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Pearls in Dermatology

How I treat small earlobe keloids with intralesional cryosurgery

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Treatment of keloids is difficult and the response to first line treatment including silicone gel sheet, compression, topical and intralesional steroid are variable. Intralesional cryosurgery (ILC) may be useful for treating some earlobe keloids not responsive to these first line treatments. ILC is accomplished by continuous delivery of liquid nitrogen through a spinal cannula introduced into the keloid. Each treatment aims to freeze the keloidal core without affecting the surrounding skin. In properly selected lesions, reduction of keloid size is often observed with few complications.

Keywords: Earlobe keloids, intralesional cryosurgery

Introduction

Keloid is a progressively enlarging scar due to excessive collagen formation during wound healing and repair. The aetiopathogenesis for keloid formation is not well understood. Al-Attar et al summarised a number of hypotheses that included altered growth factor milieu, growth factor differences, extracellular matrix differences, tension, sebum reaction, genetic and immune dysfunction.[1] Acne and ear piercing are common predisposing causes of keloid in Chinese. Treatment of keloid is often frustrating. First line treatment including silicone gel sheet occlusion, pressure therapy, topical and intralesional steroid give variable response. Plastic surgical intervention is a more definitive treatment but requires good surgical skill. Previous studies showed favourable response of earlobe keloids to intralesional cryosurgery (ILC). However, this technique is relatively new to local clinicians. The author reported a preliminary experience on treating spherical earlobe keloids with ILC using a single cannula.

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Method

The procedure is performed aseptically. An 18G or 19G spinal cannula such as the Spinocan (Braun, Melsungen) can be used. The cryogun (Erbokryo Derm, ERBE) (Tubingen, Germany) has a Luer-Lock adapter that fits snugly with the spinal cannula. Other brand of cryogun that fits a spinal cannula is also acceptable. The anticipated entry and exit points through the keloid are anaesthesied with small amount of local anaesthetics. The spinal cannula is then introduced through the core of the keloid until the tip goes

beyond it. The stylet is then removed. The hub of the cannula is then connected to the cryogun outlet by screwing tight. The cryogun should be kept in an upright position without much tilting. Now start to spray liquid nitrogen. The cannula would gradually coat with white flakes due to formation of ice. Further continuous spraying produces freezing of the keloid and eventually formation of an 'ice ball'. After keeping the freezing for some seconds, stop spraying liquid nitrogen and let the 'ice ball' to thaw until the cannula can be loosened and be removed with ease. The overall single treatment time for one keloid may take few minutes.

Erythema, mild oozing and sometimes crusting may occur. Patient is discharged with mild analgesic and 1:2000 aqueous chlorhexidine for daily dressing if required. Follow-up assessment and further cryosurgery may be contemplated if appropriate.

Figures 1 to 3 depict the procedure and clinical progress in a Chinese teenage girl with right postauricular keloid not responsive to intralesional steroid injections. An 'ice ball' is created upon prolonged liquid nitrogen spray (Figure 1). Figure 2 shows clinical progress at Week 0, Week 4, Week 6 and Week 8. A total of two treatments were given in Week 0 and Week 4. Figure 3 shows the changes in keloidal volume represented graphically. A continuing diminution of volume was noted and reached to 9 mm^3 at Week 24. To facilitate prolonged cryospraying, a nylon zip tie fastened around the cryogun and pressing tightly on the spray button ameliorates hand fatigue (Figure 4).

Figure 1. Freezing of keloid to an 'ice ball'.

Figure 2. Clinical progress.

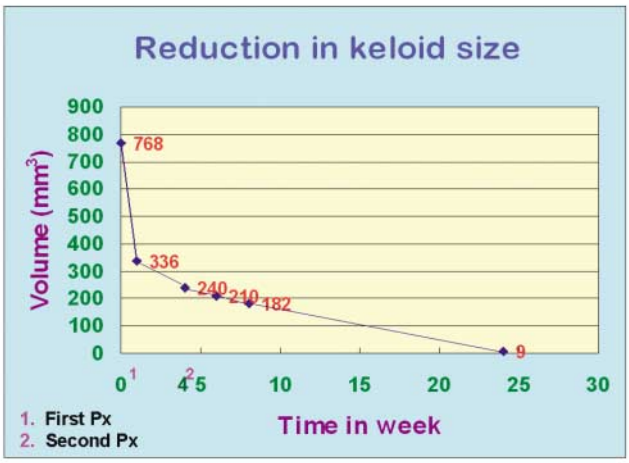

Figure 3. A graph to show reduction of keloid volume.

Figure 4. Nylon zip tie pressing on spray button.

Comments

In cryosurgery, the extreme low temperature below freezing leads to cell death and tissue necrosis. It has a direct beneficial effect on the keloidal collagen, producing improved organisation of collagen bundles and parallelisation.[2]

The method of using intralesional cryosurgery for treating skin lesions is not new and was first reported by Weshahy.[3] A Medline search showed only a few open studies on ILC for treating keloids. One study on ten auricular keloids in nine Caucasians showed an improvement of pain and itch score. A mean percentage volume reduction of 67.4±23% was achieved after one cycle of liquid nitrogen treatment evaluated six months afterwards.[4] The procedure is also well tolerated with mild pain or discomfort.

Compared to ILC, the usual way to deliver liquid nitrogen via contact or spray method requires more treatment sessions to achieve good results. Furthermore, epidermal melanocytes are more susceptible to the damaging effect of liquid nitrogen by direct cryosurgery and thus at risk of hypopigmentation.

Preliminary experience suggested that ILC may be useful for some earlobe keloids which failed the usual first line treatment methods. The author proposed a need for further evaluation of ILC on its treatment efficacy and safety profile.

References

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