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The Closure Screw Loosening Complication of Single-Molar Implant Mimicking Peri-Implant Mucositis: A Case Report

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ABSTRACT

Screw complications may not lead to implant failures, but they are significant in relation to the amount of repair needed, time, and cost to both the clinician and patient in private practice. For submerged healing, the closure screws are particularly recommended in dental implant procedures. However screw loosening occurs after the placement of dental implants continuously over time as a result of fatigue, stress or inadequate torque. The purpose of this case report is to evaluate the closure screw loosening complication the single-molar peri-implant mucosa mimicking peri-implant mucositis. A 38-year-old male presented with swelling and suppuration around left mandibular single-molar implants 4 weeks after implant placement. A radiograph indicated that the closure screw loosening occurred, the implant had not peri-implant bone loss. After the surgical removal of the closure screw, a healing cap was placed. The symptoms reduced after treatment. At the 6-month follow-up, there were no mechanical or biological complications.

Keywords: *dental implant; screw loosening; peri-implant mucositis*

ÖZET

Vida komplikasyonları; implant kayıplarına sebep olmayabilir, ancak, pratikte hekime ve hastaya düzeltme ihtiyacı gerektirerek, zaman ve maliyet kaybı yaratabilir. Dental implant prosedürlerinde, kapalı iyileşme için özellikle kapama vidası kullanımı önerilir. Bununla beraber; implant yerleştirildikten sonra, yorgunluk, stres veya yetersiz sıkma gibi nedenlerden dolayı vida gevşemesi meydana gelebilir. Bu olgu sunumunun amacı; kapama vidasının gevşemesi nedeniyle tek diş implant etrafındaki mukozada peri-implant mukozitisi andıran bir komplikasyonun değerlendirilmesidir. 38 yaşındaki erkek hastada; implant yerleştirilmesinden sonraki 4. haftada, sol mandibular tek diş molar implant etrafında şiş ve enfeksiyon mevcuttu. Radyografik değerlendirmede, kapama vidasının gevşediği gözlendi, implant etrafında kemik kaybı yoktu. Kapama vidası cerrahi olarak çıkartıldı, iyileşme başlığı yerleştirildi. Tedavi sonrası semptomlarda azalma görüldü. 6 aylık takipte; herhangi bir mekanik veya biyolojik komplikasyon gözlenmedi.

Anahtar Kelimeler: *dental implant; vida gevşemesi; peri-implant mukozitis*

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INTRODUCTION

With the advance of dental implant technology and the consequential increase in its success rate, the dental implant has become a highly predictable treatment method. Despite this, related complications are on the rise, with peri-implant mucositis and peri-implantitis being the most commonly observed.[1] The failure of dental implants is due not only to this biological factors, but may also result from technical complications such as screw fracture and screw loosening during the treatment procedure.[2]

For submerged healing, the closure screws are particularly recommended in dental implant procedures. However screw loosening occurs after the placement of dental implants continuously over time as a result of fatigue, stress or inadequate torque.[3]

Peri-implant mucositis is defined as an inflammatory reaction of soft tissue around implants. Plaque accumulation has been established as etiological factor, smoking was identified as modifiable patient-related and excess cement as local risk indicator for the development of peri-implant mucositis.[4,5] This case report describes the management of an implant closure screw loosening of left mandibular single-molar implants mimicking peri-implant mucositis with minimal damage to the soft tissue.

CASE REPORT

A 38-year-old male was referred to our clinic for dental implant placement to restore the missing mandibular first molar. The medical and dental histories of the patient were thoroughly examined. Surgery was performed under local anesthesia and 4.0x11.5 mm osseointegrated implant were placed in missing first molar area. Approximately 4 weeks after surgery, the patient was returned with symptoms characterized by swelling, pain and inflammation on crestal mucosa of implant side (Figure 1). The closure screw loosening was occurred on the panoramic radiograph (Figure 2).

Figure 1. *Pre-operative intraoral view of the implant side*

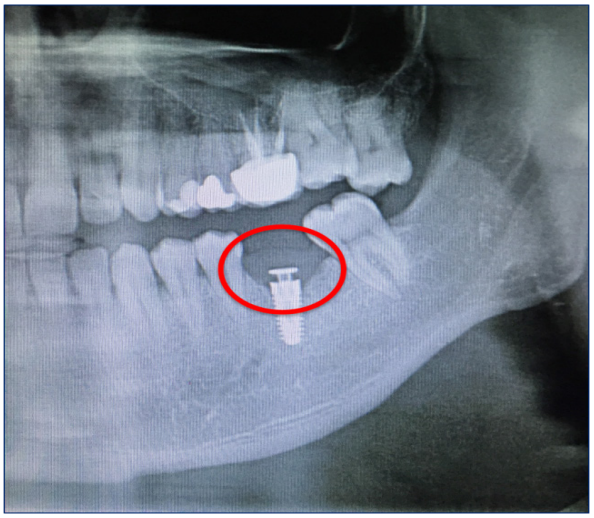

Figure 2. *Pre-operative view of the radiograph*

A crestal incision was made over the implant side, mobilized screw was removed and intraoral drainage was performed. After this procedure, a healing cap was placed and

incision was sutured. Medication therapy (Amoxicillin Clavulanate 1000 mg, Ibuprofen, Chlorhexidine gluconate) was started to resolution of the infection for seven days. The patient was completely asymptomatic during the healing period. Eight weeks later a panoramic radiography revealed a non-inflamed mucosa with no pathology evident. After the healing and osseointegration period of 2 months, implant retained single crown was finished (Figure 3-4). Follow-up period obtained five months later showed favorable results.

Figure 3. *Post-operative healing and implant abutment*

Figure 4. *Final prosthetic restoration*

DISCUSSION

Implant restorations can fail biologically or mechanically. Biological factors include unsuccessful osseointegration or presence of peri-implant mucositis and peri-implantitis. Mechanical failures include crown fracture, framework fracture, screw loosening, and screw fracture.[6] To minimize the frequency of complications, rules must be established from diagnosis to the completion of treatment and follow up of implant-supported rehabilitations, especially in terms of adequate technical steps and careful radiographic evaluation of the components.

Chae et al.[7] reported that biological complications were more frequent than mechanical complications in comparison between selected two implant systems. They also indicated that soft tissue complications had the highest incidence, followed by loosening or fracture of the abutment or screw, probing pocket depth>4 mm, and chipping of the veneering material.[7] Moreover, in the present case, soft tissue inflammation has been observed due to the screw loosening. Consequently, both biological and mechanical complications were observed at the same time.

Single implants and implant-supported single crowns have become popular treatment modalities for single tooth replacement. A recent study has identified high implant survival rates, but also many complications.[8] In this case, the closure screw had lost because of the biomechanical overload on mucosal site. In an attempt to rectify the pathology, screw was replaced and inflammation was healed, surgical debridement and antibiotic therapy were utilized before the prosthodontic procedure.

The 6th and 7th workshops of periodontology suggested the clinical definition of peri-implant mucositis as the presence of bleeding on probing without loss of supporting bone.[9,10] Despite of the similar symptoms, in the present case, the patient was not diagnosed with peri-implant mucositis. It was considered that closure screw loosening has lead the inflammation in soft tissue around the implant side.

This study confirmed that single tooth replacement using implant therapy had a high survival rate. However, pre-loading complications frequently occurred. Patients with dental implants require periodic examination and maintenance therapy to prevent peri-implant complications. The examination should include a periodontal, prosthetic, radiographic and occlusal evaluation. Not only in osseointegration process but also in prosthodontic loading process, there is a need for long-term studies evaluating the outcome of single dental implant rehabilitations.

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