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College of Dentistry

Conventional And Laser Gingvectomy

A Project Submitted to
The College of Dentistry, University of Baghdad, Department of periodontics in Partial Fulfillment for the Bachelor of Dental Surgery

by

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Certification of the Supervisor

I certify that this project entitled **(Conventional and laser gingivectomy)** was prepared by **(Asmaa Nadhim and Atyaf Husham)** under my supervision at the College of Dentistry/University of Baghdad in partial fulfilment of the graduation requirements for the Bachelor degree in dentistry.

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Date: / /2023

بسم الله الرحمن الرحيم

(وان ليس للانسان الا ما سعى)

صدق الله العظيم

DEDICATION

THIS WORK DEDICATED TO OUR FAMILIES, ESPECIALLY OUR FATHERS , OUR MOTHERS, OUR SISTERS AND OUR FRIENDS FOR THEIR GREAT SUPPORT AND FOR ALWAYS BELIEVING IN US .

TO OUR SUPERVISOR FOR HIS GUIDANCE AND SUPPORT .

THANK YOU FROM ALL OUR HEARTS..

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Introduction

The gingivectomy is the primitive surgery in periodontal therapy. During the centuries, the technique has been modified. Just at the middle of our century, gingivectomy was the most important surgical method in periodontal treatment.The main indication for gingivectomy in dentistry is in the management of gingival enlargements. For performance of the gingivectomy is the complete deletion of the periodontal pocket (gingival overgrowth/e.g.hyperplasia, subgingival caries, subgingivally located crown margins). The design of the free gingival margin by surgical means, gingivoplasty, must be taken under consideration. Depending on the long and painful healing for the patient, gingivectomy should be preserved. A gingivectomy is a periodontal surgery performed to treat severe cases of gingival disease, also known as periodontitis, that do not respond to antibiotics or root planing alone. This procedure is essential when the gingiva have stretched away from the teeth, creating deep pockets. Plaque and calculus form in these pockets, causing gingival disease. If the disease is left untreated, it progresses that it damages the roots of the teeth and potentially leads to tooth loss. The gingivectomy procedure is designed to remove loose or diseased gingival tissue in order to prevent tooth loss. The procedure is performed by either a periodontist or an oral surgeon.

(Newman *et al*., 2006).

Aim of study

The present study aimed to assess the knowledge of gingival removal procedure and what type of this procedure.

Chapter one: Review of literature

1.1 Gingivectomy:

The word gingivectomy means "excision of the gingiva" By removing the pocket wall, gingivectomy provides visibility and accessibility for complete calculus removal and thorough root planing. This create favorable environment for gingival healing and restoration of a physiologic gingival contour.Although gingivectomy was widely performed in the past, improved understanding of healing have relegated it to a lesser role in periodontal surgery. However, it remains an effective form of treatment when indicated**(Newman and Carranza, 2015)** .

Gingivectomy is a technique that is easy to carry out and is usually well accepted by patients, who according to the correct indications, can obtain satisfactory results in dentogingival aesthetics and harmony**(Peres *et al*., 2019)**.

The procedure consists in the removal of gingival deformities resulting in a better gingival contour, it can be performed in the removal of the inserted papillary and marginal gingiva when there is an absence of periodontal disease**(Peres *et al*., 2019).**

1.2 Indications: **(Cohen, 2009)**

1) Elimination of Suprabony pockets.
2) An adequate zone of keratinized tissue.
3) Elimination of Pockets greater than 3 mm.
4) When bone loss is horizontal and no need exists for osseous surgery.
5) Elimination of Gingival enlargements (Figure 1.1).
6) Areas of limited access.
7) Unesthetic or asymmetric gingival topography.
8) For exposure of soft tissue impaction to enhance eruption.

9) To facilitate restorative Dentistry (provide access to subgingiva caries).

10)To establish physiologic and gingival contours post–acute necrotizing ulcerative gingivitis.

Figure 1.1: gingival enlargement. **(Goyal *et al., 2020)***

1.3 Contraindications: (Cohen, 2009)

1. An inadequate zone of keratinized tissue.
2. Pockets that extend beyond the mucogingival line.
3. The need for osseous resection.
4. Highly inflamed or edematous tissue.
5. Areas of esthetic compromise.
6. Shallow palatal vaults and prominent external oblique ridges.
7. Treatment of intrabony pockets.
8. Patients with poor oral hygiene

1.4 Advantages: (Cohen, 2009)

1. Predictability
2. Simplicity
3. Ease of pocket elimination
4. Good access
5. Favorable esthetic results

1.5 Disadvantages: (Cohen, 2009)

1. Healing by secondary intention
2. Bleeding postoperatively
3. Loss of keratinized gingiva
4. Inability to treat underlying osseous deformities

1.6 Limiting circumstances: (Shalu and Damle, 2017)

- Palatal aspects of maxillary posterior teeth: When the palatal vault is shallow and the depth of periodontal involvement is near or enters the vault area, gingivectomy on the palatal aspects of maxillary posterior teeth may result in elimination of most if not all of the palatal gingiva, placing the gingival margin at or near a level of coincident with that of the roof of the mouth.
- Mandibular retromolar lesions: When an incision is made on movable and delicate mucosa, this tissue often cuts poorly, bleeds profusely and may be difficult to resect and shape. Thus, use of the distal wedge procedure, often simplifies the management of retromolar tissue.
- Maxillary tuberosity areas: When soft tissue is so great, relative to the depth of periodontal involvement on the distal aspects of the last molar that its level of resection would bring about surgical entry into the mucosa of the hamular notch. It may be more appropriate to perform a distal wedge procedure to eliminate diseased tissue immediately adjacent to the distal portion of the molar .
- Cases of emotional stress: With age, diminished patient's cooperation and motivation, retarded healing, etc. have a direct bearing upon the desirability of the surgical therapy. Such patient is a poor surgical risk and requires therapeutic modification.

1.7 Types of gingivectomy:

There are two main types of gingivectomy:

1. Conventional (surgical) gingivectomy.
2. Laser gingivectomy.

1.7.1 Conventional gingivectomy:

For many years, scalpel were been used in performing gingivectomy in which small surgical blades and other periodontal surgical instruments were used to cut the tissue and place the gingival margin in a more ideal position (Figure 1.2) **(Akram, 2017).** In surgery a plan of treatment is presented which is easily carried out and will bring about rapid and complete elimination of the pockets. In this method, special stress is laid upon the postoperative treatment of the wound surface and the inflamed tissues**(Jour. A.D.A., 1945).**

Figure 1.2: Scalpel gingivectomy.**(Cohen, 2009)**

Scalpel has advantages of easy to be used, precise incision with well-defined margins, the healing is fast, and there is no lateral tissue damage. While the disadvantages of scalpel are need of giving anesthesia, bleeding that result in inadequate visibility and the incision cut is not sterilized.

1.7.1.1 Instruments for gingivectomy:

Practically every manufacturer of dental instruments offers many varieties that fulfill the requirements of a gingivectomy procedure. The original gingivectomy instruments are decades old (e.g., Kirkland knives), but continue to be modified and improved.The main function of the instrument is to provide the operator with the ability to perform an uncomplicated, rapid and clean procedure. This will be determined primarily by the size, shape and angulation of the working tip, and also by the handle, which should be comfortable**(Honored, 1986).**

These instruments include:

- Pocket Marker
- Kirkland Periodontal knife (Figure 1.3A)
- Orban periodontal knife (Figure 1.3C)
- Scalpel blades
- Supra & subgingival scalers
- Curettes
- Gingival Dressing

Figure 1.3: Gingivectomy knives (A) Kirkland knife; (B) Buck knife (C) Orban's knife **(Shalu and Damle, 2017)**

1.7.1.2 Procedure:

Presurgical Phase:

Presurgical preparation is carried out to reduce gross inflammation and remove local factors (calculus, plaque, or overchanging restorations). After initial healing, the zone of attached tissue can be assessed properly. At the time of operation, adequate local anesthesia is given. A vasoconstrictor should be used for control of hemorrhage, especially since healing is by secondary intention.Under anesthesia, the pockets are probed to check their depth and to ensure that they do not extend beyond the mucogingival junction. By sounding, the osseous topography is determined and the need for osseous surgery is determined.Gingivectomy is contraindicated if osseous surgery is needed**(Cohen, 2009)** .

Pocket Marking:

A pocket marker or periodontal probe is used to outline the base of the pockets with a series of small bleeding points (Figure 1.4). Three points(mesial, distal, and buccal) are marked on each buccal and lingual surface. These marks delineate the pocket wall to be removed.The pocket marker is placed into the pocket and held parallel to the tooth. When the base of the pocket is reached, the tissue is marked. Once the bleeding points have been established, they form a dotted line that outlines the incision.The pocket marker must not be tilted or the incision will be too deep or too shallow. **(Cohen,2009)**

Figure 1.4: pocket marking **(Honored, 1986)**

Incisions:

Incisions may be continuous or discontinuous (Figure 1.5). Both incisions are begun on the most terminal tooth and are continued around until the incision is complete. No real differences exist between incisions except that one is an interrupted incision ending in the papillary area of each successive tooth until the incision is completed.

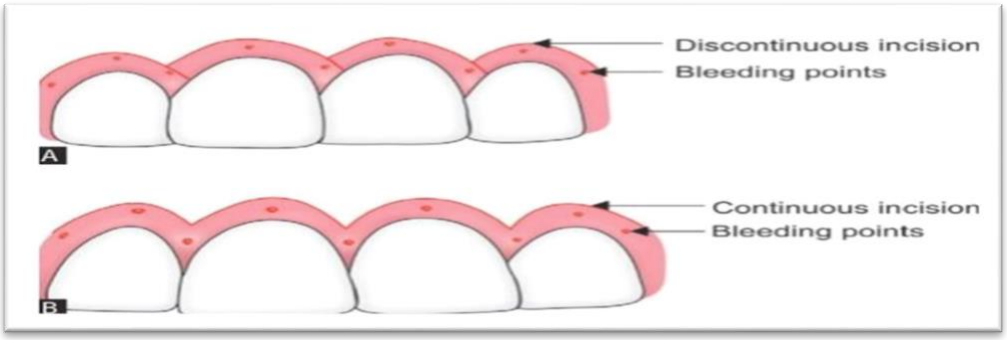

Figure 1.5: Incisions: A-Discontinuous incision, B-Continuous incision.

(Shalu and Damle, 2017)

Incisions can be made with scalpels blade (No.11 or 15 with handle No.3 or angulated blake's handle) or gingivectomy knives, although the gingivectomy knife is easier to use because of the angulation and shape of the blade. The heel of the knife is used for the primary incision, which begins just apical to the bleeding points. The blade is held in such a manner that the incision is as close to the bone as possible for total pocket removal and production of a tissue bevel of 45°. The blade must pass fully through the tissue to the tooth. The main principle here is to eliminate pocket all the way to the base without exposing the bone.An Orban or Kirkland interproximal knife is used to free the tissue interproximally (Figure 1.6). It is placed interdentally at a 45° angle both buccally and lingually until the tissue is freed . The knife also engages the tooth to free the tissue at the line angle. If the incisions have been made

properly, the tissue can be removed in one step.Once free, the tissue is removed by using a hoe or heavy scalers. Small scalers and curets are now used for scaling and root planing to remove residual granulation tissue, calculus, and soft cementum**(Cohen, 2009).**

Figure 1.6: incision by orban knife. **(Honored, 1986)**

Periodontal dressing:

Bleeding is controlled and after that periodontal dressing is applied over the treated site primarily for patient comfort (Figure 1.7). Thereafter, patient is given postoperative instructions**(Eley *et al.*, 2004).**

Figure 1.7: periodontal dressing **(Peeran *et al.*, 2013)**

1.7.1.3 Common Reasons for Failure: (Cohen, 2009)

1. Unsuitable case selection: cases with underlying osseous irregularities or intrabony defects
2. Incorrect pocket markings
3. Incomplete pocket elimination
4. Insufficient beveling of the incision
5. Failure to remove tissue tags, resulting in excessive (granulation) tissue
6. Failure to remove etiologic factors—calculus and plaque
7. Beginning or terminating the incision in a papilla
8. Failure to eliminate or control the predisposing factors
9. Inaccessible interdental spaces
10. Loose dressings
11. Lost dressings
12. Insufficient use of dressings
13. Failure to prescribe stimulators or rubber tipping for interproximal use
14. Failure to use stimulators or a rubber tip
15. Failure to complete treatment

1.7.2 Laser gingivectomy:

Physical appearance is a constant preoccupation and the image we project conditions our relationship with society. This is why practitioners are observing a clear increase in cosmetic requests today. The main requests of patients concern the color, shape and state of their teeth which are partly conditioned by the state of the surrounding tissues. Modern cosmetic dentistry therefore aims to create teeth with satisfactory proportions to

each other, as well as a harmonious relationship between the teeth and the gingiva. One of the procedures that guarantee the satisfaction of these objectives is gingivectomy. It is a surgical procedure that has benefited fully from new technologies in order to simplify Surgery and optimize the esthetic result. Indeed, lasers (surgical lasers: Er-Yag, Co2, Nd-Yag, diodes) have made it possible to perform gingival or mucosal plastcies which are subtle, perfectly controlled, without postoperative pain and whose healing is obtained in a few days, on soft tissues. Important considerations in terms of smile esthetics are the height/width ratios of clinical crowns, as well as the appearance and shape of the gingiva involving the smile line, the gingival line, the gingival zeniths, and the inter-dental papillae, A remodeling of the gingival contours is sometimes necessary to improve the smile. It is actually a reshaping of the gingiva around the natural teeth (sometimes even prosthetic) for a better esthetic integration in the smile dynamics. However, it is sometimes difficult to make the patient accept an often major and painful surgical procedure to rearrange the soft tissues. Laser has made it possible to simplify these procedures and to increase their indications. It allows, indeed, for a simple and rapid reshaping of the marginal gingiva for an immediate esthetic result **(Hajjaji *et al.*, 2021)** .

1.7.2.1 History of laser in dentistry:

In 1917, Albert Einstein**(Einstein, 1917)**laid the foundation for the invention of the laser and its predecessor, 'the Maser,' by theorizing that photoelectric amplification could emit a single frequency, or stimulated emission. The term LASER is an acronym for 'Light Amplification by the Stimulated Emission of Radiation' and was first introduced to the public in 1959, in an article by a Columbia University graduate student, Gordon Gould**. (Gross, 2007)**Theodore Maiman, at the Hughes Research Laboratories in Malibu, CA, built the first functioning laser**,(Maiman, 1960)** by using a mixture of helium and neon. In 1961, a laser generated from crystals of yttrium-aluminum-garnet treated with 1-3% neodymium (Nd: YAG) was developed**.** In 1962, the argon laser was developed, whereas, the ruby laser became the first medical laser to coagulate retinal lesions, when it was used in 1963 In 1964, Patel at

Bell Laboratories developed the CO_2 laser **(Gross, 2007)**Nowadays diode lasers are being extensively used in the field of dentistry.

1.7.2.2 Types of Laser:

Lasers used in dental practice can be classified by various methods:

- According to the lasing medium used, such as, gas laser and solid laser
- according to tissue applicability, hard tissue and soft tissue lasers
- according to the range of wavelength[Figure 1.8], and of course the risk associated with laser application**(Chiari, 2016)**.

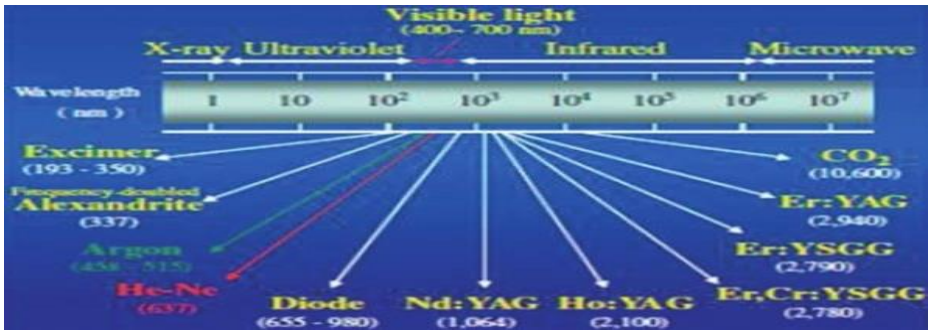

Figure 1.8.Various types of lasers and their corresponding wavelengths**(Chiari, 2016)**

- **Carbon dioxide Laser**

The CO_2 laser wavelength has a very high affinity for water, resulting in rapid soft tissue removal and hemostasis with a very shallow depth of penetration. Although it possesses the highest **(Fornaini *et al.*, 2016)** absorbance of any laser, disadvantages of the CO_2 laser are its relative large size and high cost and hard tissue destructive interactions**(Verma *et al*., 2012)**.

- **Neodymium Yttrium Aluminum Garnet Laser**

The Nd: YAG wavelength is highly absorbed by the pigmented tissue, making it a very effective surgical laser for cutting and coagulating dental soft tissues, with good hemostasis. In addition to its surgical applications **,(Fornaini, 2007)** there has been research on using the Nd: YAG laser for nonsurgical sulcular debridement in

periodontal disease control**(Aoki, 2009)** and the Laser Assisted New Attachment Procedure (LANAP)**(Sgolastra *et al.*, 2014)**.

- **Erbium Laser**

The erbium 'family' of lasers has two distinct wavelengths, Er, Cr: YSGG (yttrium scandium gallium garnet) lasers and Er: YAG (yttrium aluminum garnet) lasers. The erbium wavelengths have a high affinity for hydroxyapatite and the highest absorption of water in any dental laser wavelengths. Consequently, it is the laser of choice for treatment of dental hard tissues**.(Aranha *et al.*, 2007)** In addition to hard tissue procedures, erbium lasers can also be used for soft tissue ablation, because the dental soft tissue also contains a high percentage of water**(Deepika *et al.*, 2023)**.

- **Diode Laser**

The active medium of the diode laser is a solid state semiconductor made of aluminum, gallium, arsenide, and occasionally indium, which produces laser wavelengths, ranging from approximately 655 nm to 980 nm. All diode wavelengths are absorbed primarily by tissue pigment (melanin) and hemoglobin. Conversely, they are poorly absorbed by the hydroxyapatite and water present in the enamel. Specific procedures include aesthetic gingival re-contouring, soft tissue crown lengthening, exposure of soft tissue impacted teeth, removal of inflamed and hypertrophic tissue, frenectomies, and photostimulation of the aphthous and herpetic lesions**.(Carranzas and Newman, 2015).(Hilgers *et al.*, 2004)**

1.7.2.3 Advantages of laser in dentistry:

- LASER offers an almost completely dry, bloodless surgery.
- Because of dried field, surgical time may be reduced.
- There is an instant sterilization of the area, decreasing the chances of bacteremia.

- This is noncontact surgery, thus no mechanical trauma to the surgical site.
- There is prompt healing with minimal postoperative swelling and scarring.
- Postoperative pain appears to be greatly reduced**(Shalu and Damle, 2017).**

1.7.2.4 Disadvantages:

- There is loss of tactile feedback in using these instrument.
- It is imperative that all operating room personnel wear safety glasses for protection of their eyes.
- There is high cost of the equipment**(Shalu and Damle, 2017)**.

1.7.2.5 Mechanism of Laser Action in dentistry:

Laser light is a monochromatic light and consists of a single wavelength of light. It consists of three principal parts: An energy source, an active lasing medium, and two or more mirrors that form an optical cavity or resonator. For amplification to occur, energy is supplied to the laser system by a pumping mechanism, such as, a flash-lamp strobe device, an electrical current, or an electrical coil. This energy is pumped into an active medium contained within an optical resonator, producing a spontaneous emission of photons. Subsequently, amplification by stimulated emission takes place as the photons are reflected back and forth through the medium by the highly reflective surfaces of the optical resonator, prior to their exit from the cavity via the output coupler. [Figure 1.9] In dental lasers, the laser light is delivered from the laser to the target tissue via a fiberoptic cable, Focusing lenses, a cooling system, and other controls complete the system. The wavelength and other properties. laser are determined primarily by the composition of an active medium, which can be a gas, a crystal, or a solid-state semiconductor. The light energy produced by a laser can have four different interactions with a target tissue**(Carroll ,2006)** Reflection, Transmission, Scattering, and Absorption. When a laser is absorbed, it elevates the temperature and produces photochemical effects depending on the water content of the tissues. When a temperature of 100°C is reached, vaporization of the water within the tissue occurs, a process called *ablation*. At temperatures below 100°C but above approximately 60°C, proteins begin to

denature, without vaporization of the underlying tissue. Conversely, at temperatures above 200°C, the tissue is dehydrated and then burned, resulting in an undesirable effect called carbonization. Absorption requires an absorber of light, termed chromophores, which have a certain affinity for specific wavelengths of light. The primary chromophores in the intraoral soft tissue a melanin,hemoglobin, and water, and in dental hard tissues,Water and Hydroxyapatite. Different laser wavelengths have different absorption coefficients with respect to these primary tissue components, making the laser selection procedure-dependent**.(Sulieman M,2005) (Tracey SG,2005)**

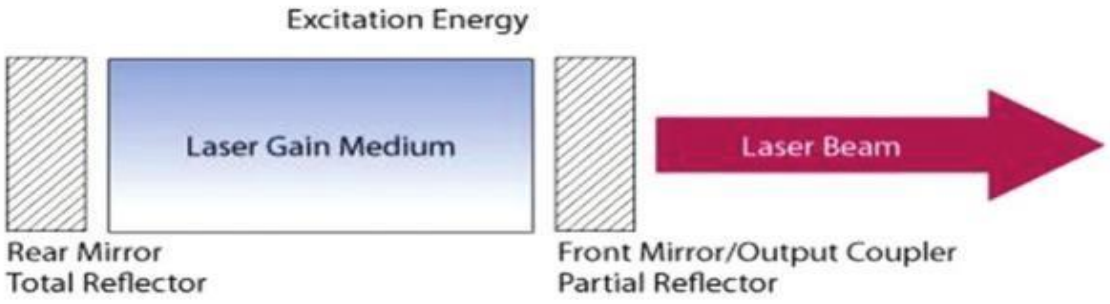

Figure 1.9. Mechanism of action of the laser **.(Sulieman ,2005)**

1.7.2.6 Gingivectomy by Diode Laser:

The term LASER is an abbreviation of (Light Amplification by Stimulated Emission of Radiation). Laser is a device that emits light (electromagnetic photons) with a specific wavelength, range of power density and selected mode of frequency**(Thayagarajan 2010) (Alwan *et.al*., 2008).**Physically laser devices can be classified according to their active media into solid state laser, liquid state laser, gas laser and semiconductor laser. Medically they can be classified into soft tissue laser and hard tissue laser**.(Sengupta *et al.*, 2016).**When using laser for particular tissue, it is important to select the parameters of radiation suitable for that tissue, poor choice of radiation may lead to harmful effect to the tissue **(Jelinkova 2013)**.In spite of that several wavelengths can be used for gingivectomy, but infrared and near infrared are more suitable **(Sengupta *et al.*, 2016).** Wavelength in Diode laser ranges

between 800 nm and 980 nm which is in infrared spectrum **(Genovese, 2010).** Diode laser doesn't interact with hard tissue, that makes it one of the best soft tissue lasers.however there are another types of laser uses in gingivectomy such as ,Neodymium:Yttrium-Aluminum-Garnet Laser , Erbium:Yttrium-Aluminum-Garnet Laser,Er,Cr:YSGG laser,CO2laser **(Newman and Carranza, 2015).**

1.7.2.7 Clincal procedure:

Local anesthesia was completed with 36 mg of 2% lidocaine in the buccal vestibule of the maxillary incisors. Measurements were made with a periodontal probe following the maximum reduction measurements (Table 1.1) and bleeding points made with an explorer [Figure 1.10 (b)]. A 980-nm diode soft tissue laser was set to continuous mode with 0.5-watt amplitude. The laser was initiated by touching the tip to occlusal paper at 45 degrees and running it along the paper until smoke was released**(Carruth, 2018)**.

TABLE 1. Preoperative Measurements

Tooth #	Probing Depths (mm)	Free Gingiva to Bone (mm)	Maximum Reduction (mm)
7	3, 3, 4	5, 6, 7	2, 3, 4
8	3, 4, 4	6, 6, 5	3, 2, 1
9	3, 4, 4	6, 7, 6	3, 4, 3
10	3, 3, 5	6, 6, 5	3, 3, 2

TABLE 2. Postoperative Measurements

Tooth #	Probing Depths (mm)	Free Gingiva to Bone (mm)
7	1, 1, 1	3, 3, 3
8	1, 1, 1	3, 3, 3
9	1, 1, 1	3, 3, 3
10	1, 1, 1	3, 3, 3

The tip of the laser appeared dark black. Following initiation, the laser was changed to pulsating mode and 0.6-watt amplitude. The laser was used with low, brush-like movements, starting with the distal of the maxillary right lateral incisor to the maxillary left lateral incisor[Figure 1.10(c) and (d)].The watt amplitude was increased slowly during the procedure,As the pigmented of keratinized gingiva lightened above the maxillary left central incisor, the watt amplitude was increased to 1.2. **(Aoki *et al.*, 2004)**

The laser was used with low, brush-like movements, starting with the distal of the maxillary right lateral incisor to the maxillary left lateral incisor.The watt amplitude was increased slowly during the procedure. The laser is attracted to darker pigments, so amplitude adjustment is necessary for more efficient

cutting in lighter pigments. Minimal bleeding during the laser process helped with immediate visualization of the results **(Micheal *et al*., 2019).**

White spot lesions of the enamel were present underneath the excised tissue , but the appearance was shiny, indicating that remineralization had occurred. The patient was given one 600 mg ibuprofen tablet immediately following the procedure and self-reported postoperative pain as minimal **(Aldelaimi *et al.*, 2021)**

Figure1.10 (Micheal E at el 2919)

(a) Preoperative presentation (b) Bleeding points

(c)clinical view by the laser assisted gingivectomy procedure

(d)gingiectomy procedure immediately after completion

(e) Three weeks postoperative

1.7.2.8 Comparision between conventional and laser gingivectomy

In laser treatment , no bleeding was encountered intraoperativaly in most patients, while the bleeding was self-limiting in some patients . In the conventional treatment pressure was required to stop bleeding for all patients **.(farah Emusaa, 2017) .**

In Laser treatment there are some pain none of any discomfort and took analgesic for two days following procedure ,while in conventional treatment there are pain and discomfort so needed analgesic. **(Mohamed *et al.*, 2020)** Optimal satisfaction was found with laser surgery this agree with **Ajita Meenawat etal** mentioned that laser treatments is a unique non invasive procedur **(Ajita *et al*., 2013)** pink color of the tissues in laser therapy in most of the cases which indicate better healing. Regarding appearance of wound, fibrinous slough was present on both sides, charring was not found on laser treatment**(Ajita et al., 2013)** well adapted tissues, good contour of the gingiva ,pink color, lack of swelling tissue formation and good wound lack of scarring and contraction**(Hadeel et al.2017)**.

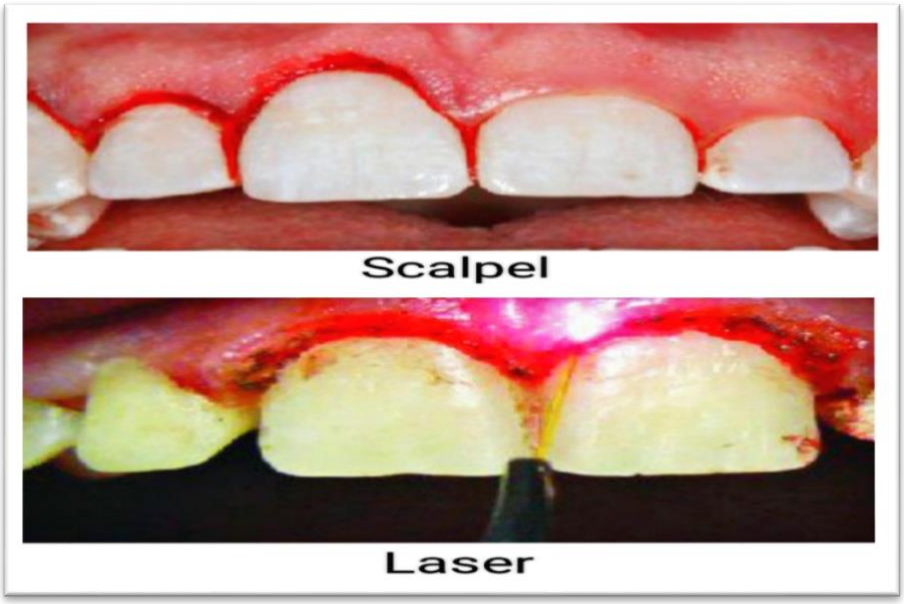

Figure 1.11: Scalpel and laser gingivectomy**(Grant *et al.*, 2019)**

There was a high significant difference between the means of the plaque index and a significant difference in the means of the gingival index at the 2nd and the 3rd visits in conventional therapy, while there were no significant differences between the means of the plaque index as well as the gingival index in laser therapy.

The biopsy taken immediately during the conventional gingivectomy shown

dense fibrous connective tissue stroma and stratified squamous epithelium while the laser biopsy showed necrotic epithelium and burning like appearance with no clear demarcation between layers. Seven days later, second biopsies were taken, in conventional gingivectomy moderate fibrous connective tissue with dense inflammatory infiltrated cells. In Laser the biopsies revealed densely fibrous connective tissue with fewer inflammatory cells and clearly re-epithelization suggestive of good histological healing**.(Mohamed *et al*., 2020)** In laser therapy most of the speciments showed – ve bacterial growth while in conventional therapy most the cultures showed positive bacterial growth as graphed**(Mohamed *et al*., 2020)** Most of the patients in laser therapy, surgery were performed without anesthesia but almost **(Kafas *et al.*, 2009)**Conventional surgical have caused some problems like: surgical trauma, bleeding during surgery,postoperative pain and swelling, low satisfaction of patient. These problems can handle more easily with lasers**.(Alwan *et al.*, 2008)** The use of laser reduces surgical trauma in soft tissue management with minimally invasive approach. But using laser extend the operating time**. (Ahmed *et al.*, 2023)**However, there were found no statistically significant difference between the duration of operation time for each types of treatment**.(Grossi *et al.*, 2007).**

Chapter two: Conclusion

Conclusion:

The diode laser has more advantages than conventional surgery in the gingivectomy procedures. That includes a reduced intra operative and postoperative bleeding, a reduced pain ,swelling ,scaring ,sensitivity and recovery or time.

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