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Prophylactic Z-plasty

Correcting helical rim deformity from wedge excision

Wedge excision is a popular and well documented surgical method for treating a wide range of skin lesions and cancers of the ear in the general practice setting. In the majority of cases, this is a simple and cosmetically pleasing treatment. However, it may create helical rim deformity. This article describes a simple method of preventing such deformity using prophylactic Z-plasty.

Keywords: skin neoplasms; surgical flaps; ear, external

Wedge excision of the helical rim is a simple surgical method and cosmetically pleasing treatment for treating skin cancer of the ear in the general practice setting.[1] It is usually a one step procedure, and in surgery of the ear can be seen as a simple elliptical excision counterpart. However, it is sometimes complicated by contour deformity of the ear (*Figure 1*).

Correcting helical rim deformity

In the following case, a two step process was used to first completely excise the lesion using Moh surgery (*Figure 2a*) and then remove a wedge of skin and the attached cartilage (*Figure 2b*) to prevent 'dog ear' formation of the ear. After Moh excision of basal cell carcinoma of the ear to conserve maximum tissue for reconstruction, the two ends of the helical incisions were approximated and the 'notching' deformity of the helical rim was noted (*Figure 3a*). If the ear was approximated as it is, then it would be left with a notch deformity. In order to prevent this complication a prophylactic Z-plasty was fashioned (*Figure 3b–d and 4*).[2]

Discussion

A cosmetically pleasing ear has a smooth, natural helical contour. Disturbances in this contour such as the notching deformity following a wedge excision can create cosmetic concerns and patient dissatisfaction.

Prophylactic Z-plasty is one of the simplest and oldest forms of skin flap surgery.[3] It is an effective method of treating scars and contour deformities of the ear by:

- changing direction of the scar (parallel to the rim rather than transverse)
- interrupting scar linearity (zigzag scars are less perceptible)
- effectively reducing the tension across the wound

Figure 1. Notch deformity of the helical rim following a wedge excision

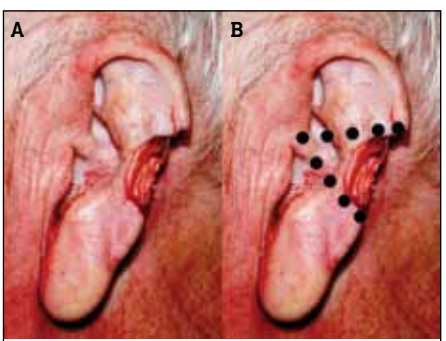

Figure 2a. Surgical defect following a complete excision of the basal cell carcinoma of the left ear using Moh micrographic surgery

Figure 2b. The wedge of the skin and the cartilage needed to be removed in order to prevent dog ear formation and to allow the two ends of the helix to approximate

- lengthening the tissue along the rim
- producing a smooth and natural helical rim curvature.

In the ear, Z-plasty is commonly used to treat the postoperative depressed scar or a pre-existing

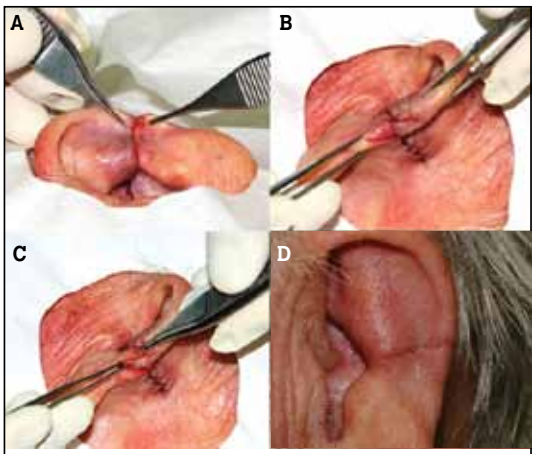

Figure 3a–d. 'Z' was fashioned using a standard two equal 60 degree triangular flaps

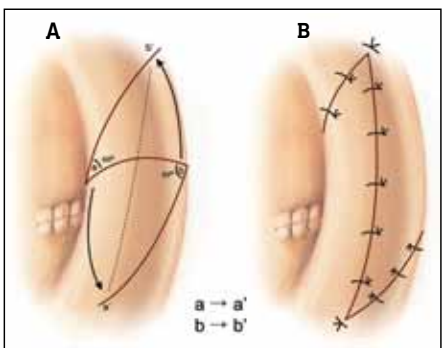

Figure 4. Diagram of the design and the final outcome of standard 60 degree Z-plasty

dermatological deformity.[3,4] However, where the postoperative cosmetic deformity can be intraoperatively predicted following a wedge excision (such as in the case presented here), it can prevent such deformity and provide a more cosmetically satisfying outcome.

Prophylactic Z-plasty is a simple and effective one stage procedure suitable for treatment of skin lesions and cancers in the general practice setting.

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