The growing trend for body jewellery is a matter of concern for all dental professionals. Strictly speaking, the term “body jewellery” refers to jewellery that is designed to go through the body, rather than simply on the body. Examples of dental relevance include lip studs and rings, tongue bars, and rings placed through the uvula. As will be discussed in this article, there are multiple complications from intra-oral piercing and from an ethical standpoint, all dental professionals should discourage oral piercing because of these risks.

Most dental professionals are well aware of the common long term risks of intra-oral body jewellery, such as damaging teeth on tongue barbells while eating, sleeping, talking or chewing. Certain problems such as speech impairment from oral jewellery and swallowed jewellery are obvious complications. Thus the emphasis herein will be on the broader list of less obvious but nevertheless documented problems, summarized in Tables 1 and 2.

It is doubtful whether such a comprehensive listing of complications is considered by every person contemplating undergoing or performing intra-oral piercing. In this author’s view, patients should be actively discouraged from having piercings involving the oral cavity, while patients with existing piercings should be informed of all the long term complications and encouraged strenuously to remove their intra-oral body jewellery and allow the hole to close. If patients will not do this, they should remove tongue bars every time before they eat, sleep or engage in strenuous physical activity.

Figure 1. An example of a highly polished stainless steel tongue bar with barbells, fitted after tongue piercing.

Figure 2. Decorative clear and opaque acrylic barbells fitted to a tongue bar.
Reactions to metals

The choice of metal used for intra-oral body jewellery can have some interesting consequences, bearing in mind that in chemical terms the oral cavity is a hostile environment for many base metals and their alloys. Many inexpensive forms of intra-oral body jewellery are made from surgical-grade stainless steel, or from nickel, which may or may not be coated with a thin electroplated outer layer.

Titanium, niobium, platinum and zirconium are much less reactive metals which are used in the higher end studs and bars, with greatly increasing cost across that series. These can all be machined and then polished to a high finish. Either 14K or 18K gold can also be used. The choice of a highly corrosion resistant material is important, since the ubiquitous presence of bacteria and saliva makes corrosion a major challenge. Allergic contact dermatitis from nickel is a common complication of all forms of nickel-based jewellery, including body jewellery, and may arise from nickel alloys, or when a thin plating is used over a nickel alloy.

Patch testing by a clinical immunologist or dermatologist can identify metal-sensitized individuals.

Pure silver may leach silver ions which react to form coloured silver salts, a problem termed localized argyria, which has been reported for embedded jewellery such as rings. The coloured silver salts within the tissues provide an effect similar to an amalgam tattoo, in which leaching of silver ions and formation of silver salts both also occur. Such discoloured areas are permanent in nature, even if the stud or bar is removed, and thus require surgical excision.

Infections

Acute infection immediately following intra-oral piercing is a predictable complication of a procedure which involves deliberately crushing and lacerating oral soft tissues. This compromises the normal healing processes by damaging the tissue and impairing its blood supply. Oral hygiene in the area is difficult because of the tenderness of the site and the inherent problems of gaining access to a highly mobile region of the mouth. Chemical plaque control agents assist but in and of themselves will not be able to stop plaque forming and the inevitable associated inflammation from developing.

Adding to this is presence of a foreign body (the stud or bar) which increases susceptibility to wound infection by providing a hard non-shedding surface for the microbial biofilm. Taken together, these factors explain why healing following oral piercing is greatly delayed compared with healing following oral surgery. As an example, patients having tongue piercing typically experience a four to six week period where the tongue is swollen and painful.

Foreign body reactions can occur in the oral cavity after piercing and placement of body jewellery. Masses in the buccal mucosa consistent with sarcoid-like lesions by histopathology have been reported at the site of previous piercings. Treatment of these lesions involves intralesional corticosteroid injections, use of systemic corticosteroids, or surgical excision.

Airway compromise

One of the most serious complications that can arise from infection following oral piercing is cellulitis, with consequential airway compromise. Several examples have been reported in the literature. In one of these, a young female patient in whom tongue piercing had been undertaken, presented to her dentist with fever and chronic infection and was at impending risk of bilateral cellulitis involving the mylohyoid muscle and the region posterior to both mandibular second molars. The patient was having difficulty in swallowing, and was at impending risk of Ludwig’s angina, a condition in which bilateral cellulitis compromises the airway, and which can be fatal if not managed immediately.

Table 1. Common acute problems with intra-oral piercings

- Pain
- Prolonged bleeding from damage to major vessels
- Tissue trauma and swelling
- Nerve injury, leading to paraesthesia
- Acute local infection
- Speech impediment
- Hypersalivation and drooling
- Taste impairment

Table 2. Long term complications of intra-oral piercing

- Aspiration or swallowing of the ornament
- Impairment of normal oral hygiene measures
- Obstruction of dental radiographs
- MRI imaging is contraindicated with magnetizable metals
- Hard tissue injury (tooth chipping and wear, occlusal interferences)
- Soft tissue injury (gingival and mucosal lacerations, gingival recession, mucoceles, traumatic neumomas)
- Soft tissue scarring and keloids
- Foreign body reactions
- Severe local infection leading to airway compromise (Ludwig’s angina)
- Chronic blood borne virus infection from piercing equipment (hepatitis B & C, HIV)
- Adverse reactions to metals (e.g. allergic contact dermatitis, argyria)
- Airway alterations (for uvula piercings), leading to snoring
- Problems in placing airways for intubation
- Persistent bacteraemias, with the potential for disseminated or distant infection (brain abscesses, endocarditis)
Similar cases of cellulitis of the submandibular, sublingual, and submental fascial spaces (Ludwig’s angina) from a tongue piercing procedure have also been reported, which required intubation and mechanical ventilation followed by surgical removal of the jewellery and surgical decompression of the floor of the mouth, with placement of multiple extraoral drains and intravenous high-dose antibiotic therapy.10,11

Airway alterations
As well as the more severe problems of airway compromise from swelling in the tongue or uvula immediately after piercing (from crush injury to the tissue during the piercing process, and the predictable ensuring oedema), or from infection as described above, a more subtle effect occurs with uvula piercing. The weight of the ring or other item of jewellery attached to the uvula has a dramatic effect on the behaviour of this tissue during sleep in the supine position, pulling the uvula down and thus reducing the effective diameter of the nasal airway. This has obvious implications for sleep associated breathing disorders, ranging from nuisance snoring to complete obstruction, depending on the weight of the jewellery used, and the patency of the airway before the jewellery was placed.

Blood borne virus infection
A long term complication of poor infection control practices on the part of the person undertaking the body piercing procedure is that of blood borne virus infection. There is a well-established link between penetrating items and instruments which can be contaminated with viral particles from previous clients, and then passed on to later clients if fresh piercing needles are not used for each case. Transmission of viral hepatitis has been associated with body piercing, particularly with the use of punch-style piercing equipment when used with improper infection control measures and poor sterilization technique.12-13

There is at least one reported case of HIV transmission from body piercing.14 The patient underwent seroconversion to become HIV-1 positive after extensive body piercing. No other exposures during the period of seroconversion could be identified.

Disseminated infection
In December 2001 a case was reported on the CBS News Network in the United States of a woman in her mid-20s who developed symptoms of a brain abscess some 18 months after removing a stud from her infected tongue. She had difficulty walking and showed signs of clumsiness. When she presented to the emergency room at Yale-New Haven Hospital in Connecticut, the infectious diseases specialists identified the brain abscess and subsequently demonstrated that the bacteria responsible were from the oral flora, and were also those responsible for her persisting tongue infection. The woman had brain surgery and high doses of antibiotics and eventually recovered. Brain abscesses from oral foci of infection are rare, but have been reported previously, particularly in medically compromised patients.15

Infective endocarditis
Infective endocarditis after body piercing has been well documented in the literature,16-18 including specific cases relating to tongue piercing.21,22 Endocarditis can follow persistent soft tissue infection involving either skin or mucosal sites. This is why patients undergoing cosmetic procedures such as oral or skin piercing who have established cardiac risk factors (such as a congenital bicuspid aortic valve and aortic coarctation) show an elevated risk for endocarditis.22 These same patients would likely be considered for prophylactic antibiotic cover under current protocols, if they were scheduled to undergo oral surgery. Such medical factors are not considered in salons where clients undergo piercing of the oral and peri-oral tissues for cosmetic reasons, which is regarded (by them) as a trivial procedure. The causative organisms for endocarditis could be either Gram-negative or Gram-positive commensal oral bacteria.2,21

In conclusion, because oral and peri-oral body piercing is becoming a common practice, it is essential that dental professionals appreciate that this practice carries substantial risk of morbidity. Moreover, most body piercing is undertaken by unregulated individuals who have no knowledge of the anatomy of the oral cavity or of the complications which can ensue. Oral health professionals should recognize oral piercing complications and be able to counsel patients appropriately regarding the risks of oral piercing.

References

About the author
Professor Laurence J. Walsh is the technology editor of Australasian Dental Practice magazine. He is also a noted commentator on and user of new technologies and is the Head of the University of Queensland School of Dentistry.