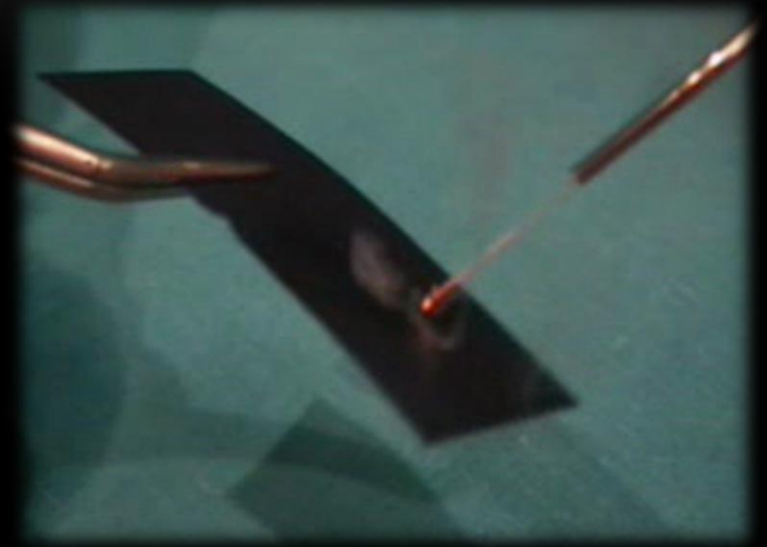
# *Treatment planning*

- Gingival Epulis removal.
- Surgical procedure by diode 810 nm laser.



# *Surgical Procedure*

# *Surgical Procedure (I)*



➤ Power settings:

➤ 1-1.5W in continuos mode

➤ Actived fiber 400 $\mu$ m (lateral position)

# *Surgical Procedure (II)*



➤ Debridement of granulation tissue to avoid complete excision and future recession.

➤ Completed treatment with SRP

# *Surgical Procedure (III)*

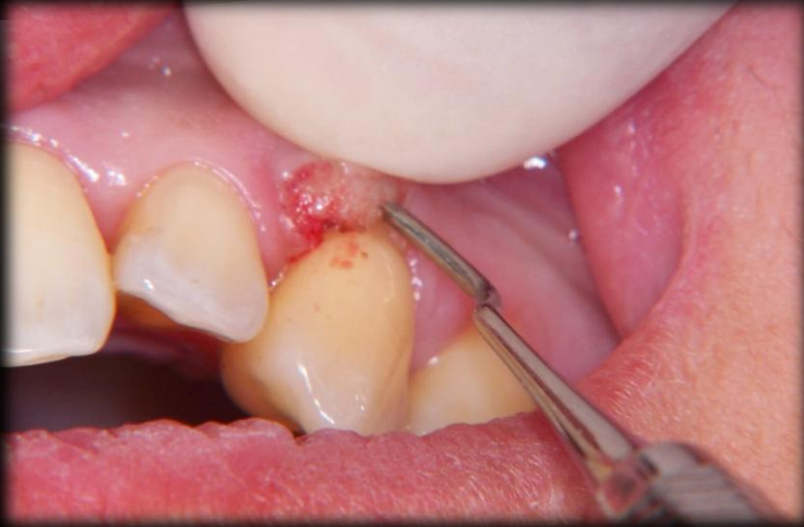


➤ Debridement of granulation tissue to avoid complete excision and future recession.

➤ Completed treatment with SRP.



# *Surgical Procedure (IV)*



➤ Debridement of granulation tissue to avoid complete excision and future recession.

➤ Completed treatment with SRP.

# *Clinical Course*



# *Clinical Course (I)*



- Immediate postoperative period with persistent lesion.
- At one-week postoperative the lesion has completely disappeared without any recession sign

# *Clinical Course (II)*



➤ 3 months postoperative period there is a tissue stability

# *Final result*



➤ Gingival epulis eliminated without gingival recession secondary

# *Discussion*



# *Discussion (I)*

- The treatment of choice of gingival epulis is the elimination to cause difficulty in periodontal maintaining
- The complete removal of the lesion is the appropriate treatment, but may cause side effects such as the recession and hypersensitivity.

Ziada H, Irwin C, Mullally B, Byrne PJ, Allen E. Periodontics: 4.Surgical management of gingival and periodontal diseases.Dent Update. 2007 Sep;34(7):390-2, 395-6.

Wang HL , Greenwell H. Surgical periodontal therapy. Periodontol 2000. 2001;25:89-99.




# *Discussion (II)*


- Debridement periodontal pocket is the key to a reestablishment of the periodontal attachment.
- Diode laser has high capacity to treat periodontal disease and with the Nd:YAG are lasers most commonly used for such treatments.

Cobb CM. Lasers in periodontics: a review of the literature. J Periodontol 2006; 77: 545–564.

Moritz A, Schoop U, Goharkhay K, Schauer P, Doertbudak O, Wernisch J, Sperr W. Treatment of periodontal pockets with a diode laser. Lasers Surg Med 1998; 22: 302–311.

# *Discussion (III)*

 The use of laser diode with the appear to be more effective in terms of granulation tissue removal and decontamination of the periodontal pocket.

 The removal of benign tumors of the oral mucosa with lasers, especially diode, Nd:YAG and CO<sub>2</sub> seems to preclude no recurrence of the lesion

Aoki A, Sasaki KM, Watanabe H, Ishikawa I. Lasers in nonsurgical periodontal therapy. *Periodontol* 2000 2004: 36: 59–97.

Ishikawa I, Sculean A. Laser dentistry in periodontics. In: Gutknecht N, editor. 1<sup>st</sup> International Workshop of Evidence Based Dentistry on Lasers in Dentistry. Vaals, The Netherlands: Quintessence Publishing Co., 2007: 115–128.



# *Case Report 3*

## “Gingival Depigmentation”



# *Anamnesis*

# *Anamnesis (I)*

## ➤ 1. Personal Data:

➤ 25 years old-female

➤ Administrative.




## ➤ 2. Reason for dental consultation:

➤ “Removal of gingival hyperpigmentation after orthodontic and bleaching treatment”

# *Anamnesis (II)*

## 3. Personal history:

 No drug allergies or relevant medical history.

 Smoker of 10-15 cigarettes a day.

 Current medication: None

# *Anamnesis (III)*

## ➤ 4. Dental examination:

➤ Good periodontal healthy

➤ Panoramic Rx findings:

➤ Aggressive periodontitis in maintenance.



# *Treatment planning*



# *Treatment planning*

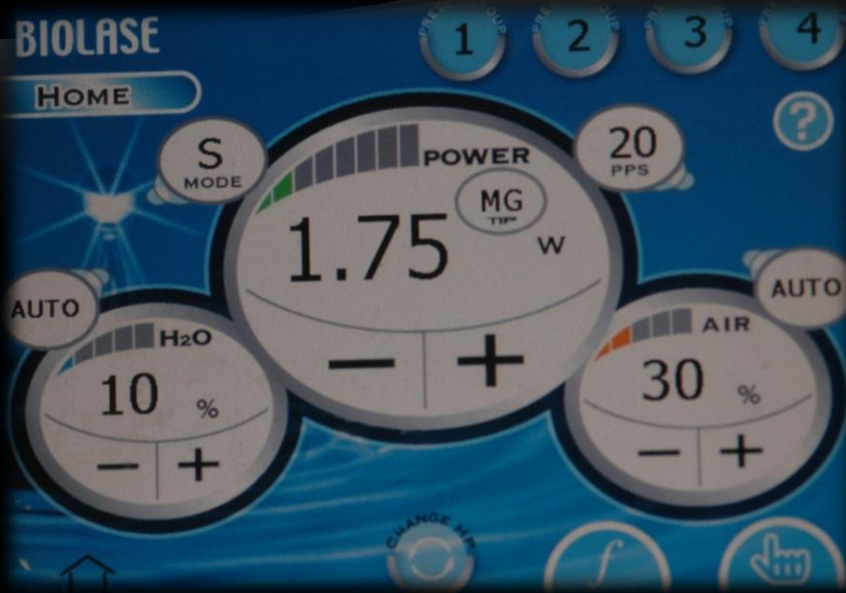
- Hyperpigmentation removal.
- Surgical procedure by Er,Cr: YSGG laser.





# *Surgical Procedure*

# *Surgical Procedure (I)*



➤ Power settings:

➤ 1.75 W, 20 Hz, 10% W- 30% A

# *Surgical Procedure (II)*



➤ Topical anesthesia or infiltrative anesthesia  
if necessary

# *Surgical Procedure (III)*



Tip selection: 600  $\mu\text{m}$

# *Surgical Procedure (IV)*



➤ Remove of melanin stains with sweeping motions in contact mode

# *Surgical Procedure (V)*



➤ Remove tissue debris with sterile gauze and review the deeper areas with traces of melanin



# *Surgical procedure*





# *Clinical Course*

# *Clinical Course (I)*



➤ The immediate postoperative period shows an absence of bleeding

# *Clinical Course (II)*



➤ One-week postoperative view showing complete healing and depigmentation

# *Clinical Course (III)*



➤ One-year postoperative after the bleaching treatment no repigmentation had occurred

# *Final result*



✦ Esthetic gingival restored and complete elimination of melanin staining

# *Discussion*

# *Discussion (I)*

## Different techniques employed for gingival depigmentation

### Masking procedures

1. Free gingival grafts
2. Subepithelial connective tissue grafts
3. Acellular dermal matrix allografts

### Complication

1. Two-site procedure, pain, bleeding and colour different
2. Two-site procedure, pain and bleeding
3. Pain, bleeding, and color difference

Tamizi M, Taheri M. Treatment of severe physiologic gingival pigmentation with free gingival autograft. Quintessence Int 1996;27:555-558.

Phillips GE, John V. Use of a subepithelial connective tissue graft to treat an area pigmented with graphite. J Periodontol 2005;76:1572-1575.



# *Discussion (II)*

## Different techniques employed for gingival depigmentation

### Remove procedures

1. Abrasion technique: using a large, round diamond bur
2. Surgical methods of depigmentation
  - A. Scalpel Surgical Technique
  - B. Cryosurgery
  - C. Electrosurgery

### Complication

1. Difficult to control depth of deepithelialization, bleeding, and pain
- 2A. Excessive bleeding, pain, and prolonged healing
- 2B. Needs high skills

Farnoosh AA. Treatment of gingival pigmentation and discoloration for esthetic purposes. Int J Periodontics Restorative Dent 1990;10:312-319.

Yeh CJ. Cryosurgical treatment of melanin-pigmented gingiva. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1998;86:660-663.





# *Discussion (III)*

## Different techniques employed for gingival depigmentation

### Remove procedures

3. Chemical methods of depigmentation

4. Lasers

1. Carbone dioxide (CO<sub>2</sub>) lasers

2. Diode lasers

3. Nd: YAG lasers

4. Er: YAG lasers

5. Er, Cr: YSGG lasers

### Complication

3. Harmful to oral soft tissues

4.1. Delayed wound healing

4.2. Deep thermal damage

4.3. Deep thermal damage  
and deep penetration

Nakamura Y, Hossain M, Hirayama K, Matsumoto K. A clinical study on the removal of gingival melanin pigmentation with the CO<sub>2</sub> laser. *Lasers Surg Med* 1999; 25:140-147.

Yousuf A, Hossain M, Nakamura Y, et al. Removal of gingival melanin pigmentation with the semiconductordiode laser: A case report. *J Clin Laser Med Surg* 2000;18:263-266.



# *Discussion (IV)*

- Er, Cr: YSGG lasers provides:
  - A relatively bloodless surgical and post-surgical course
  - The ability to coagulate, vaporize, or cut tissues
  - Sterilization of the wound site
  - Minimal swelling and scarring

Berk G, Atici K, Berk N. Treatment of gingival pigmentation with Er,Cr:YSGG Laser. J Oral Laser Applications 2005;5:249-53.



