

Role of Systemic Coolant as an Adjunct in Laser Assisted Ear Piercing

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Abstract

A plastic surgeon's earlobe piercing is a regular office practice. Ear piercing has been described in a variety of ways. We discuss a new method of laser ear piercing that uses a systemic coolant in this publication. After systemic precooling, a 56-year-old female patient had her ear pierced with an Er:YAG laser with a power of 10J/cm² in continuous mode. Ear piercing using the Er:YAG laser was quick, painless, and highly effective. More precision, minimal stress with less pain, no bleeding due to the coagulation action of the laser, and decreased possibility of infection due to the thermal heat impact of the laser were the benefits we found when using the systemic coolant over conventional approaches.

Keywords: Ear piercing; Er:YA Glaser; Coolant.

INTRODUCTION

For people in industrialised countries, body piercing is a centuries old practise. However, it has now become a part of their fashion approach, with the ear being the most commonly pierced body part.^{1,2} Despite the fact that it is a common surgery, it is not without risks, including as oedema, haematoma, infection, and keloid formation. In

medicine, lasers have a wide range of applications. The laser scalpel is most widely used in dental surgery, although it is now utilised practically everywhere because to its safety, precision, convenience of use, haemostasis, reduced post-operative discomfort and oedema, and reduced scarring. We'd like to describe a new method of laser ear piercing that uses a systemic coolant in this post.

MATERIALS AND METHODS

After receiving departmental ethics clearance and patient permission, the study was conducted in the Department of Plastic Surgery in January 2022. A 56-year-old female patient came to the outpatient plastic surgery department with the wish to get her ears pierced (Fig. 1). The treatment was carried out in the department laser operating theatre after normal blood testing were completed. There were

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enough safety procedures applied. The piercing site was marked, and 5 minutes of non-contact cooling was applied. After ensuring proper cooling and local anaesthetic, a tract was created using a Doc Medica Er:YA Glaser TM Quanta system (Corso Casale, Torino, Italy) with a Fluence of 10.0

J/m² and a pulse width of 0.3ms in continuous mode using a 2 mm tip in the anterior and posterior direction (Fig. 2). Once the area was marked and haemostasis attained, a gold stud was introduced through the tract (Fig. 3). The same procedure was repeated on the opposite side.



Fig. 1: Ear lobe of Patient

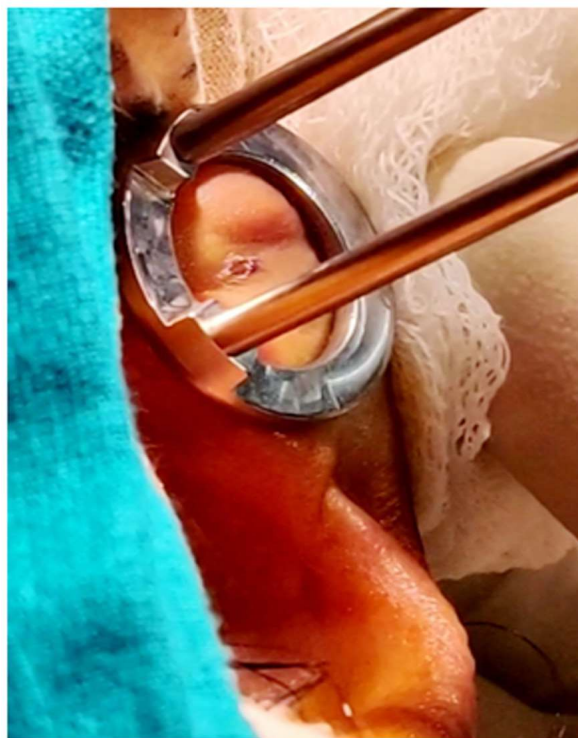


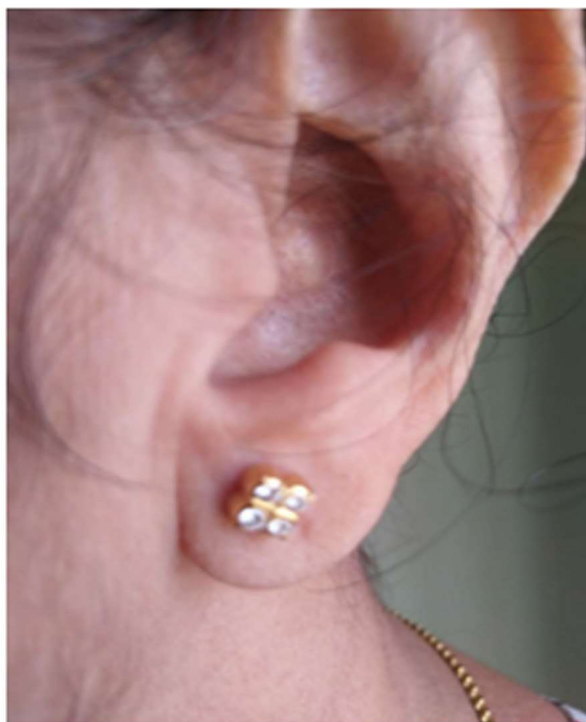
Fig. 2: Laser applied to earlobe



Fig. 3: Ear rings placed (photo after 2 weeks)

RESULTS

The ear piercing was performed with the help of a systemic coolant and an ErYAG laser, which proved to be beneficial during the treatment. Despite the use of coolant on end artery regions, no complications were seen.



DISCUSSION

Topical local anaesthetic can be utilised in conjunction with other pre-cooling procedures used in traditional laser therapy, such as cold gel administration and cryospray application. This eliminates the need for an injection before to the treatment and is especially beneficial in children. The laser scalpel ablates the tissues it cuts immediately, resulting in good haemostasis.⁷ The use of systemic coolant in piercing has this excellent advantage in the ear, where there is a rich blood supply and bleeding is a regular concern. The wound is instantly sterilised, and bacteraemia is decreased.⁸⁻¹⁰ This reduces the risk of keloid formation by lowering the risk of post-operative perichondritis or wound infection.

Er:YAG laser was first used in dental practice. The electric current is the pump source which produces photons which are conducted through a laser active medium. It works on three wavelengths, 810, 940 and 980 nm.⁵ It is cheap, small in size and has a long flexible fibre cable which makes the ErYAG laser scalpel easy to use.⁶ The use of ErYAG laser for ear piercing has many significant advantages over the conventional techniques.

Topical local anaesthetic mixed with various pre-cooling procedures utilised in traditional laser therapy, such as cold gel administration and cryospray application, can be employed to carry out the procedure. This eliminates the need for a pre-procedure injection and is especially beneficial in children. The laser scalpel ablates the tissues it cuts almost instantaneously, resulting in good hemostasis.⁷ The use of systemic cooling in piercing has this wonderful advantage in the ear, where there is a lot of blood flow and bleeding is a common problem. The wound is immediately sterilised, and the bacteraemia is decreased.⁸⁻¹⁰ This reduces the risk of keloid formation by minimising the risk of post-operative perichondritis or wound infection.

The tissue damage caused by the Er:YAG laser is quite low. As a result, there is less oedema, wound contraction, and scarring. According to studies, piercing with a piercing gun or a 16 gauge cannula causes the perichondrium to be stripped from

the cartilage, especially at the exit location.¹¹ The relatively avascular cartilage is damaged, making the ear more susceptible to infection. Because the Er:YAG laser probe is precise and causes minimal tissue injury, the risk of cartilage damage is considerably reduced, as is the risk of post-procedure keloid formation.

CONCLUSION

The use of systemic coolant in laser assisted ear piercing offers distinct advantages over the traditional methods of ear piercing however needs large scale randomised control trial for wide spread clinical use.

Conflicts of Interest: None.

Declarations: Authors' contributions

All authors made contributions to the article

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