

Tunneling with conjunctival graft for volume increase peri-implant: case report

Tunelização com enxerto conjuntivo para aumento de volume periimplantar: relato de caso
Tunelización con injerto de tejido conectivo para aumentar el volumen vestibular: relato de caso

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Abstract

Introduction: The technique of tunneling connective graft has made it to recover defective vestibular volume, since it does not compromise aesthetics; it also gives the patient the function of the damaged area. **Objective:** The present study aims to report a case of tunneling with connective graft to increase peri-implant volume. **Case Report:** A 53-year-old female leucoderma sought a private clinic with complaint of pain, aesthetic dissatisfaction of element 11 and that had already had endodontic retreatment of the element in question and paraendodontic surgery, but without success. After performing the clinical examination and computed tomography, there was a paraendodontic lesion and little vestibular thickness and reabsorption of the cortical bone. In the planning, we opted for exodontic the element 11 and implant placement immediately. After healing, the need soft tissue grafting in the peri-implant region was observed to for vestibular volume increase. **Final Considerations:** it's corroborated that the technique of connective graft tunneling for soft vestibular soft tissue remodeling and new arrangement are excellent reconstructive technique, since it does not allow relaxing incisions, making it impossible to have scars.

Descriptors: Connective tissue; Dental Implant; Grafts.

Resumo

Introdução: A técnica de tunelização de enxerto conjuntivo tem possibilitado vantagens para recuperação de volume de rebordos defeituoso, pois além de não comprometer a estética, devolve a função para o paciente da área danificada. **Objetivos:** O presente estudo tem por objetivo relatar um caso de tunelização com enxerto conjuntivo para aumento de volume periimplantar. **Relato de caso:** Paciente do sexo feminino, leucoderma, 53 anos de idade, procurou uma clínica particular com queixa de dor, de insatisfação estética do elemento 11 e que já havia feito retratamento endodôntico do elemento em questão e cirurgia paraendodôntica, porém sem sucesso. Após realização do exame clínico e da tomografia computadorizada, verificou-se uma lesão paraendodôntica e pouca espessura vestibular e reabsorção da cortical da tábua óssea. No planejamento, optou-se pela exodontia do elemento 11 e colocação de implante imediato. Posteriormente à cicatrização observou-se a necessidade de enxerto de tecido mole na região periimplantar para aumento de volume vestibular. **Considerações Finais:** Corroborou-se que a técnica de tunelização de enxerto conjuntivo para remodelação e acomodação dos tecidos moles acerca da reabsorção da cortical óssea vestibular se configura como uma ótima técnica reconstrutiva, uma vez que não possibilita a realização de incisões relaxantes, impossibilitando a presença de cicatrizes na reabilitação do paciente.

Descritores: Tecido Conjuntivo; Implantes Dentários; Enxertia.

Resumen

Introducción: La técnica de tunelización de injerto conectivo ha permitido recuperar el volumen defectuoso del cordón, ya que no compromete la estética, sino que también proporciona la función del paciente en el área dañada. **Objetivos:** Presentar un estudio con el objetivo de relacionar un caso de tunelización con un injerto conectivo para aumentar el volumen peri-plantar. **Relato de caso:** Una mujer de 53 años leucoderma buscó una clínica privada quejándose de dolor, insatisfacción estética del elemento 11, y que ya había tenido un tratamiento endodóntico del elemento en cuestión y cirugía paraendodóntica, pero sin éxito. Después del examen clínico y la tomografía computarizada, hubo una lesión paraendodóntica y poco grosor vestibular y reabsorción del hueso cortical del hueso. En la planificación, optamos por el elemento del elemento 11 y la colocación del implante inmediatamente. Después de la cicatrización, se observó que la necesidad de injerto de tejido blando en la región periimplantaria aumentaba el volumen vestibular. **Consideraciones Finales:** Se corrobora que la técnica de tunelización de injerto conectivo para la remodelación y reabsorción de tejidos blandos en la reabsorción de la corteza del hueso vestibular es una excelente técnica reconstructiva, ya que no permite hacer incisiones relajantes, lo que hace imposible la presencia. Cicatrices en la rehabilitación del paciente.

Descritores: Tejido Conectivo; Implantes Dentales; Injerto.

INTRODUCTION

Dentistry has promoted not only rehabilitation through total and partial dentures, but also with osseointegrated implants that promote occlusal stability and facial harmony. To achieve clinical success for implant installation, one of the factors influencing success is the keratinized tissue thickness present. Studies show that the absence of keratinized gingiva leads to increased plaque accumulation, probing bleeding, recession and gingival inflammation¹.

The periodontal plastic surgery is the name given to rehabilitations in aesthetic and peri-implant areas. There are several techniques for correcting defects around the implant. In view of several

studies, the use of connective graft is considered the technique that offers the best result².

To achieve aesthetic results satisfactory in the rehabilitation implant the thickness of mucosa around the implant should be ≥ 2 mm. Tunneling is used in aesthetic areas mainly to repair tissue losses after dental extraction and placement of implants or inflammatory tissue reactions to the implant. The main advantages are: preservation of the interdental papillae, absence of vertical incisions and scarring. However, its disadvantages are: a greater detachment area, postoperative swelling and coronary flap limitation³. In this way, the present study aimed to perform a report a clinical case of peri-implant

volume increase with soft tissue, by the tunneling technique with the use of tuber connective graft.

CLINICAL CASE

A 53-year-old female patient, leucoderma, sought a private clinic with complaint of pain, aesthetic dissatisfaction of element 11, which had already had endodontic retreatment of the element in question and paraendodontic surgery, but without success. After performing the clinical examination and computed tomography, there was a paraendodontic lesion, little vestibular thickness and cortical resorption of the bone (Figure 1). In the planning, we opted for exodontic the element 11 and implant placement immediately. After healing, the need soft tissue grafting in the peri-implant region was observed to for vestibular volume increase. The patient was proposed to perform the surgery to increase the area of keratinized tissue around the implant, favoring aesthetics, facilitating hygiene and reducing the probability of developing a peri-implantite, in addition to be contributing to the clinical longevity of the implant therapy.

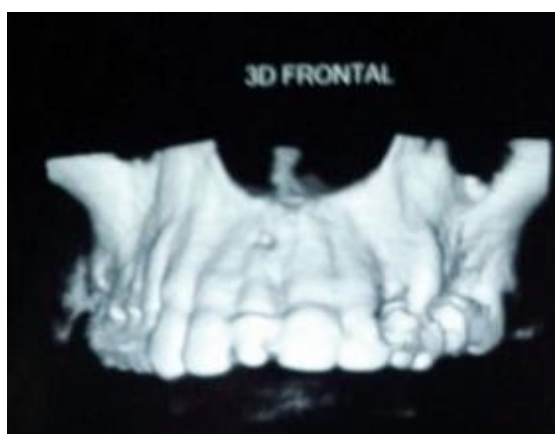


Figure 1: 3D tomographic model.

Prior to surgery, intraoral antiseptics were performed with 0.1% chlorhexidine digluconate for 1 minute and extraoral antiseptics with 2% chlorhexidine digluconate. The anesthetic of choice was 2% mepivacaine with epinephrine 1: 100,000, making infraorbital nerve block, posterior superior alveolar nerve, major palatine nerve and nasal palatine. Tunneling curettes were used to allow less traumatic manipulation of tissues. The surgical procedure was initiated with the preparation of the recipient bed by means of an intrasulcular incision on the vestibular surface of the implant with tunneling made with the curette number 02, without separating the interdental papillae, forming a tunnel between the mucosa and the periosteum. With the aid of a periodontal probe, it was verified that the tunnel is in the same plane favoring the horizontal sliding of the graft. The graft conjunctive of the tuber was obtained through a full thickness linear incision with the scalpel blade number 15c in the posterior maxilla region. After the linear incision, the epithelial tissue

conjunctive was divided with the molt curet 2-4. Thereafter, an "X" compressive suture with 4-0 monofilament silk thread was performed in the donor area to promote flap stabilization and tissue repair. The connective tissue graft was prepared with slide 15c, leaving the surface more adaptable to be inserted through the intraassucular incision in the tunnel light (Figure 2) with the aid of tunneling curette number 2 (Figure 3).



Figure 2: Positioned graft.



Figure 3: Tunneling Curetase number 2 inserting the connective graft.

A suture was made in the graft and distal vestibular region of the mucosa with reabsorbable, colorless and monofilament strand 5.0 to facilitate its insertion. The graft was stabilized with a 5-0 monofilament wire suture at the ends of the flap, simple stitches joining the buccal mucosa-graft-mucosa palatine to cover the entire graft to prevent necrosis and reposition the gingival tissue toward the implant favoring the white and pink esthetics, as well as the emergency profile of the dental crown (Figure 4).



Figure 4: Suture.

DISCUSSION

Treatment with osseointegrated implants is extensive and requires good planning for a successful outcome. Planning is divided into essential steps that need to be planned for good clinical outcomes².

The soft tissue grafts have become an important topic of implant study. The main objectives of this technique are to increase keratinized tissue width and increase tissue volume in peri-implant regions to facilitate plaque control, greater stability and marginal bone levels. Studies show that the tunneling technique with connective graft covers the gingival defect of 96.4% of the cases and the technique of coronal repositioning with a collagen matrix of 75.5%. The tunneling technique is not indicated for gingival losses ≥ 3 mm since it requires gingival tissue to cover the graft⁴.

Tunneling achieves predictable results in relation to the coverage of root recess and increase of keratinized gingival tissue. Indicated for regions with high aesthetic requirements, therefore, it preserves the interdental papillae, without relaxing incisions, which favors the blood supply of the graft in 3 directions, allowing excellent aesthetic-functional results in the long term. However, for the success of this technique the operator must have security and use specific resources and instruments⁵.

The results showed that the cases where soft tissue augmentation procedures were performed in relation to the control group presented advantages such as aesthetics, union of soft tissue with the synthetic part of the implant, greater tissue stability, ease of hygiene and reduction of bacterial infiltrate, favoring, success and longevity of the implant therapy. In cases where the peri-implanted keratinized tissue is ≤ 2 mm, it impairs hygiene, increases the accumulation of biofilm and consequently peri-implant inflammation, which may lead to early implant loss⁵⁻⁶.

The main advantage of the tunneling technique is the preservation of the interdental papilla. The papilla being cut is very difficult to reconstruct again because it is a fragile tissue, besides the difficulty in the blood supply and the difficulty of desepitelização that is indispensable to form papilla surgically. Other benefits include non-scarring, absence of significant changes in the position of the mucogingival line, maintenance of vestibule depth, protection of the position of papilla height and absence of vertical incisions giving predictability, which leads to successful treatments and clinical longevity⁵⁻⁷.

Several factors will be considered in order to obtain a favorable prognosis for the surgery, such as: systemic condition of the patient, oral hygiene, smoking, amount of tissue lost, surgical technique used, tissue manipulation, flap irrigation and planning. Taking these factors into account and

following the clinical guidelines of the surgeon significantly increases the success of this periodontal therapy⁵.

FINAL CONSIDERATIONS

It can be concluded from this study that tunneling is a technique that is free of incision and has a range of indications, in clinical experience one can observe excellent results. This technique has a microsurgery concept that has as a function a better cicatrization, which happens to be an atraumatic manipulation of the tissues, allowing a better blood supply to occur. As a consequence, with the evolution of the technique that originally had indication only for root coverage in periodontal procedures, it has a broader surgical vision where tunneling also becomes a great option in implant surgeries.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interests.

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Received 04/07/2019

Accepted 07/01/2020