

Oral Piercing and Its Complications in Two Serbian Youths A Case Report and Review of the Literature

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ABSTRACT

Objective: Historically, wearing adornments on pierced body parts has been associated with many cultures as manifestations of religious or cultural identities. Currently, its use has a broad acceptance among young people. In the oral cavity, the most common sites for piercings are the tongue and lower lip.

Results: Pain, swelling and infection are the most serious consequences associated with this procedure. Several complications may be associated with this practice with the most frequently observed being halitosis, periodontitis, tooth fracture, glossitis, and the formation of abscesses. Other adverse outcomes include mucosal or gingival trauma, increased salivary flow, and interference with speech, mastication and swallowing.

Conclusion: This article presents case reports on lip and tongue piercings and literature review highlights of this procedure. Special attention is given to complications and dental implications associated with such a practice.

Keywords: Complications, case report, lip piercing, tongue piercing

El Piercing Oral y Sus Complicaciones en dos Jóvenes de Serbia Reporte de Caso y Revisión de la Literatura

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RESUMEN

Objetivo: Históricamente, el llevar adornos en partes del cuerpo perforadas ha sido asociado en muchas culturas como manifestaciones de identidades religiosas o culturales. Actualmente, su uso tiene amplia aceptación entre los jóvenes. En la cavidad oral, los sitios más comunes para el piercing son la lengua y el labio inferior.

Resultados: Dolor, inflamación e infección son las consecuencias más serias asociadas con este procedimiento. Varias complicaciones pueden asociarse con esta práctica, siendo la halitosis, la periodontitis, la fractura de dientes, la glositis, y la formación de abscesos, las más frecuentemente observadas. Otros resultados adversos incluyen traumas de la mucosa y la encía, aumento del flujo salival, e interferencia con la articulación del habla, la masticación, y la deglución.

Conclusión: Este artículo presenta reportes de caso de piercing del labio y la lengua, y resalta aspectos de este procedimiento como parte de una revisión de la literatura. Se presta especial atención a las complicaciones y las implicaciones dentales asociadas con tal práctica.

Palabras claves: Complicaciones, reporte de caso, piercing del labio, piercing de la lengua

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INTRODUCTION

The practice of body ornamentation in the form of piercing and tattoos was adopted by ancient civilizations and remains popular in the western world apparently for the manifestation

of self-expression (1–3). It is now quite common for males and females to wear ear jewellery in single or multiple pierced sites.

Body art, however, encompasses acts such as tattooing and the wearing of jewellery in non-traditional, unconventional sites. Body piercing has become very popular because of its versatility and reversibility, but, until recently, oral piercing was limited largely to developing countries (4).

The piercing of oral soft tissues and the placement of ornaments is somewhat more novel, but is growing in popularity. Oral piercing and its associated hardware may be placed in the lips, tongue, cheeks, or uvula in various combinations (5). The lower lip and the tongue are the most common oral sites (6). The lip is the most commonly pierced site, but tongue piercing is becoming more prevalent (7).

With the growing number of oral piercings being performed, it is vital that dentists be aware of the risks, complications and dental implications associated with such procedures (8). When an oral piercing is performed and associated hardware placed, all immediate and subsequent consequences must be considered along with such issues as infection control during the procedure, sterility of the materials, and anatomical conditions (9).

For oral piercing, a variety of complications have been reported (10). These complications can be categorized as acute (or early) and late [or chronic] (10). Early complications include pain, swelling, mild bleeding, difficulties in mastication, swallowing and speech, loss of sensitivity, bacterial infection and prolonged bleeding (10). Late complications include chipped and fractured teeth, gingival recession, localized periodontitis, persistent difficulties in oral functions and swallowing of the device (10). The increasing popularity of lip piercing has prompted several case reports and studies documenting associated periodontal complications (11–14).

This article includes two case reports on lip and tongue piercing, and presents the topic of oral piercing with special emphasis on complications and dental considerations. This article is approved by the Ethics Committee of Medical Faculty, University in Nis (No: 01-2800-5) and the patients gave informed consent.

CASE REPORTS

Case 1: A twenty-five year old Serbian female patient presented for a dental consultation regarding tongue piercing at the Department for Oral Medicine at the Dental Clinic of the Medical Faculty, University in Nis. The patient was interested in obtaining a professional opinion on the matter from a dental practitioner as the piercing involved oral tissues. The patient had obtained relevant information from the piercer who was to perform the procedure; she had also consulted the Internet home pages. Further questioning revealed that she had piercings and body art elsewhere on her body.

After listening to the patient's requests and the details provided about the piercing procedure, the dental practitioner advised against the tongue piercing and explained the reasons and possible complications such an act could cause. The patient decided to give the matter further consideration. One week later, she returned to the Department of Oral Medicine with an oedematous tongue with purulent exudate and reported difficulty in speech and mastication. A medical history revealed past allergic reactions to penicillin antibiotics and pethidine opioid analgesics. Clinical examination revealed a metal barbell transfixing through the tongue.

The tongue had been pierced with a 14 gauge needle without anaesthesia and was not painful. The tongue bled slightly after the piercing procedure, and the patient had been advised by the piercer to rinse with some mouthwash after each meal. She had also been advised to take some anti-inflammatory drugs soon after the piercing to help reduce the swelling, and to avoid unnecessary oral contact during the three to six-week healing period.

The onset of swelling was noted six to eight hours following the procedure and had increased over the next three to four days especially after prolonged conversations, meal times and physically active periods. When the patient removed the metal barbell from the tongue, the purulent exudate could be seen from the wound (Fig. 1).



Fig. 1: Purulent exudate.

Twenty days after clindamycin therapy, the infection was considered resolved (Fig. 2). One month after therapy, the patient again had tongue piercing (Figs. 3, 4).

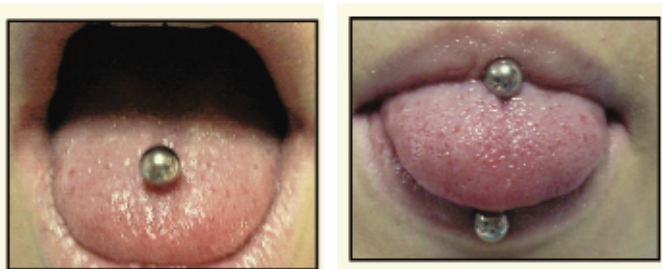
Case 2: A 21-year old male was referred to the Department of Periodontology and Oral Medicine at the Dental Clinic of the Medical Faculty, University in Nis with symptoms of dental hypersensitivity and gingival recession of the mandibular central incisor. He appeared in good physical condition. The patient had undergone lip piercing six months



Fig. 2: After clindamycin therapy



Fig. 6: Gingival recession.



Figs. 3. and 4: Replaced piercing one month after therapy.

earlier; the lip stud was positioned 1 cm below the middle portion of the inferior lip, where a metallic sphere could be seen (Fig. 5).



Fig. 5: Lip piercing.

Clinical examination revealed plaque and gingivitis scores close to 10% but the presence of a recession defect at a mandibular central incisor (Fig. 6) was noted. The gingival lesions had developed during the intervening six months. The defects were classified as Class II according to Miller's classification of marginal tissue recession (15), in which the extension of the defects crossed the mucogingival junction without presenting any signs of interdental bone loss.

The barbell seemed to be the main causative agent of the dental injuries. A metal disk holding a labial stud in place was in proximity to the first mandibular right incisor and a clinical diagnosis of mechanical recession related to the piercing was then made.

The removal of the metal disk and periodontal therapy were suggested by the dental practitioner but the patient refused the advice.

DISCUSSION

Body piercings and other body modifications have increased tremendously in popularity in recent years and have started to be practised across many social and age groups (1, 16). Although oral piercing is an unusual practice, lip and tongue piercings are gaining popularity. Oral and intraoral piercings have become a more prevalent form of body art and self-expression in today's society. However, oral piercings, which involve the tongue (most common site), lips, cheeks, uvula or a combination of sites, have been implicated with a number of adverse oral and systemic conditions.

Placement of the jewellery is usually performed by nonmedical professionals who are sometimes unaware of the anatomical characteristics of the oral and perioral area or the need for asepsis of any materials inserted into the tissues. Campbell and others (17) evaluated the effect of time (in years) and size of the stem and the barbell of tongue piercings in relation to gingival trauma and tooth damage. They found that tongue piercing can be an important causative agent in the development of gingival recession of the lower anterior teeth and were also associated with dental trauma in molars.

The most obvious complications are those of pain, swelling, impairment of speech and eating, tooth fracture, oral infections, septicaemia, gingival recession, and the risk of aspiration of loose piercing hardware (18). Furthermore, diastemata in the upper and lower jaw as well as chipping and tooth fractures including both enamel and dentin have been described after tongue piercing (19–21). Theodossy (22) first described healing of the ventral mucosa over piercing hardware. He claimed the penetration of the metallic globe

was a secondary event following tongue swelling and saliva stimulation promoted by the perforation of the tongue. Scott *et al* (23) described an odd case where the ventral stud was located in the tongue body. Neither paper in which the ventral stud was located in the tongue describes the possible mechanisms that can cause the tongue hardware to become embedded in this location. Oral piercing also interferes with radiographic examinations of the oral cavity, *eg* with panorama techniques. Therefore, temporary removal of oral piercings during dental treatment has been recommended.

The first patient described here was initially reluctant to remove the tongue stud, although the infection of the tongue stimulated her to change her mind. In response to questioning, the patient indicated that she had not received enough information about caring for the piercing. Other complications, such as chipped or fractured teeth (17, 24, 25), interproximal bone loss (26), tooth abrasion and galvanic currents produced by the jewellery, and lingual gingival trauma (17, 18), have been observed in patients with tongue piercings. There are potential risks of postoperative complications, such as infection, oedema and mechanical trauma, among patients who have not been instructed about proper maintenance and hygiene of oral piercings (24, 27, 28).

Tongue piercings are usually performed with a 14 or 16 gauge needle in a two-step procedure. The dorsal surface of the tongue is marked, usually along the midline and anterior to the lingual frenulum. The tongue is held with a clamp and the needle is used to pierce the tongue in a ventral-dorsal direction. After that, the free end of the temporary metal jewellery is inserted through a plastic sheath traversing the tongue. Once the barbell shank is in place, the plastic sheath is removed, and a ball shape is secured with a pair of pliers. The barbell initially placed has an 18 mm long shank to accommodate the increased swelling during the next five to six days. Approximately two weeks later, the 18 mm barbell is removed and a shorter one, 12–15 mm long, is inserted as the permanent jewellery. The piercing is carried out without anaesthetic, and although no pain was experienced in the case reported here, it would seem that oral pain following such a procedure is inevitable, especially in unskilled hands.

Extensive oedema and infections including abscess formations have been reported after tongue piercing, due to the large number of bacteria in the oral cavity (5, 29). Oedema of the tongue is a feature of all tongue piercing because of the vascularity of the area, and can be marked, causing airway obstruction and embedding of the metal barbell into the body of the tongue during healing. This is a serious problem that requires use of anti-inflammatory agents to control the swelling. Piercing of oral sites is associated with a high risk of infection because of the large and diverse oral microflora present and the possible transmission of organisms such as HIV, hepatitis B and C, herpes simplex virus, Epstein-Barr virus and candida.

The pierced site should be kept as clean as possible and an antiseptic mouthwash should be used three to four times daily until complete healing occurs. If a patient does present with inflammation and pain from an oral piercing, removal of the jewellery, local debridement, and use of chlorhexidine and antibiotic therapy should help resolve the problem and accelerate the healing process (30). The patient's progress should be monitored to avoid spread of infection through fascial planes. Perkins *et al* (21) reported a case of Ludwig's angina secondary to tongue piercing, associated with pain and swelling of the tongue and floor of the mouth. Antibiotic therapy proved unsuccessful, and intubation was required to secure the patient's airway. The barbell was removed from the tongue and the floor of the mouth was surgically decompressed with three extra-oral drains.

However, in our case, the second patient refused to remove the traumatic agent. The main agents causing gingival recession that have been described in the literature are dental plaque (31), destructive periodontal disease (32), mechanical trauma (33) areas with absence or a narrow zone (width) of attached gingiva (34), reduced thickness of the alveolar bone in the buccolingual side (35), root prominence (36), irregular tooth alignment in the dental arch (37), margins of gingival restorations (38) and viruses (39).

Another agent that may produce mechanical trauma to oral tissues and that might be associated with gingival recessions is body piercing. This practice has been performed for centuries by some ethnic groups as part of traditional rituals (40), and has recently become more common among youths (41); various areas of the body, such as the face and parts of the mouth, may be subjected to insertion of metallic objects. This practice has been directly related to dental and gingival injuries on the lingual aspect of the anterior lower teeth in cases of tongue piercing (17, 24, 42) and to buccal gingival recession in cases where the lip stud is located such that it can traumatize the gingiva (13, 17).

Other complications caused by lip piercing, such as lip inflammation (42, 43), have also been reported, as well as several cases of pathologic conditions caused by oral and perioral piercings, such as bacterial infections, oedema and allergies [particularly to nickel] (18, 25, 26).

Since 1997, several case reports and series (11, 12, 14, 44) have reported on the occurrence of gingival recessions associated with labial piercing. All these piercings were similar: the lip studs were positioned in the labio-mental groove below the vermilion border, with an intra-oral metal disk adjacent to the mandibular incisors. Previously published clinical studies have shown that gingival recession was recorded in up to 80% of pierced subjects (18, 45, 46).

A recent epidemiologic study examining risk indicators for gingival recessions showed that prevalence, extent and severity correlated with age (47). Individuals who were 25–50 years of age showed the highest level of recession (47). In addition, men aged \pm 30 years showed significantly

higher prevalence and extent of gingival recession than women (47), and, in a multivariable model, cigarette smoking (total number of packs of cigarettes consumed in a lifetime) was significantly associated with localized and generalized recessions (47). The vestibular frenulum has been considered as a possible primary cause for gingival recession (48). However, it has also been proposed that the frenulum acts only as a secondary cause in the development of recessions (48). Therefore, further longitudinal studies are needed to clarify the role of frenula insertions during the development of buccal recessions with labial piercing.

A small number of patients had localized periodontitis at the area directly opposite the labret. Full-mouth periodontal probing did not reveal any further clinical attachment loss. To date, only a limited number of case reports have been published on the association of intra-oral piercing with localized periodontitis (49). Clinical effects of the mechanical trauma might also depend on the intra-oral position of the retainer: coronal to the cemento-enamel junction, at the cemento-enamel junction (at the gingival margin), or apical to the cemento-enamel junction (coronal or apical to the mucogingival junction). In general, the development of gingival recessions is related to multiple aetiological factors (50–52). With lip studs, gingival recession might be related to the mechanical trauma of the intra-oral retainer of the stud. The extent of mechanical trauma might be modified by the material of the intra-oral retainer.

Other possible contributing factors for the development of recessions, such as gender, age, smoking status and previous orthodontic treatment, were evaluated, but no association with prevalence or severity of buccal recessions were found (39). In addition, many studies looked at the width of keratinized gingiva, periodontal biotype, frenulum attachment, occlusal trauma and average time of tooth brushing per day. These parameters have been described in the literature as possible aetiological factors of gingival recession (50). Reduced width of keratinized gingiva has been discussed as a possible aetiological factor for recession development (47), and it has been suggested that sites with a narrow zone or a lack of keratinized gingiva may, in the presence of subgingival plaque, favour the apical displacement of the soft tissue margin (32).

Mayers *et al* (41), for example, reported the incidence of medical complications after body piercing to be 17%. These included bleeding, tissue trauma and bacterial infections. The rate of acute complications resulting from body piercing is determined by piercing site, material, practitioner experience, hygiene and follow-up (1).

As most of the patients had their piercing carried out at piercing studios, insufficient hygiene and lack of follow-up might be responsible for the high early complication rate. Early post-piercing complications could only be determined retrospectively using a self-assessment questionnaire and are therefore of limited value.

During the recovery period after lip and tongue piercing, patients must wash their hands before touching or cleaning the pierced area; they should also check the ends of the barbell twice a day to ensure that they are tight against the mucosal surface (to avoid damage to the teeth or swallowing of the barbell), avoid public swimming pools and use an antibacterial mouthwash that does not contain alcohol for rinsing after meals (26).

CONCLUSION

With the growing popularity of oral piercing, dental practitioners should be aware of the possible problems associated with such an unusual practice, and be prepared to address them accordingly. Dentists should also be able to provide consultation to patients contemplating oral piercing. While many oral piercings probably resolve uneventfully, the wide range of possible adverse outcomes associated with the procedure make it difficult to condone.

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