Application of Free Gingival Grafts Around Implants with Insufficient Keratinized Mucous

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Abstract

The use of dental implants for treating today's tooth deficiencies has increased considerably. However, there is a significant increase in the rate of dental implant complications and peri-implant disease. The width and thickness of the keratinized tissue around the dental implant is one of the most important factors that increase the success of the implant. This is necessary for the long-term aesthetics and function of the implants. Augmentation materials used in cases of insufficiency of keratinized tissue around the implant are free gingival grafts (FGGs), subepithelial connective tissue grafts (SCTGs), and free periosteal grafts (FPGs). In this case report, we aimed to increase the keratinized gingival tissue around the implant by applying FGG to a patient with insufficient keratinized gingival tissue after implant application.

Case Report (HRU Int J Dent Oral Res 2022; 2(3):196-199)

Keywords: Implant, keratinized mucosa, free gingival graft.

Introduction

Free gingival grafts taken from the patient's maxillary palatal region are considered the gold standard among the materials used to increase the thickness and width of the keratinized tissue around the tooth and implant (1). Although it is mentioned that the donor sites may be the palate, tuber region or mandibular retromalar region, the most grafted and the most successful region is the maxillary palatal region, which has the chewing mucosa (2,3,4).

In the case of insufficient tissue around the implant, the onset of peri-implant diseases and implant losses become inevitable. Therefore, the KM thickness and width around the implant should be at least 2 mm (5).

The absence of stable tissues around the implant is one of the most important reasons for the onset of peri-implant diseases. Especially in areas with atrophied crests, it causes the loss of soft tissue along with resorbed hard tissue and shallowing of the vestibule depth. After implant surgeries are applied to these areas, movement occurs in the tissue around the implant with cheek lip tongue movements, and as a result, the importance of KM thickness emerges as implant complications occur (6).

The keratinized epithelial tissue taken from the palate and contains some connective tissue is called the free gingival graft, and this tissue was first used to increase the depth of the vestibule and to regenerate the lost keratinized tissue (7,8).

Movement in the peri-implant tissues, which occurs when the vestibule around the implant is shallow and

there is not enough keratinized gum tissue, may cause oral hygiene to be ineffective and inflammation in the region. The mobile marginal zone increases bacterial permeability.

In this case report, we aimed to prevent inflammation around the implant and increase implant success by using FGG as an autogenous graft material in peri-implant tissues where insufficient keratinized tissue and sulcus depth were detected after implant application. Detailed information was given from the patient about the surgical procedure to be performed before the procedure, and consent was obtained.

Case Report

A 43-year-old systemically healthy, nonsmoking female patient was admitted to our clinic due to periodontal problems. Because of of the clinical and radiological examination, 32,31,41,42 teeth with advanced periodontal loss and Miller class 3 mobility were given an indication for extraction. Following tooth extraction, an immediate implant (Dentium) was applied to the 32nd and 42nd regions, and the same session was followed by wearing healing caps. As a result of successful osseointegration, insufficient sulcus depth and keratinized tissue volume were detected in the implant area numbered 42 in the measurements before the prosthetic superstructure was made (Figure 1).

To increase the depth of the sulcus and the volume of keratinized tissue, a free gum graft was planned to be applied after vestibuloplasty. The receiving area was prepared on the buccal side of the implant, and a free gingival graft was taken from the palatal region in the appropriate size for the receiving area. The autogenous tissue graft was fixed to the recipient area with 4/0 silk sutures (Dogsan, Trabzon) (Figure 2,3). Flurbiprofen tablets (Majesic Film Tablet 100 mg, Sanovel, Istanbul) and mouthwash containing 0.12% chlorhexidine gluconate (Klorhex, Drogsan, Ankara) were given to the patient for pain control after postoperative recommendations for 7 days to use three times a day. 10 After the operation. sutures were taken daily (Figure 4). The graft in the receiving region, where the palatal donor site healed, remained stable, and healing continued. The postoperative KM thickness and sulcus depth increased.

Figure 1

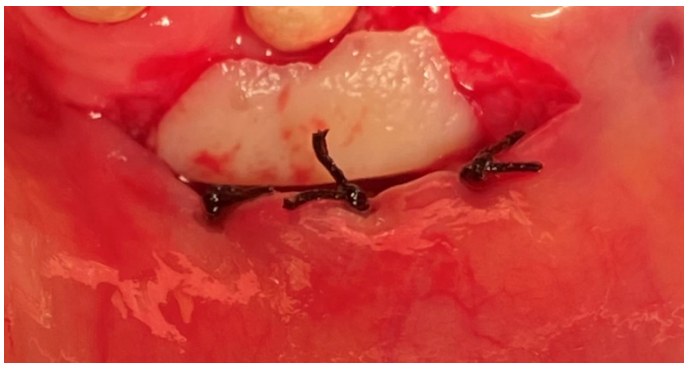

Figure 2

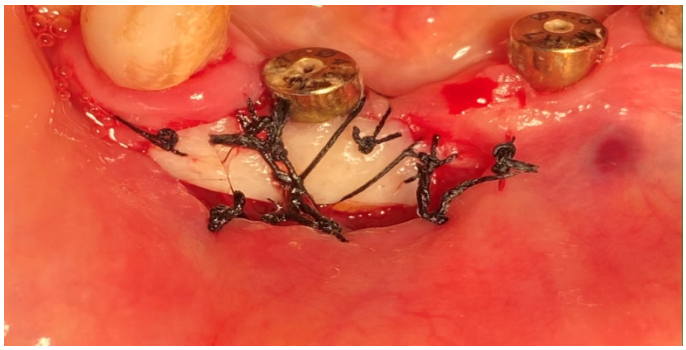

Figure 3

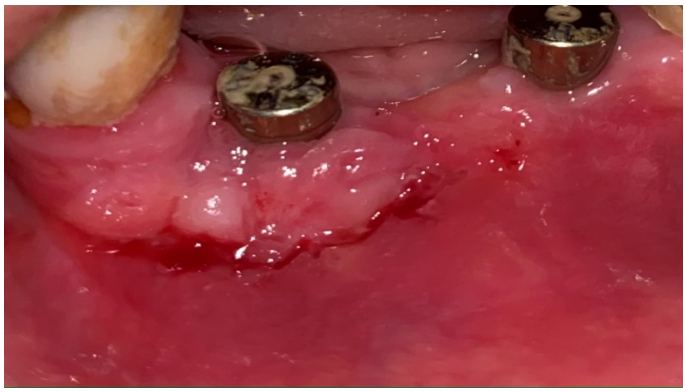

Figure 4

Discussion

For peri-implant tissues to remain healthy and be more resistant to external factors, the need for the presence of a sufficient amount of keratinized tissue has not yet become clear (9).

In a study evaluating the dental implant success of keratinized tissue, Büyüközdemir et al. evaluated KM in two groups as insufficient (≤2 mm) and sufficient (>2 mm). Patients with insufficient KM increased their KM width after FGG operations and achieved a significant improvement in immunological parameters in the region (10). In our study, plaque retention decreased due to the increase in KM width, and as a result, a significant improvement occurred in the region.

The health of the peri-implant tissues depends on the thickness and width of the keratinized tissue in the region. Some studies have shown that there will be a significant decrease in bone resorption in the region with a sufficient level of keratinized tissue thickness (11,12).
In contrast, Guo-Hao Lin et al. in his review, the amount of MILES high plaque index (Pi)/modified plaque index (MPI), modified gingival index (MGİ), and hence measures of periodontal attachment Loss Retreats mucosal shown along with their values; bleeding in probing (BP), modified bleeding index (MBI), pocket depth (PD) and have a link with bone loss (13).

Some studies have come to conclusions suggesting that this condition is related to oral hygiene. If the patient has good oral hygiene and effectively removes microbial dental plaque, they have suggested that the thickness of KM has no effect on peri-implant diseases (14).

Many studies have suggested that autogenous grafts are the most effective method of maintaining tissue health around the implant and increasing implant survival rates (15). Considering these studies, autogenous graft application was performed in our case, and high success was achieved by increasing the tissue health around the implant.

Conclusion

The presence of KM around the implant increases long-term implant success and prevents inflammation that may occur in the region. Since the destruction that begins around the implant progresses much faster than the tooth, any attempt to prevent the onset of this destruction becomes of great importance. In our case, while the initial KM width was 1 mm, an increase of 5 mm in this thickness was observed at the end of the 1-year follow-up, and the presence of healthy gums was preserved (Figure 5).

Figure 5

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