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ORNAMENTAL DENTISTRY – AN OVERVIEW

Titus Peter, Smily Titus, George Francis, Mathew M. Alani, Ahkin John George

1. Vice Principal, Department of Oral Surgery, St. Gregorios Dental College, Kothamangalam, Kerala.
2. Professor, Department of Prosthodontics, Mar Baselios Dental. College, Kothamangalam.
3. Professor & HOD, Department of Prosthodontics, St. Gregorios Dental College, Kothamangalam, Kerala.
4. Professor, Department of Prosthodontics, St. Gregorios Dental College, Kothamangalam, Kerala.
5. Reader, Department of Oral Surgery, St. Gregorios Dental College, Kothamangalam, Kerala.

CORRESPONDING AUTHOR

Titus Peter.

Vice Principal, S. G. D. C,

Chelad, Kothamangalam, Kerala,

E-mail:tituspeter29@hotmail.com

Ph: 0091 9447378920

ABSTRACT The use of intraoral jewellery and piercings of oral and perioral tissues have been gaining popularity among adolescents and young adults. Intraoral jewelry or other oral accessories may lead to increased plaque levels, gingival inflammation and/or recession, caries, diminished articulation, and metal allergy.[26,27] Oral piercings involving the tongue, lips, cheeks, and uvula have been associated with pathological conditions including pain, infection, scar formation, tooth fractures, metal hyper-sensitivity reactions, localized periodontal disease, speech impediment, and nerve damage.[28,29]. Life-threatening complications associated with oral piercings have been reported, including bleeding, edema, endocarditis, and airway obstruction.[30,31]. Unregulated piercing parlors and techniques have been identified by the National Institutes of Health as a possible vector for disease transmission (eg, hepatitis, tetanus, tuberculosis) and as a cause of bacterial endocarditis in susceptible patients.[26]

KEY WORDS: Oral Jewellery, Dental jewellery, Dazzlers and twinkles

The various oral jewellery practiced today are grill jewellery, dazzlers and twinkles, veneer jewellery, tooth rings, tongue studs, lip studs, lip rings, cheek studs, etc. Tooth jewellery was in use earlier as a part of the religious rituals and traditions, but today it is more concentrated on cosmetic function.

Creating a beautiful smile has to be tailored for each individual's needs and desires. This entails utilizing advanced technology, superior skills and vast knowledge. Each smile is created with careful consideration to the patient's facial form, function and character. Tooth jewellery is one such constituent that adds a silver line to the smile and is certainly not a new concept that has come to being in the recent times, but has existed as far back in time as 2500 B C.[2]

'Beauty lies in the eyes of the beholder', goes the saying. The need or want for beauty has existed since time immemorial. The earlier concept of beauty was based on the traditions set by the ancestors and religious rituals performed by the particular community. Our contemporary beauty standards are set by movie stars or famous personalities. What they wear or what they alter in their physical appearance is quickly emulated by millions of people. Dentistry has travelled a long way from restoration and pain relief to beautification, and dentists facing challenges from demanding patients who desire perfectly aligned sparkling white teeth and still more- tooth jewellery.[1]

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Today, people are becoming increasingly self-conscious about their appearance and smile. They are looking for various treatments like body art and cosmetic dental treatments to achieve the desired aesthetic appearance, attention, to make a fashion statement and to be unique among the crowd. Body art includes tattooing, body piercings and oral soft tissue piercings. All body piercings presents a level of risk of infection, and are painful.[32] Documented complications are related either to(a) the jewellery (aspiration, allergy or chronic injury to adjacent teeth/ mucosa, including tooth fracture and gum recession, which can lead to tooth loss) or to (b) the piercing procedure (local bleeding, swelling, nerve damage, toxic shock, permanent drooling, impaired sense of taste, or distant infections of the liver, heart or brain), tongue and lip piercings with metal barbell that interferes with speech, taste and mastication.[32] but, with the introduction of cosmetic dental treatments like porcelain veneering, composite veneering, bleaching and placement of tooth jewellery, patients smile can be made more pleasing, appealing, and aesthetic. This results in increased self confidence of the patient. Among these cosmetic dental treatments bleaching and veneering procedures are indicated for patients with discolored teeth, spacing between teeth, and mild irregular teeth, where as oral tooth jewellery is for all patients who wants a dazzling smile. The advantages of it being a temporary, painless procedure and it do not involve any invasive treatment on the tooth like drilling holes.[32]



Fig 1

Mayans were accomplished smelters and forgers of gold, silver and bronze. They were skilled in the fabrication and placement of beautifully carved stone inlays in precisely prepared cavities in the front teeth. However teeth decorations had nothing to do with social class or a system of hierarchy. This is backed by the fact that the “Red Queen” (the royals in those days), a Mayan mummy discovered in a temple had no teeth decorations. Interestingly, men of those days were more interested in teeth decorations than women.[3]

Native Americans improved the look of their teeth by carving notches and grooves and putting semiprecious stones in them that added to the brilliance of their smile. In those days preparations were made on teeth to accommodate the jewellery. To bond the semiprecious stone to teeth, a paste of natural resin such as plant sap was mixed with other natural chemicals and crushed bones. This was certainly long lasting as the semiprecious stones are still in place after hundreds of years![2]

Present day dental jewellery has retained a solely cosmetic function like tattoos and piercing.[1]

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DENTAL JEWELLERY- Grill jewellery



Fig 2



Fig 3

This is tooth jewellery worn by 18 to 35 year old hip -hop artists and disco jockeys to add on to the extravagance of their performance. It is believed to symbolize monetary success, which is especially important for the social underclass. The attention the grills draw to the mouth is reflective of the importance of vocal dexterity in the African American community. They are made from gold, silver or platinum, and is sometimes inlaid with precious stones and covers the whole maxillary and mandibular anterior teeth. Earlier, they were fitted permanently after tooth preparation but nowadays grills are generally removable.[4]

DAZZLERS AND TWINKLES



Fig 4



Fig 5

They are the recent trends in dental jewellery. Most frequently they consist of an extra thin multi carat gold coating filled with special glass or precious stones. These consist of ordinary stones to diamonds and other gems. The stones are attached directly or embedded in a precious metal and then attached to teeth. The metal on which the stones are attached are available in various shapes and sizes. The ordinary stones are available in various colors.[5] The enamel is etched and then the stones are luted with flowable composites and no tooth preparation is involved. The most preferred stone is the white colored and the tooth may be the maxillary anterior teeth. But the tooth most often chosen is the maxillary lateral incisor and the stones are placed towards the incisal edge.

TOOTH GEMS: Tooth gems are crystals glass mounted on a thin foil of aluminum to create the attractive spark available in different colors'. Skyce are clear and sapphire -white or blue crystals. Brilliance tooth jewelry is available in 3 different colors crystal clear, sapphire blue, ruby red and is of two sizes - 1.8mm, 2.6mm Fig Rainbow crystals are the least expensive version of tooth jewelry. They're ideally for short term attachment, to try the new service in your practice or for the customer with a smaller budget rainbow crystals are available in 10 different colors and two sizes (1.8mm and 2.5mm).[33]

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Fig :-6

PROCEDURE & BONDING INSTRUCTIONS:

- The tooth is cleaned with a fluoride-free polishing paste.
- Completely dry and isolate the tooth.
- Tooth is etched with 37% orthophosphoric acid for about 20-30 sec to increase the surface area for bonding.
- Rinse surface thoroughly with water and blow dry for 10 sec. (no etchant should remain on the tooth!)
- Apply a light-curing bonding agent. Leave it on for a maximum of 20 seconds, distribute bonding through air blowing.
- Then light-cure for 20 sec.
- Apply a small amount of flow composite to the surface of the tooth.
- Use a jewel handler to easily pick up the jewel. Press it into the center of the composite. (The composite must ooze on the sides so it is encircled by the composite, ensuring macro mechanical retention, but make certain the jewel is in contact with the enamel.)
- Now you may adjust the jewel while letting the patient check the desired positioning in the mirror.
- Take the light-curing lamp and start curing the composite from the top for about 60 seconds. Light cure from the sides for a few seconds and also cure the composite from the back of the tooth for another 60 seconds making sure the composite hardens evenly. Total curing time is approximately 180 seconds. (Follow instructions of the bonding-system you are using!)
- The total time for jewel to set into the composite is 20 sec. Do not touch the jewel with your fingers once it's removed from the case. To guarantee maximum adhesiveness, it is essential to avoid skin contact with the special coating on the backside of the jewel.[33]
- It takes about 4 minutes to safely affix the jewel.
- The enamel is treated with topical fluoride to remineralize the etched area. Removing the tooth jewel.
- The jewel is removed in the same way as an orthodontic bracket and the enamel will not be harmed.
- After removal of the gem, the tooth needs to be polished, which takes away any remaining bonding materials.
- Use a scaler or a rubber polisher when removing the stone. In case of leftover bonding or composite on the tooth, simply remove it by using a polishing tool. It is recommended to treat the tooth with fluoride, so remineralization and stabilization of the enamel is provided. [33]

REMOVABLE TEETH JEWELLERY



Fig 7

Fig 7

The stones are permanently mounted on an invisible glass clear micro-skin which fits accurately on to the teeth. This requires neither etching nor preparation of the teeth. The impression is made and the micro-skin is fabricated in the lab on which the precious stones are attached. This is removable by the patient and can be fitted back when necessary.[18]

VENEER JEWELLERY: Veneer jewellery is made from precious jewellery, mostly gold and platinum. Tooth preparation is done to accommodate the metal veneer which is mostly embedded with precious stones. The teeth preferred for such kind of jewellery are the cuspids and the bicuspid.[18]

TOOTH RINGS



Fig 8 Tooth rings

This requires tooth preparation. A small hole is placed toward the disto-incisal corner of the maxillary incisors and the ring is hung through it. The maxillary central incisors are the most commonly preferred teeth. The size of the perforation depends on the thickness of the ring selected. The perforation should be prepared as smoothly as possible and polished. Sometimes these rings are embedded with precious stones. The overjet available should also be taken into consideration when selecting the diameter of the ring to avoid interference in occlusion. The rings are sometimes made connecting the two central incisors or the central incisor to the lateral incisor.[5]

TOOTH TATTOO: Tooth tattoo is applying various shades of porcelain in various designs like hearts, symbols, and pets carved on ceramic crown, crown and bridge by lab technician, then fired in ceramic furnace. It gives personalized embellishment and alternative to body tattoo. But

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it is an indirect procedure and tooth reduction is required to make crown. A tooth tattoo is also easily removed by simply grinding the image off of the crown.[17]



Fig 9



Fig 10

JEWELLERY FROM TEETH



Fig 11



Fig 12

Human natural teeth attached to jewellery

Teeth of animals were used as jewellery from ancient times. The teeth of sharks, tigers and the tusks of elephants are common among them. But today, even human teeth are also attached to pendants and finger rings. A few get very personal with their lost teeth and get them attached to their jewellery. Interesting among them are the mothers transforming the milk teeth of their children into jewellery. They are attached to pendants using precious metals, a mother's keepsake.[19]

ORAL SOFT TISSUE PIERCING: Since time immemorial, people all over the world, from different religions and cultures, practiced body piercing as a form of decoration, or even to display importance in a tribe or group. Today, it is a practice that is looked down upon by many adults and other organizations. Recent trends in ornamental piercing focuses, on the oral cavity, with the most common piercing site being the tongue, followed by lips and cheeks. Though not tooth jewellery these require a strong mention due to the complications it creates in the oral cavity.[6,9]

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TONGUE STUDS



Fig 13 Tongue studs



Fig 14



Fig 15 Tongue rings

This involves placing a, “barbell” type stud through the tongue commonly in the midline. The size of the ‘barbell’ has to be downsized once the post operative swelling subsides to avoid fracture of the teeth.[9]

LIP STUDS AND RINGS



Fig 16



Fig 17

LIP STUDS



Fig 18 Lip studs



Fig 19 Lip rings

Studs or rings are placed on the lips by piercing the whole thickness of the lip. They are placed unilaterally or bilaterally. Lip piercing continues to be practiced by many people, the most well-known of which are certain African tribes, who wear large decorative lip plates or discs usually in the lower lip. Cheek studs are also gaining popularity among the youth. They are usually seen placed on the module region of the cheek.[11]



Fig 20

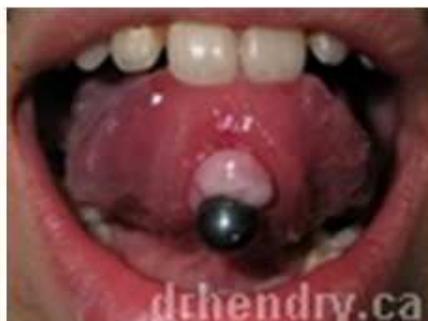


Fig 21

Infectious lesions associated with tongue piercing

The complications associated are

- Infection during and after piercing (HIV, Hepatitis, etc)
- Excessive bleeding
- Permanent nerve damage
- Wrong jewellery type used. If the ring is too small it can cut off the blood supply, causing pain and swelling. If the ring is too big or heavy it can tear the flesh off.
- Metal hypersensitivity
- Gingival recession in the mandibular anterior teeth
- Localized tissue overgrowth
- Reduced taste sensation
- Interference with normal oral function including speech and swallowing
- Stimulate excessive salivary production
- Aspiration of jewellery
- Cracked tooth syndrome
- Possible route for transmission of hepatitis
- Keloid tissue formation
- Swelling of tongue and inflammation
- Obstruction to x-rays in the mouth
- Prolonged drooling
- Loss of alveolar bone in the mandibular anterior region
- Risk of developing fatal infection like Ludwig's Angina or Endocarditis (from the open wound of piercing).[1,2,3,6,8,11,12,20]

Proper sterilization techniques and use of gold jewellery can reduce the risk of infection and metal hypersensitivity. But the best caution approach is to avoid tongue cheek or lip piercing.

DISCUSSION: Tooth jewellery is believed to enhance appearance and, by doing so, improve the patient's self esteem and self confidence. Tooth jewellery should be advised only in patients with good oral hygiene maintenance. This is because the attachment area of the jewellery to teeth is highly prone for plaque accumulation. The area has to be kept extremely clean as possible. It should not be advised in a patient with high caries index. Some of the tooth jewellery require tooth preparation which causes a permanent defect on the teeth and these areas are prone to caries attack. Movable jewellery like tooth rings can cause abrasion of teeth. Fixed

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teeth grills are very difficult to be kept clean and hence a removable type should be chosen. For attaching precious stones elaborate etching of enamel should be avoided. Tooth jewellery which does not require any tooth modification is more advisable. The jewellery may sometimes cause ulceration of the lips when lip function is hampered. If adequate precautions are taken, and patient is well educated regarding the subject, tooth destruction from jewellery can be minimized.

Dental practitioners should discuss with patients the potential risks of oral piercings and jewellery, as well as recommendations for hygiene and management of existing piercings to help reduce damaging effects. Useful information includes the recognition and management of oral and systemic side effects and the use of appropriate materials and adhesives for tooth jewellery. Dental patients wishing to have oral piercings should be advised to obtain information about (a) experience of the artist, including complication rate (b) infection control practices and (c) after-care instructions.[33]

Tooth cap grills and gold teeth are considered status symbols within the Hip-Hop fashion scene. However, tooth ornaments favour the accumulation of plaque and can diminish the ability to articulate. With respect to jewelry in oral soft tissue especially tongue and lip piercings are of significance to dentists. Besides the systemic complications, which are mostly caused by a lack of hygiene or the failure of noting medical contraindications by the piercer, local complications occur frequently. After surgery, pain, swelling, infections as well as hemorrhages or hematomas can be observed. Long-term effects can be problematic: gingival recession can be discerned mainly in the case of lip piercings the loss of hard tooth substance in the case of tongue piercings. Because of that, conservation therapies can become indispensable. Patients wearing dental jewellery have to be aware of risks of tooth damage, and they regularly have to undergo dental check-ups. Information campaigns--for dentists as well as patients--are necessary[33,35]



Fig 22 woman gets in Guinness book of world records for the maximum number of body piercings

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