

CASE REPORT

Association of Surgery and Pulsed Dye Laser for the Treatment of an Ear Keloid: A Case Report

Luca Negosanti, Matteo Santoli, Rossella Sgarzani, Nicoletta Banzola, Francesca Negosanti

Luca Negosanti, Rossella Sgarzani, Division of Plastic Surgery, S.Orsola-Malpighi University Hospital, Bologna, Italy

Matteo Santoli, Division of Plastic Surgery, Bellaria Hospital, Bologna, Italy

Nicoletta Banzola, Division of Dermatology, S.Orsola-Malpighi University Hospital, Bologna, Italy

Francesca Negosanti, Division of Dermatology, Centro Dermatologico Srl, Bologna, Italy

Correspondence to: Luca Negosanti, MD, Centro Dermatologico Srl, Via Mazzini 2/2, 40138, Bologna, Italy.

Email: lnegosanti@centro-dermatologico.it

Telephone: +39051391884

Fax: +39051397954

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ABSTRACT

BACKGROUND AND OBJECTIVE: A keloidal scar is a benign hyperproliferation of dermal collagen resulting from abnormal healing. The ear is probably the most frequent interested area and these kind of keloids are responsible for cosmetic disfigurement. Numerous treatments have been applied for keloids. Surgery is generally not indicated because of the high risk of recurrence while laser technologies have been tested to prevent and treat hypertrophic scars. The association between laser and surgery was poorly reported in literature. We decided to associate surgery and pulsed Dye laser in just one case of ear keloid.

MATERIALS AND METHODS: We treated a female patient affected by an earlobe keloid with a surgical excision and subsequent pulsed Dye laser treatment.

RESULTS: The aesthetic result was good and no signs of recurrence was observed.

CONCLUSION: We believe that the association between surgery and Pulsed-Dye laser can be useful to treat keloids reducing the risk of recurrence.

INTRODUCTION

A keloidal scar is a benign hyperproliferation of dermal collagen resulting from abnormal healing response to injury, characterized by an extension beyond the borders of the original wound and a growth in a pseudotumour fashion with tissue distortion and high recurrence rate after excision. It is often symptomatic with frequent pruritus and even pain, and may have a major social and psychological impact on affected individuals^[1,2]. Keloids may occur at any age, but they appear most frequently in children and young adults. Ethnic and familial susceptibility to keloids have been suggested, as well as the role of sutures which are badly directed or a wound closed under tension^[3,4,5].

Chest, shoulders, neck and ears are the most frequently involved areas. Due to the frequency of both ear piercing and otoplasty, the ear is probably the most frequent area^[6]. These keloids are responsible for cosmetic disfigurement^[7]. Numerous treatments have been utilized for keloids including surgical excision, intralesional corticosteroid injection, intralesional botulinum toxin A injection, radiotherapy, laser therapy, cryotherapy and classical and intralesional cryosurgery^[8,9,10]. Unfortunately, the results of the majority of these treatments have been disappointing with frequent recurrence of the keloid over time^[11]. Laser technologies have been tested either to prevent or treat hypertrophic scars by selective destruction of scar microvasculature through the process of targeted photothermolysis^[12]. The determination of treatment interval for laser shows some variation. Several studies propose a treatment interval of 4-6 weeks; the reason is that rapid re-treatment would prevent scar reperfusion^[13]. The association between laser and surgery was poorly

reported in literature.

In our experience we treated several keloids using Pulsed-Dye laser with good results. In just one case of ear keloid we decided to associate surgery and Pulsed-Dye laser.

CASE REPORT

A 44 years old woman referred to us for a keloid involving the upper third of the right helix (Figure 1). The keloid, present for 8 years, was subsequent to a skin infection that occurred after inserting a piercing. We decided to treat the keloid surgically first. Under local anaesthesia with bupivacaine with adrenalin 1:20000 we performed an intralesional excision of the keloid respecting the natural curvature of the helix, just to maintain the aesthetic aspect of the ear. After fifteen days we removed stitches observing a complete wound healing. After one week we performed the first laser session. We applied 3 passages of Pulsed-Dye laser over the residual keloid under cool air without anaesthesia. Laser was setted with a spot of 12 mm, a fluency of 7 J/cm² and a pulse of 0.5 mmsec. Laser treatment was repeated 4 times, each time 1 month to the previous session.

RESULTS

No complications were observed. The patient reported only a minimal erythematous reaction after laser, that spontaneously resolved after 48h. A minimal pain was reported during treatment, but it was easily tolerated by the patient. No medications were necessary during or after the treatment. After a follow up of 12 months from the last session of Dye laser we observed a complete healing of the wound with a good aesthetic outcome and no signs of recurrence (Figure 2). A longer follow up might be necessary in order to assess the stability of the result.

DISCUSSION

Keloids are difficult to treat and the recurrence rate is usually high after commonly used treatments, as intralesional corticosteroid injection, 5-fluorouracil or radiotherapy. Pulsed-Dye laser is considered a good choice for the treatment of keloids. The aim of this laser is to reduce the vascularization inside the keloid, in order to diminish its dimensions. Surgical treatment is not usually recommended because of the high risk of recurrence.

The association between surgical excision and Dye laser was poorly reported in literature.

We tried to associate these two procedures in a case of helix keloid in order to reduce the risk of recurrence. We firstly performed an intralesional excision of the keloid respecting the normal anatomy of the helix, just to obtain a good aesthetical outcome, and then we applied four sessions of Pulsed-Dye laser on the scar and the residual keloid around the scar so that we could reduce the vascularization, the risk of recurrence and be able to preserve the aesthetic aspect of the ear. After 12 months of follow up we did not observe any sign of recurrence, the aesthetical outcome was good with a normal helix anatomy and the scar was scarcely visible.

Pulse-Dye laser did not only reduce the risk of keloid recurrence but also corrected the residual scar^[14].

The association between different techniques seems to be the only chance to treat keloids and reduce recurrence rate^[15], furthermore surgery is frequently the only opportunity to restore the correct anatomy distorted by the scar.



Figure 1 keloid of the right helix.



Figure 2 Result after 12 months of follow up from the last session of Dye laser.

CONCLUSION

We believe that the association between surgery and Pulsed-Dye laser can be useful to treat keloids diminishing the risk of recurrence.

We also think that the association of different therapeutic methods can be the only chance to treat keloids and reduce recurrence rate.

CONFLICT OF INTERESTS

The authors declare that they do not have conflict of interests.

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Peer reviewers: Tak-Wah Wong, MD, PhD, Associate Professor, Department of Dermatology, Department of Biochemistry and Molecular Biology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, 138 Sheng-Li Road, Tainan, 704, Taiwan; Sharad Mutalik, HOD Dermatology Department, Maharashtra Medical Foundation, 778 Deccan Gymkhana, Pune, India