

Case Report

Closure of Surgical Defect with “Dog-Ear Graft” in Basal Cell Carcinomas

Gülsüm Gençođlan,^{1*} MD, Işıl Kılıncı Karaarslan,² MD, Tuđrul Dereli,² MD

Address:

¹Afyon Kocatepe University Medical Faculty Department of Dermatology, Afyon, Turkey; ²Ege University Medical Faculty Department of Dermatology, Izmir, Turkey

E-mail: gencoglan75@hotmail.com

* Corresponding author: Gülsüm Gençođlan, MD, Afyon Kocatepe University Medical School Dermatology Department, Afyon, Turkey

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Abstract

Observations: Closure of irregular surgical defects that occur following wide excision of cutaneous malignancies has proven to be difficult. In large surgical defects, where primary closure cannot possible, leaving the defect for secondary healing not only delays the healing process, but also results in worse outcome cosmetically. In such cases, grafts or flaps are required to close the wound. The surgeon should choose the least complicated method that would yield the most functional and cosmetic outcome. Here, “dog-ear” formed at the margin of the defects were used as a graft after excision of basal cell carcinomas in two cases.

Introduction

The “dog-ear”, in fact, is a surgical error that occurs during ill-planned closure. A puckering resembling a dog-ear is formed at one or both ends of the incision if the length of the defect is 2.5-3 times less than the width. If these wrinkles are not corrected, an unpleasant raised scar forms. This puckering of skin, also known as the “dog-ear”, may serve as an excellent graft material for wound closure. The operative technique is simple: after a circular excision of the cutaneous lesion, we enlarged the excision line (towards one or both sides of the defect) following the relaxed tension lines. Secondary triangular defect was created by excising skin that is then used for the graft (as donor site). After adequate undermining, direct linear closure of this secondary defect was preceded. Finally, the graft was placed and sutured in the remaining defect. The proximity of the donor

site provides an excellent tissue match because color, hair density, texture, sebaceous features and thickness are similar to the recipient site. A good cosmetic result is therefore ensured [1].

Cases

Case 1

A 65-year-old female patient had a basal cell carcinoma on the left side of the frontal region excised and closed primarily 5 years ago. Two years after the initial surgery, the tumor recurred at one edge of the old incision scar and reached 4 cm in diameter (**Figure 1a**).

Surgical removal of the tumor was planned and approximately 1 cm from the margins of the BCC was excised down to the frontal fascia. Once hemostasis was achieved, the margins of the incision were undermined. The defect was closed primarily from the lower pole towards the other end. Up until the middle of the defect, primary closure could be accomplished with some stretching. But when the midpoint of the defect



Figure 1. (a): Basal cell carcinoma of left of the forehead, (b): Final appearance of the repair of dog ear graft, (c): After 3 month

was reached, there was still a defect 3 cm in diameter that was impossible for primary closure. By placing a suture in the middle of this defect with 2/0 nylon, a “dog-ear” was formed at the upper pole, towards the frontal hairline. The dog-ear was properly excised in a triangular fashion. The upper end where the dog-ear was excised was closed primarily (**Figure 3**).

The dog-ear was re-sized to the dimensions of the defect that exceeded 2 cm in the mid section and used as a full-thickness graft (**Figure 1b**). Finally, following hemorrhage control, antiseptic pressure dressing was placed on the wound. Histopathological examination revealed solid

type basal cell carcinoma and absence of microscopic tumor at the margin of resection. On the follow-up after 3 years, a very satisfactory outcome was achieved (**Figure 1c**).

Case 2

A 48-year-old, previously healthy, white man presented a morpheaform basal cell carcinoma on his left frontal region of three years history. Although the tumor has appeared 20x13 mm in diameters, it was showed deep dermal and subcutaneous invasion by palpation (**Figure 2a**). Therefore, the tumor was excised widely in ellip-



Figure 2. (a): basal cell carcinoma of left of the forehead, (b): a suture in the middle of this defect, (c): final appearance of the repair of dog ear graft

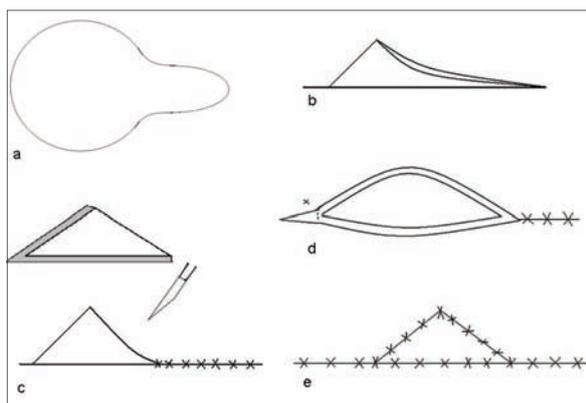


Figure 3. Illustration of the surgical procedure used: (a) surgical wound; (b) reduction of size of the wound by means undermining, seen from the side; (c) the wound was closed with primary sutures as much as possible at its narrow part and dog ear is excised; (d-e) remaining of graft on the wound and direct primary suture of the area from which the dog-ear have been removed.

soid fashion and the size of surgical defect was reduced by means of undermining (**Figure 2b**). The defect was closed by dog-ear graft as similarly described in the case one (**Figure 2c**).

Discussion

Full-thickness skin grafts are an important tissue source for reconstructive surgery. Burrow's grafts are full-thickness skin grafts that use adjacent lax skin as the donor site. This technique has also been referred to as island grafts, dog-ear grafts or adjacent-tissue skin grafts [1]. If primary closure after the excision of big tumors, such as in our cases, is not possible, there are other alternatives, including closure with secondary healing, or using one of the flap techniques or grafts. Even though secondary healing can be preferred in certain conditions, it takes a long time to heal leaving behind a scar, and carries a higher risk of infection.

Local flap is a good choice due to low complications and good cosmetic outcome [2]. However, as the wound opening gets wider, more incisions and more complex techniques would be necessary. On the other hand, using a "dog-ear" graft necessitates fewer excisions and knowledge on repair of a dog-ear would suffice. Full thickness skin grafts taken from preauricular, postauricular or supraclavicular regions are not preferred due to color discordance, just like split-thickness grafts due to the hollowness relative to the surrounding tissues.

The use of dog-ear as a full-thickness skin graft has been described in various types for smaller wounds [3]. Krishnan *et al.* have argued that this technique could be used for larger wounds too, and they took the graft at one end and used it at the other end of the incision [4]. This technique can be valid if the wound is round or roughly oval. In our first case, the tumor was a recurrent one that grew on one end of the previous skin incision and spread. This is probably due to residual tumor cells remaining during the first surgery. The new operation required excision of the tumor, as well as the old incision scar (it is easier for tumor cells to spread along incision lines). Therefore, a "tennis racket" shaped incision was made. The handle of the "racket" corresponding to the old incision scar could be closed primarily. Therefore, it was not possible to obtain a dog-ear there. The round part of the racket served as a dog-ear and was used in the middle section of the defect.

The primary aim during tumor excision is to remove the tumor with sufficient amount of healthy tissue. Closure of the wound and cosmetic outcome are secondary expectations. Dog ear graft grafts can be a good choice for reconstruction of extensive facial surgical defects because of aesthetic results. In addition, it is a simple technique that can be performed in one sole surgical act, with local anesthesia and without changing the operative site. By this way, the risk of encountering complications (infection, graft rejection, *etc*) could be minimized. During the procedure that we performed, we took simple Burrow angles into consideration and aimed to achieve maximum benefit by minimal incision, minimal tissue damage and minimal complication.

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