

Oral and peri-oral piercings: impact on the gingival tissues

Précis

Oral and peri-oral piercings have been well documented to have destructive effects on both the dental hard tissues, and the oral and periodontal soft tissues. This paper presents two case reports, which highlight the effects of such piercings on the gingival tissues and possible treatment options available.

Abstract

Introduction: Oral and peri-oral piercings have increased in popularity in recent years. As a result, general dental practitioners are more frequently seeing the destructive effects within the oral cavity. In this paper we will discuss two cases of gingival injury as a result of lip and tongue piercings, and their management.

Discussion: The purpose of this paper is to highlight the potential negative effects of oral and peri-oral piercings, and the possible treatment options available, so that the dental team can discuss these with patients.

Conclusion: These cases highlight the destructive effect of oral and peri-oral piercings on the gingival tissues, while demonstrating a treatment option to deal with gingival recession.

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Introduction

Body piercings have been around for over 4,000 years; however, they have recently become more prevalent within society. The practice of body piercing was originally of cultural significance; lip piercings in Inuit culture symbolised a boy's transition to manhood, and an act of purification for girls.¹ Tongue piercings were practised in a ritual form by ancient Aztecs and Mayans.¹ However, nowadays oral and body piercings are used as a form of self-expression.¹

A 2012 systematic review of the prevalence of oral piercings in young adults from developed countries in Europe, North America, Asia and Australia reported that 5.2% of 11,249 young adults had an oral piercing.² A 2016 survey conducted by the Oral Health Foundation in the United Kingdom (UK) to

investigate oral piercing trends found that tongue piercings were the most common oral site at 43%, followed by lip piercings at 33%. Other anatomical sites included: frenulum (7%); cheek (3%); and, sites such as gingival piercings.³ Undoubtedly, as dental practitioners, we will see a considerable number of patients with a peri-oral piercing.

Oral and peri-oral piercings hold a special interest for the dental profession and the dental team must become aware of their associated risks and complications. In the UK, the incidence of reported medical complications associated with oral piercings in 16 to 24 year olds was 50.1% in those who had tongue piercings and 20.5% in those who had lip piercings.^{4,5} Early complications include pain, swelling and local infection.⁶ More serious complications include Ludwig's angina⁶ and hypotensive collapse as a result of haemorrhage.⁷



Dr Apryl O'Halloran

BA BDentSci DipPCD(RCSI) MFD(RCSI)
DCT 3 in Oral and Maxillofacial Surgery, Prince Charles
Hospital, Cwm Taf Morgannwg University Health Board,
Merthyr Tydfil, Wales

Corresponding author: Dr Denise MacCarthy, Division of Restorative Dentistry and Periodontology,
Dublin Dental University Hospital, Lincoln Place, Dublin 2 E: denise.maccarthy@dental.tcd.ie T: 01-612 7200

Dr Denise MacCarthy

BDS(NUI) MA MDentSc FDSRCS(Edin) FFD RCSI(Hon)
Associate Professor-Consultant, Division of Restorative
Dentistry and Periodontology, Dublin Dental University
Hospital

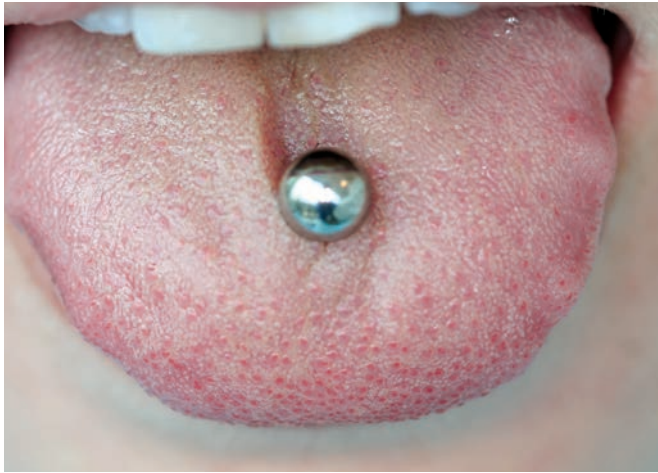


FIGURE 1: Large tongue barbell on dorsum of tongue.



FIGURE 2: 7mm of gingival recession lingual on tooth 3.1. Miller Class 2 GR (Table 2).³⁰



FIGURE 3: Broad frenal attachment.



FIGURE 4: FGG donor site was the left hard palate and recipient site was the lingual of tooth 3.1.

Dental complications include those of both hard and soft tissues, with reports of abrasions, cracks⁸ and fracture of teeth,⁹ pulpal damage resulting in loss of tooth vitality,¹⁰ gingival recession (GR), periodontal destruction, galvanic reactions, hypersalivation and localised tissue overgrowth.^{11,12}

This paper illustrates the localised gingival soft tissue destruction caused by peri-oral piercings and possible treatment options available to manage their consequences. Both patients were referred to the Dublin Dental University Hospital by their general dental practitioners (GDPs).

Case 1

A 24-year-old female was referred for a specialist periodontal assessment regarding GR on the lingual of tooth 3.1.

Her presenting complaint was that her gum had been “stripped back by a tongue bar” (Figure 1), which she had worn for approximately six years without removal. Medically she was fit and well, was a never smoker and moderate alcohol drinker. She was an avid kickboxer and she wore a mouth guard. However, she was worried that her front tooth might be weakened due to the GR and could be knocked out.

Extra-orally, no abnormalities were detected. Intra-orally, bilateral linea alba on her buccal mucosa and crenations on the lateral borders of her tongue were noted (Figure 1), suggesting hyperactivity. She had a moderately restored dentition with some incisal edge enamel fractures. Her oral hygiene was fair and her periodontal diagnosis was of localised gingivitis with a thin gingival biotype. A 7mm area of GR with associated bone destruction was noted on the lingual of tooth 3.1. There was calculus build-up on the lingual surface of tooth 3.1 (Figure 2) and also on the sublingual aspect of the tongue barbell she wore. In conjunction with the GR, she had a high and broad lingual frenal attachment (Figure 3). Radiographic examination did not reveal any pathological change. Following discussion, a treatment plan was agreed: advice to remove the tongue piercing; oral hygiene instruction; supra-gingival tooth debridement; re-evaluation of the periodontal health following cause-related therapy; and, finally, placement of a free gingival graft (FGG). Following improvement in oral health, surgical management included lingual frenectomy and preparation of the FGG recipient site lingual to tooth 3.1. An FGG graft was harvested from the donor site on the left hard palate, positioned onto the recipient site on the lingual of tooth 3.1 and sutured in place (Figure 4).



FIGURE 5: Healing five years post FGG placement (recipient site).



FIGURE 7: Buccal gingival recession as a result of lip piercing. Miller Class 2 GR (Table 2).³⁰

Healing was satisfactory at three months and the patient returned to her GDP for follow-up care. Review at five years post treatment found that healing in the area was excellent with a well-defined, stable grafted site and increased root coverage of tooth 3.1 (Figure 5).

Case 2

A 30-year-old female was referred to the Dublin Dental University Hospital for advice regarding an area of buccal GR and tooth sensitivity associated with her mandibular right lateral incisor (tooth 4.2). She had been wearing a lip stud for approximately five years before initial presentation (Figure 6).

Medically she was fit and well, and was a never smoker. Extra-orally, no abnormalities were detected. A lip piercing was present on her lower lip, right side. Intra-orally, she had a minimally restored dentition. Oral hygiene was good and periodontal status was healthy. The gingival biotype was thin. On the buccal aspect of tooth 4.2, a 5mm area of GR was recorded (Figure 7).

The various treatment options were discussed with the patient, including: conservative monitoring of the area for a period of time to see if the gingival recession was progressive; or, surgical correction of the area of GR with soft tissue grafting (connective tissue or FGG). It was agreed that following removal of the piercing and excellent oral hygiene, an FGG procedure could be carried out in the area. The patient was advised to gently use a single-tufted toothbrush to remove dental plaque from the area affected by GR.

Following removal of the lip piercing, the recipient site was prepared buccal to



FIGURE 6: Lip piercing.

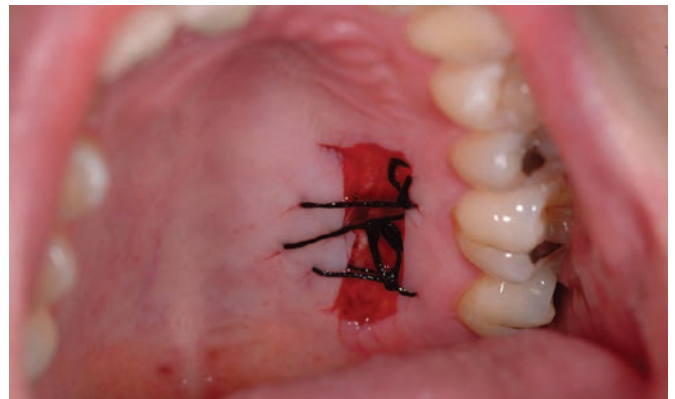


FIGURE 8: Donor site from the left hard palate.

tooth 4.2. An FGG was harvested from the donor site on the left hard palate (Figure 8). Sutures were placed across the donor site to assist healing and reduce the risk of postoperative bleeding.

The FGG was positioned on the prepared recipient site buccal to tooth 4.2 and was sutured in place. Healing was followed up for 36 months postoperatively as the patient moved abroad. The grafted area healed well and 3mm of root coverage was achieved (Figures 9a and 9b).

Discussion

The cases described above highlight potential gingival and dental complications that may be caused by lip and tongue piercings, in particular both buccal and lingual GR, localised bone destruction and tooth wear. Compounding factors such as a prominent buccal or lingual fraenum, thin gingival biotype, malocclusion and parafunctional activity were also considered.¹³ Other causes of GR include oral habits such as 'picking' at the gingiva with fingernails and post orthodontic therapy. More serious medical complications may also occur, as previously described.⁴⁻⁷

Lip piercings

The literature has shown that severity of GR is markedly increased in patients with lip rings or studs *in situ*.^{12,14-17}

Studies on lip piercings alone have highlighted the increased prevalence of GR on the buccal aspect of teeth adjacent to the intra-oral portion of the piercing.



FIGURE 9a: Follow-up at six months postoperatively.



FIGURE 9b: Follow-up at 36 months postoperatively.

Split-mouth studies on patients with lateral lower lip piercings also confirm these findings.¹⁸

The prevalence of GR is 68-80% in patients with lip piercings compared to 4-22% in control groups.^{14,16,17} The time since the piercing was placed and the position of the stud are significantly associated with gingival recession.¹⁷ However, there appears to be no abnormal tooth wear associated with labial piercings.¹⁹

Labial GR is clearly related to the labial stud, which would have to be in constant contact with the keratinised tissue in this area. The width of keratinised tissue is directly related to the amount of buccal GR.¹⁶

Tongue piercings

The tongue is the most prevalent site for an oral piercing and the piercing is typically situated just anterior to the lingual fraenum along the midline.²⁰ Oral complications from tongue piercings have been well documented.

Trauma to the lingual gingival tissues of the anterior teeth is the most common complication found in patients with tongue barbells. Studies report the prevalence of lingual GR ranging between 3 and 33%.²¹⁻²³ The extent of GR is directly correlated with the amount of time the tongue piercing has been worn. The mandibular incisors are the most commonly affected at 88% and maxillary teeth do not appear to be affected.²² This reinforces the contribution of the mechanical action of the tongue barbell, during tongue protrusion, to GR on lingual surfaces of mandibular incisors.²³

Table 1: Treatment options to manage gingival recession.

1. Accept the area of GR and monitor with photographs and clinical measurements to assess progression. If progressive, or causing aesthetic issues, corrective procedures should be considered.
2. Frenectomy
3. Lateral rotational graft
4. Double papilla graft
5. Free gingival graft (FGG)
6. Sub-epithelial connective tissue graft
7. Coronally advanced flap
8. Free-gingival graft followed by a coronally advanced flap

Table 2: Miller's classification of gingival recession defects.³⁰

Class 1	GR not extending to the mucogingival junction (MGJ)	Complete root coverage is achievable – 100%
Class 2	GR extends to or beyond the MGJ, with no interdental periodontal attachment loss (i.e., bone, soft tissue)	Complete root coverage is achievable – 100%
Class 3	GR extends to or beyond the MGJ, with moderate periodontal attachment loss in the interdental area	Only partial root coverage possible to the height of the contour of interproximal tissue – 50-70%
Class 4	GR extends to or beyond the MGJ, with severe periodontal attachment loss in the interdental area	Root coverage is unpredictable

Dental fractures are the most commonly observed hard tissue complication of tongue piercings, with some studies reporting fractured teeth in up to 50% of individuals with these piercings. Results from studies suggest that posterior teeth are more commonly affected and this is due to trauma caused by biting on the tongue barbell. It has also been reported that abnormal tooth wear can occur following barbell placement and this may contribute to cracked tooth syndrome.²⁴

It has been suggested that mechanical trauma from repeated, habitual holding or moving the stud between teeth can lead to periodontal destruction similar in fashion to the effect of occlusal trauma on bony tissue.²⁵

Finally, potentially serious post-placement complications including oedema, haemorrhage and infection may occur. Individuals should be advised about these prior to placement.²⁵

Treatment options

GR is described as the displacement of the soft tissue margin beyond the cemento-enamel junction leading to root exposure.²⁶ There are several treatment options to manage GR (Table 1). Further information regarding management of GR can be found in any good clinical periodontology textbook.²⁶ This paper focuses on FGGs and frenectomy.

FGGs are autogenous, keratinised, soft tissue, avascular grafts, which are transferred from an area distant to the area of GR to cover the defect. These techniques are used where there is inadequate donor tissue close to the recipient site, or where the aim of treatment is to increase the width of attached gingiva, tissue thickness or for root coverage. The graft is taken from the donor site completely devoid of a blood supply, relying on the recipient site for restoring blood supply. There are, however, some disadvantages to the FGG procedure. Aesthetics may be compromised given the difference in colour between the FGG and the surrounding mucous membrane, and there is a denuded surface left behind on the palate, which heals by secondary intention. Despite this, FGGs have a long history of being highly predictable and successful in the appropriate situation.²⁷ It is also interesting to note that root coverage can be expected to improve further with time.²⁸

In patients with a high or broad frenal attachment, a frenectomy can be considered in conjunction with an FGG. A frenectomy involves removing the frenum along with the attachments to the underlying bone. This removes the 'pull' on the labial and/or lingual gingivae, helping to prevent recurrence of the GR defect.²⁹

The use of a subepithelial connective tissue graft is also an excellent technique to cover single or multiple areas of GR.

A decision regarding the most appropriate procedure to achieve coverage or stabilisation of areas of GR can be made following detailed assessment and on a case-by-case basis.

Conclusion

The GDP and dental hygienist should be aware of the potential consequences of oral and peri-oral piercings given their increased prevalence in today's society. Practitioners should take time to discuss complications of oral piercings with patients and encourage removal. If piercing-related complications occur, the relevant treatment modalities must be clearly discussed with the patient, including conservative removal of the piercing and monitoring of the affected site for any progression of the problems. If the area of gingival recession is progressive, is causing aesthetic issues or is associated with tooth sensitivity, the dentist should consider appropriate management options, including referral to a periodontist.

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CPD questions

To claim CPD points, go to the MEMBERS' SECTION of www.dentist.ie and answer the following questions:

1. The most common site for an oral piercing (according to the Oral Health Foundation in the UK) is:

- ☐ A: Lip
- ☐ B: Tongue
- ☐ C: Gingivae
- ☐ D: Uvula

2. The type of tissue transferred in a free gingival graft is:

- ☐ A: Keratinised tissue
- ☐ B: Non-keratinised tissue
- ☐ C: Muscle
- ☐ D: Adipose tissue

3. What is the most common hard tissue complication of a tongue barbell?

- ☐ A: Cracked tooth syndrome
- ☐ B: Devitalisation of teeth
- ☐ C: Fractured teeth
- ☐ D: Lingual gingival recession



CPD