

A new method in the treatment of postburn scar contractures: Double opposing V–Y–Z plasty

Onder Tan ^{a,*}, Bekir Atik ^b, Duygu Ergen ^a

^aAtaturk University, Medical Faculty, Department of Plastic Reconstructive and Aesthetic Surgery, 25240 Erzurum, Turkey

^bYuzuncu Yil University, Medical Faculty, Department of Plastic and Reconstructive Surgery, Van, Turkey

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Abstract

Purpose: Postburn scar contractures are fairly often seen in many parts of the body, and are still a considerable problem for reconstructive surgeons. Although the mild to moderate contractures can easily be managed by numerous surgical methods, serious contractures usually require more comprehensive surgical solutions including multiple Z plasties and rhomboid flaps, each of which have disadvantages. We used a new method called “double opposing V–Y–Z plasty” in this study. This technique is a combination of V–Y plasty with Z plasty in double opposing fashion, both ensuring primary donor site closure.

Materials and methods: The technique was applied to 21 postburn scar contractures in 14 patients (9 males and 5 females). The localization most often seen was in the hand.

Results: The mean follow-up time was 7.6 months. All flaps healed uneventfully. An adequate lengthening and functional recovery were achieved in all cases. The donor site scars were acceptable in all cases. None of the patients developed contracture recurrence in our series.

Conclusions: Double opposing V–Y–Z plasty, as a good alternative to multiple Z plasties and multiple rhomboid flaps, is a very useful technique to insure more lengthening and to prevent recurrence in the treatment of serious postburn scar contractures.

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Keywords: Burn; Contracture; Rhomboid; V–Y plasty; Z plasty

1. Introduction

Postburn scar contractures are fairly often seen in many parts of the body, and are still a considerable problem for the reconstructive surgeons. So far, numerous surgical and non-surgical treatment modalities have been presented in the treatment of postburn scar contracture which is perhaps one of the most disturbing late sequela of burn. The main goals of the surgical management should be to insure an adequate lengthening using flaps instead of skin grafts to avoid recurrence, to gain an acceptable aesthetic outcome with minimal scar, and to obtain a sufficient functional recovery.

Z plasty is one of the most popular techniques used in repair of postburn scar contractures [1]. However, distal flap necrosis may be seen in multiple Z plasty procedures which necessitates extensive undermining [2]. The effectiveness of the subcutaneous pedicled rhomboid flap has also been shown in literature [3,4]. With this technique, the contracture band is released using a rhomboid incision so as to design its long axis parallel to the contracture band. The two distinct advancements in V–Y and Y–V manner are then applied in two distinct planes which are perpendicular to each other. In more serious contractures, however, it is necessary to increase the number of the rhomboid flaps to assure more lengthening. It will result in supplementary and unnecessary scars, increase the recurrence rate, and damage of the delicate anatomical structures depending on the localization.

To avoid all these complications concerning multiple Z plasties and rhomboid flaps in serious contractures, we used a new method called “double opposing V–Y–Z plasty”,

* Corresponding author. Tel.: +90 442 2361212x1194; fax: +90 442 2361301.

E-mail addresses: drondertan@yahoo.com, mdtan@atauni.edu.tr (O. Tan).

which was first described by Ertas et al. as a nameless procedure, in this study. This technique is a combination of V–Y plasty with Z plasty in double opposing fashion, both ensuring primary donor site closure.

2. Materials and methods

Between March 2004 and February 2005, the double opposing V–Y–Z plasty technique was applied to 21 postburn scar contractures in 14 patients. There were nine males and five females patients in our series. The mean age was 14.2 years (ranged from 4 to 30 years). The major etiologic cause was scald in nine patients, followed by flame in three, and stove in two. The localization most often seen

was hand in 11 contractures, followed by elbow in 4, axilla in 3, and poplitea in 3. The lengths of the contractures ranged from 2 to 21 cm (mean length was 7.2 cm). All these contracture sites were released and repaired with one each V–Y–Z plasty. Routine supportive care including compressive garments and silicone gel application was followed postoperatively.

2.1. Surgical technique

The operation can be performed under local or general anesthesia. A subcutaneous pedicled rhomboid flap which consists of double separate V–Y flaps in opposing manner is centered and marked along the long axis of the contracture to be lengthened with 120 and 60° angles (Fig. 1a).

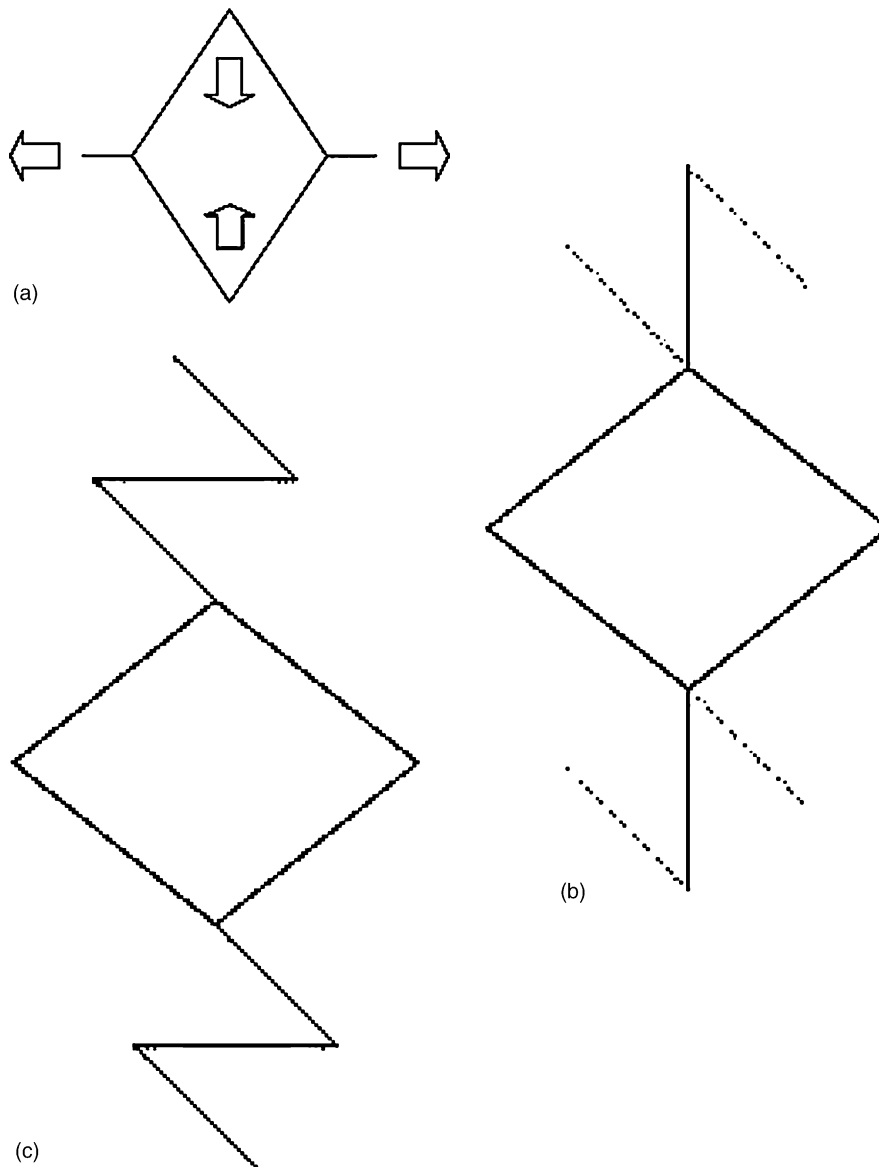


Fig. 1. Schematic drawing of the double opposing V–Y–Z plasty. (a) Planning of the subcutaneous pedicled rhomboid flap centered along the long axis of the contracture to be lengthened with 120 and 60° angles. This consists of double separate V–Y flaps in opposing manner. (b) Supplement of two Z-plasties in each end of the rhomboid flap along the long axis. (c) Full lengthening achieved by each V–Y and Z-plasties in opposing manner along the contracture line.

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