

Local and Systemic Complications due to Oral Piercing: An Overview

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Abstract:

In some situations, aesthetic and personal satisfaction can provide deleterious and unhealthy situations. The use of body ornaments or body piercings is an example, particularly in the young population. In the stomatognathic system or oral cavity, piercings can cause soft tissue injuries, pain, infection, enamel wear, tooth fractures, periodontal lesions, and scars. Concomitantly, systemic damage can be observed, such as feeding and phonation difficulties, sepsis, and hemorrhage. The purpose of this article is to present the conduct of dental surgeon when dealing with patients with piercings in the oral cavity. The removal of adornments should be suggested and encouraged. When removal is not allowed, patients should be oriented preventively to avoid further complications.

Keywords: body piercing; body piercing/utilization; body piercing/adverse effects; oral cavity.

Introduction

The use of body ornamentation, historically, comes from ancient civilizations and represented cultural, social, and religious values. Chinese and Hindus perforated their lips, cheeks, and tongue as a religious symbolization. Indians belonging to Amazonian tribes pierced their lips with pieces of wood for cultural traditions¹⁻⁵. The Egyptians customarily used piercings as a sign of royalty, while for the Mayans it carried spiritual meaning^{1-3,6}. The Mayans also developed techniques for making and installing dental piercings. With objects resembling hand drills, they made cavities in the tooth enamel that would later be filled with precious or semi-precious stones^{3,4}.

Currently, oral piercings have become a worldwide phenomenon, affecting people of different ages and genders in several countries. The young adult population is more predominant^{7,8}. However, an alarming increase in mouth piercings has been observed in the population aged 11 to 14 years⁸.

These adornments have acquired conventional shapes and can be made of various materials, often gold, silver, stainless steel, titanium, surgical steel, polytetrafluoroethylene, and acrylic. As for the types, the most common oral piercings are the lip button and the translingual bar. Rings, subcutaneous piercings, and dental piercings are not uncommon. The labial button is a piercing with two ends (barbells), one of which is located in the intraoral region, while the other is usually below the lower lip in an extraoral position^{3,7,9}. The translingual bar crosses the tongue from the dorsum to the belly in such a way as to expose its extremities^{3,7,10,11}.

Regarding the location of these ornaments, we can find them in several regions such as the ears, eyebrows, nose, periumbilical region, male and female genitalias. In the oral cavity, piercings can be found on the tongue, lips, cheeks, lips and uvula.

However, the increasing frequency of use in the oral cavity has been the focus of attention of the dental surgeons^{1-3,5,7,8,10-17}.

In this perspective, the role of the dental surgeon becomes essential for the preservation of oral health, collaborating with the systemic health of the patient. The purpose of this article is to discuss the possible local and systemic complications resulting from the use of piercings, as well as the conduct of the dental surgeon and patient care.

Discussion

The application of oral piercings rarely presents alterations in systemic health. Particularly, complications and disorders resulting from their installation refer to the head and neck region, besides the oral cavity itself and the stomatognathic system. Among the systemic disorders resulting from the application of oral piercings, Ludwig's Angina^{1,3,13-15,18,19}; bacteremia and septicemia^{1,3,5,7,8,13-15}; endocarditis^{1-3,20}; hemorrhage^{1-3,7,8,13-15,20-22}; changes in leukocyte levels²²; the possibility of aspiration or ingestion of the piercing^{3,7,13,14} have been cited. A case of hypotensive collapse has been described, being caused by uncontrollable hemorrhage in the tongue region after an attempt to install a tongue piercing²¹.

In the oral cavity or stomatognathic system, allergic reactions resulting from contact with the metal piercing have been reported^{3,7,13-15,23-25}; the formation of galvanic current between the metal piercing and restorations, causing discomfort and sialorrhea^{3,7,13-15,26}; difficulty in phonation and swallowing; installation of inflammatory process, characterized by pain and edema^{3,7,8}; formation of granulation tissue and hyperplastic lesion or keloid resulting from the inflammatory process^{1,3,5,7,11,13-15,20,22,27}; fractures and lesions on teeth, such as abrasions and wear on tooth enamel; lesions in adjacent tissues^{1-3,7,8,11-13,28,29}; periodontal lesions resulting from trauma and contact, such as gingival retraction^{1-3,7,8,11-15,20}; increased predisposition to accumulation and retention of food and dental biofilm, leading to the establishment of periodontal diseases^{1,3,7,8,17,20,28,29}; dentin hypersensitivity, caused by gingival retraction or by the formation of galvanic current; paresthesia, depending on the region of placement^{3,7,13,14}. It has been observed that among the allergic reactions caused by the metals used in the manufacture of piercings, surgical steel, despite its biocompatibility, can undergo a corrosion process, releasing chromium and nickel as by-products²³. Chromium has been considered carcinogenic, and nickel is allergenic²⁵. Titanium was found to be the most biocompatible material for making earrings and piercings²⁴. Table 1 summarizes the possible disorders and complications resulting from the application of oral piercings. In the postoperative period, it may be necessary to administer drugs, which may interfere with the homeostasis of the body. The administration of antibiotics may compromise the immune system, and anti-inflammatory and analgesic drugs may cause aggression to the gastrointestinal mucosa^{3,10,19,30}.

Table 1: Possible complications arising from the installation of oral piercings.

<ul style="list-style-type: none"> • Gingival recession (intimate contact with the piercing) • Infection • Aspiration or swallowing of the adornment • Pain • Inflammation • Paresthesia • Galvanic current formation • Accumulation of dental calculus • Difficulty in swallowing (dysphagia) and phonation • Dental fracture and abrasion • Risk of contamination • Systemic involvement • Sialorrhea • Halitosis • Risk of hemorrhage

Another consideration to be made refers to the injuries and risks resulting from the negligence of biosafety precepts when installing the oral piercing. The technical professionals who work in this practice lack anatomical and physiological knowledge, as well as biosafety^{3,9,20}. The practice of applying oral piercings has been attributed the possibility of transmission of fungal infections (*Candida albicans*) and viral infections such as HIV, hepatitis B, C, D and G, herpes simplex and Epstein-Barr virus^{1,3,5,7,13-15,31}. In this perspective, it is up to the dental surgeon to clarify the possible risks and complications, as well as the removal of these ornaments.

Usually, analgesic, anti-inflammatory, and antibiotic drug therapy may become necessary^{3,19,21,22,27,32}. In cases of unyielding and resistant patients regarding the removal of oral piercings, the demonstration of clinical injuries can be a persuasive factor. Table 2 presents a checklist of guidelines and recommendations for patients with oral piercings. The importance of not using alcohol or peroxide-based mouthwashes must be emphasized to the patient, as they may dehydrate the adjacent mucosa. Personal hygiene is also necessary (hand washing before piercing hygiene procedures), to avoid infection. Special attention should also be given to smoking patients with oral piercing³ (Figure 1). The replacement of the metallic material by another one may be suggested to the patient. Lighter and more flexible materials, such as polytetrafluoroethylene, can avoid further injury to adjacent tissues^{3,13-15}.

Table 2: Guidelines for patients with oral piercings.

- Daily manual hygiene of the piercing with detergent and alcohol
- Oral and lingual hygiene
- Consult the dental surgeon in cases of pain, inflammation or infection
- Perform phonoaudiological exercises
- Consult the dentist periodically
- Recommend substitution of metallic material for non-metallic material



Figure 1: Piercing located in the upper lip of a smoking patient with chronic periodontitis (A). Inflammatory and hyperplastic halo in the labial mucosa adjacent to the piercing barbell (B).

Regarding the periodontal perspective, it was found that there was a strong correlation between the presence of gingival retraction (Miller classification) and oral piercings^{1,8,18}. Gingival retraction was observed in patients with oral piercings in the median region of the lower lip. The probability of gingival recession was determined to be 7.5 times higher in patients with piercings compared to patients without piercings. Thus, the need for surgical procedures (reconstructive mucogingival surgery) in retractions resulting from the contact of the adornment with the gingiva and/or mucosa becomes explicit. Thus, the dental surgeon should also provide guidance in the removal of the adornment, as well as in the performance of reconstructive mucogingival surgery^{1,3,7,13,17}.

It is important and interesting to report that, in view of the increased incidence of oral piercing in the juvenile population, and due to the death of an adolescent in 2002 in the United Kingdom, the competent authorities in general and oral health have determined specific legislation and licensing and registration of piercing establishments, to curb these practices. Guidelines on body piercing practices; recommendations on hygienic procedures to avoid cross-infection in piercing studios; verification of medical history; and parental consent to perform piercing in minors were determined by the British Body Piercing Association⁷. These guidelines should be adopted by the other countries, in which the increased incidence of piercing is observed, particularly in the younger and vulnerable population.

Conclusions

The piercings installed in the oral cavity can cause several local and systemic complications. The dental surgeon plays a relevant role in the orientation and prevention in reference to not installing the oral piercing. If the piercing is installed, the professional can and should guide the patient in removing the adornment, avoiding and preventing possible disorders and complications arising from its application. In case the patient does not accept the removal of the piercing oriented by the dental surgeon, he/she must be oriented regarding oral and piercing hygiene methods.

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