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Ear piercings Revisited

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Introduction

Piercing of the ears and body is an age old practice of adornment. Piercing, is defined as the insertion of a needle to create a fistula for decorative ornaments[1].The earliest record of piercing, is in the Bible (Genesis 24:22), where a golden earring was one of the gifts given to Rebecca, wife of Abraham's son Isaac. Over the ages, ear piercings have become a widespread practice enjoying social, cultural and religious acceptance. Body piercing is beyond the scope of this article.

Traditionally, in India, ear piercing was accomplished by a goldsmith. A gold (or silver) wire was used directly to pierce the ear lobule. Although aseptic technique was rarely followed, the low incidence of infection and complications is anecdotal, as there are no

studies regarding this. This age old method has largely been replaced in modern times by the use of a piercing gun in beauty salons & jewellery shops. Ear piercings are also frequently performed by family physicians, otolaryngologists and cosmetic surgeons using a venous cannula (intracath).

Incidence

There is little data available about ear piercings. A study in Korea reported that the rate of ear piercing is high (96.5% of female college students undergo ear piercing at a mean age of 19.3 years) [2] and 61.3% of the pierced persons experience local complications.[3]

Sites of ear piercing

The commonest site of piercing worldwide is the ear lobule. Other sites include the tragus and the cartilage of the helix. The term "high ear piercing" denotes piercing of the upper cartilaginous part of the pinna. "High" piercings through the cartilage have become popular over the past decade[4] as also piercings at multiple sites on the pinna.

Relevant applied anatomy of pinna

The pinna or auricle is a single thin plate of elastic fibrocartilage covered by skin. It is continuous with the cartilage of external acoustic meatus. There is no cartilage between the tragus and crus of the helix, where the gap is filled by dense fibrous tissue. The ear lobule is the other portion of the pinna which is devoid of cartilage. It is covered by skin and is made up of areolar & adipose tissue.

A unique feature of the cartilage is that it is relatively avascular, only nourished by its perichondrium. Trauma caused by high ear piercing will devascularise it even further[4]. These piercings are associated with poor healing and more serious infection[5] Bacteria, if

introduced through the piercing pin tract due to inappropriate aseptic technique, can proliferate resulting in perichondritis, a dreaded complication.

Ear piercing techniques

1) Hand force

A ear piercing stud or wire is pushed through the ear lobule by force of hand.

2) Ear piercing gun

The ear piercing stud is forced through the tissues by a force caused by spring action of the gun[4]

3) Use of intravenous cannula (needle piercing technique)

Kale,et al, described a method of piercing the ear lobule, which is commonly in use[6]. After aseptic precautions and infiltration of local anesthetic, a size18 venous cannula is inserted into ear lobule to pierce it. The stiletto is withdrawn, leaving the plastic cannula in situ. The cannula adjacent to the pierced ear is trimmed at both ends so that only 2 to 3 mm projects out at either end. A thick silk suture (1-0) then may be passed through the lumen of cannula, and a knot is tied to form a loop, which retains it in position. This step is recommended particularly in infants and children as they are more likely to pull & accidentally dislodge it. The cannula is removed after one or two weeks, and replaced with an earring.

We endorse this technique as it has the following advantages over other techniques:

i) Can be easily performed.
ii) Allows for the creation for a wider hole if desired by the patient. For this a cannula of size 16 may be used.
iii) This method reduces the risk of immediate onset of contact dermatitis, which is likely to occur if a gold wire is used for ear piercing. Contact dermatitis occurs due presence of nickel impurities in the gold.

iv) Accidental tear of ear lobule is unlikely to occur as it is difficult for the patient to pull out the cannula from it's position.

iv) This method permits the immediate insertion of an earring if desired by the patient. For this, the cannula is trimmed a little more so that only 1 mm projects outward on either side. The stem of the earring can be threaded into the cannula & the screw-on portion fastened into position on the posterior aspect.

In our opinion a serious disadvantage is keloid formation. The earlobe is a common site for hypertrophic scarring and keloid formation. In addition, patients with keloids may have itching and tenderness[5].

Histological comparison of ear piercing techniques

A study by van Wijk,Kummer, and Kon has assessed the nature of damage to ear cartilage with different piercing techniques[4]. Fresh human cadaver ears were subjected to high ear piercing using spring loaded piercing guns, hand force and a piercing needle. Extent of damage to the perichondrium and cartilage was studied using a transverse section along the pin tract and compared between the different methods. No significant difference in the amount of injury between the different techniques was observed. They have concluded that, all piercing methods cause the same extent of damage to cartilage and perichondrium. In their opinion, all techniques are expected to have the same risk for perichondritis.

Situations requiring ear jewellery removal in the hospital by medical personnel

Simple removal of ear jewellery by a doctor may be necessary for radiological purposes, in unconscious patients[7] and following local trauma to the pierced site, such as a tear of ear lobule. Often, earrings become embedded especially in thick ear lobes pierced with a spring-loaded gun, necessitating surgical removal5. The ease of removal of ear jewellery

assumes significance on these occasions. Medical literature lacks descriptions of the various types of ear studs and earrings and details regarding their technique of removal.[7]

Complications

The commonest complications of ear piercing are bleeding, local infection, and oedema of surrounding tissues leading to embedding of the jewellery. Potential Complications reported by Meltzer are allergic reactions, perichondritis and abscess formation, embedded earrings, keloid formation and traumatic tear[5] . Once an abscess develops, incision and drainage becomes necessary and so good cosmetic appearance of the pinna becomes difficult to preserve.

The most common pathogens involved in infections are *Pseudomonas aeruginosa, Staphylococcus aureus,* and *Streptococcus pyogenes*.[5]. *Pseudomonas aeurginosa* is now known to be the causative organism in approximately 95% of patients with transcartilaginous ear piercing infections. *Pseudomonas* is a pathogen which is resistant to many antibiotics[8].

Lee et al[3] encountered a case of infective endocarditis caused by *Staphylococcus aureus* after ear piercing in a patient who had no underlying cardiac abnormalities. Nah et al[2] have also reported a case of infective endocarditis in a woman after ear piercing caused by methicillin-resistant *Staphylococcus aureus* (MRSA).

Trauma to the pierced ear is not uncommon. Lacerations to the ear may occur after vehicular accidents, person-to-person violence, contact sports, or accidental pulling of an earring. A laceration occurs if an earring is pulled through the earlobe, particularly if the original earring hole was close to the periphery[5]

A foreign body in the food and air passage may result due to accidental swallowing or aspiration of earring in young children.

Urdang,et al[1]have reported several complications including hepatitis B and C, contact dermatitis,abscess,keloid formation,traumatic avulsion,embedding,perichondritis and endocarditis.

Conclusion

Patients should be counseled regarding the risks of high ear piercing and all the associated potential complications should be explained. Informed consent is of importance, as in the event of perichondritis, irreversible cosmetic deformity may be the outcome.

Strict aseptic technique should be adopted and patients should be educated about post piercing hygiene[8]. Patients should be informed as to what is considered a normal post piercing course and if there is any redness, pain, tenderness or increasing swelling, the patient should be instructed to seek urgent medical attention. Should a piercing site get infected, aggressive intervention therapy is mandatory to prevent serious sequelae.

Earrings with locking or screw-on backs are recommended for infants and young children because of the risk of ingestion or aspiration[5].

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