

## Z-plasty, an option for reconstructing two synchronous nasal defects: a case report

*Zetaplastia: uma opção para reconstrução de dois defeitos sincrônicos nasais – relato de caso*

DOI: <http://www.dx.doi.org/10.5935/scd1984-8773.2025170340>

### ABSTRACT

Z-plasty, a versatile surgical technique, skillfully addresses diverse needs in dermatological surgeries, especially the lengthening, dispersion, and realignment of scars through relaxed skin tension. We report a case of two synchronous defects after excising nasal squamous cell carcinomas using the Z-plasty technique, highlighting its simplicity, adaptability and esthetics.

**Keywords:** Carcinoma Squamous Cell; Surgical Flaps; Nose; Case Reports.

### RESUMO

A zetaplastia é uma técnica cirúrgica versátil que permite abordar diversas necessidades em cirurgias dermatológicas, especialmente no alongamento, dispersão e realinhamento de cicatrizes dentro da tensão cutânea relaxada. Relatamos um caso de dois defeitos sincrônicos após a excisão de carcinomas espinocelulares nasais, tratados com a técnica de zetaplastia, destacando sua simplicidade, adaptabilidade e resultado estético.

**Palavras-chave:** Carcinoma de Células Escamosas; Retalhos Cirúrgicos; Nariz; Relatos de Casos.

## Case report

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**Financing:** None.

**Conflicts of interest:** None.

**Submitted on:** 01/10/2024

**Final decision:** 03/11/2024

### How to cite this article:

Garcia RR, Santos LFS, Durães GB, Niekawa LST, Kondo RN. Z-plasty, an option for reconstructing two synchronous nasal defects: a case report. Surg Cosmet Dermatol. 2025;17:e20250340.

## INTRODUCTION

Due to their nature, skin neoplasms can represent an intrinsic challenge to optimal esthetic results. Squamous cell carcinoma, the second most common type of skin cancer, may require specific care in the context of reconstructive surgery<sup>1</sup>, mainly in the nasal region, where realignment of the scar is essential due to high esthetic demand.

The difficulties increase when two or more synchronous squamous cell carcinomas occur in the nasal region, because this highly visible location can become distorted due to a lack of local elasticity. Previous reports have been published on the use of Z-plasty for reconstructions involving simultaneous lesions (intraclavicular region)<sup>2</sup> and Burrow's triangle advancement (nasal region)<sup>3</sup>, resolving the resulting defects with good results. We present the case of a patient with two synchronous squamous cell carcinomas in the nasal region occurring on the right and left sides at different levels (middle third and tip). Reconstruction with Z-plasty was used instead of advancement, with good esthetic and functional results.

## CASE REPORT

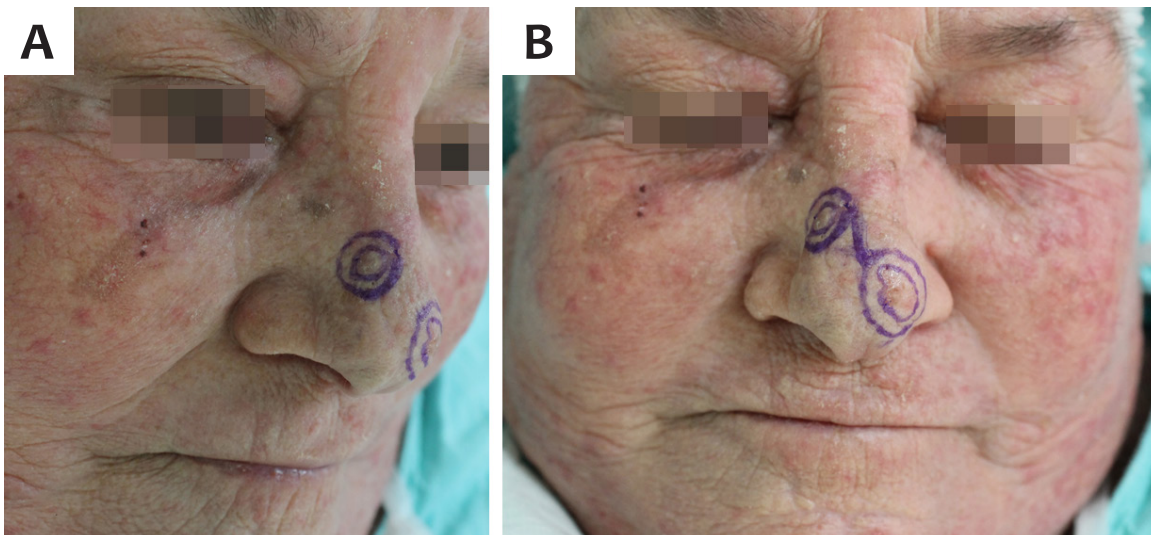
A 79-year-old woman with Fitzpatrick classification 3, asthma, systemic arterial hypertension, and type 2 diabetes mellitus presented an 8-mm papule and a 12-mm plaque, erythematous, with scaly surfaces on the right sidewall and the left side of the nasal tip, respectively. Histopathological examinations of incisional biopsies of both lesions showed proliferation of atypical keratinocytes affecting the entire epidermis and invading the lamina propria, confirming two moderately differentiated squamous cell carcinomas.

## DESCRIPTION OF THE TECHNIQUE

- With the patient in dorsal decubitus, a surgical pen is used to mark the two lesions with 4 mm margins (Figure 1)
- Antisepsis is performed with 10% topical povidone-iodine
- The surgical fields are placed
- Infiltrative local anesthesia is administered with 2% lidocaine with vasoconstrictor
- A circular incision is made with a no. 15 scalpel blade based on prior marking on the right sidewall and complete excision of the squamous cell carcinoma, causing defect 1
- A circular incision is made with a no. 15 scalpel blade based on prior marking on the left lateral nasal tip and complete excision of the squamous cell carcinoma, causing defect 2
- Defects 1 and 2 are joined with a diagonal incision (Figure 2)
- The skin around the defects is detached for better flap movement
- The flaps are transposed, followed by synchronous closure of both defects (Figure 3)
- 5.0 nylon monofilament sutures are angled at 60-75 degrees between the incisions at the end and the center (Figure 4)
- The wounds are cleaned with saline solution
- The wounds are dressed with gauze.

## RESULTS

The esthetic results were satisfactory, with good healing and no trapdoor deformity or signs of postoperative infection (Figure 5). Histopathological examinations of the excision of both lesions showed squamous cell carcinoma with tumor-free surgical margins.



**FIGURE 1:**  
**A** - Surgical marking of the squamous cell carcinoma on the right nasal sidewall. **B** - Surgical marking of the squamous cell carcinoma on the left nasal tip, with a line connecting the two defects



**FIGURE 2:** Surgical defect



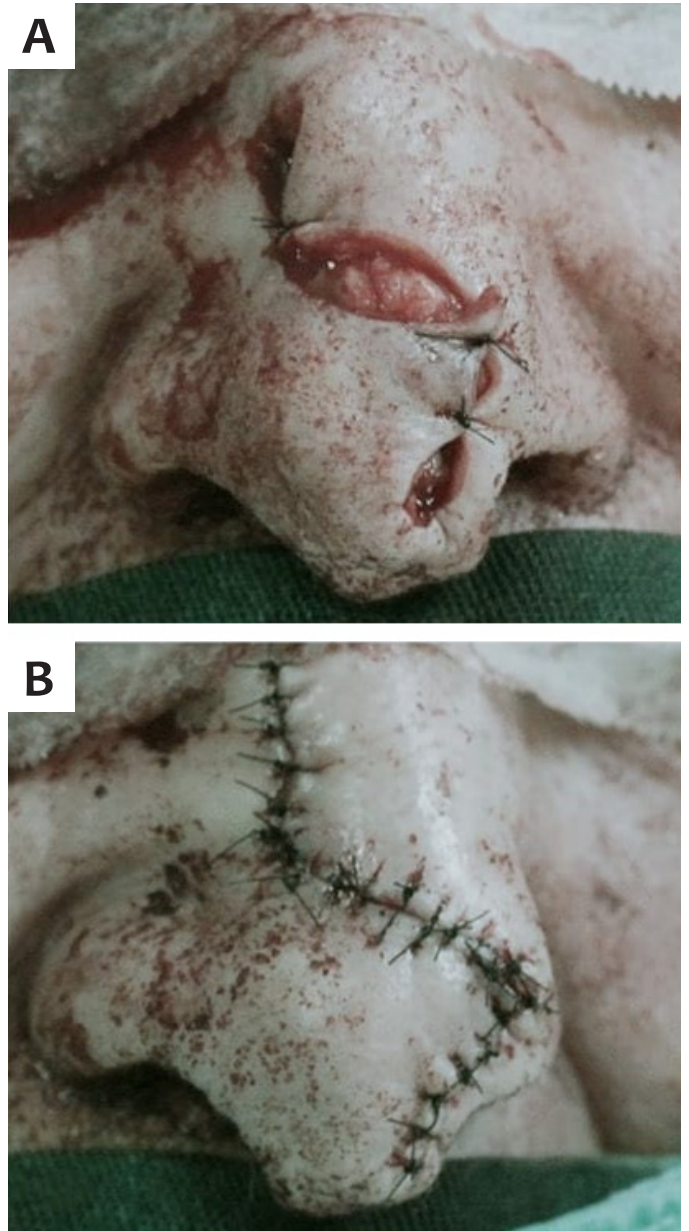
**FIGURE 3:** The flaps are transposed

## DISCUSSION

Z-plasty is a well-known plastic surgery technique. Although many forms of the procedure have been described in the literature, the most common purposes are: a) scar lengthening; b) scar reduction; or c) to scar realignment through relaxed skin tension.

Z-plasty is known for its versatility, since it can be applied to various parts of the body, such as the fingers, nose, chest, palate, malar region, ears, etc. Although initially described by Fricke & Horner in Philadelphia in the mid-1800s, McCurdy (1898-1924) popularized the technique, with the first contemporary record of Z-plasty authored by Berger in 1904.<sup>4</sup>

Skin tissue losses in the nasal region are challenging for plastic surgeons due to the lack of elasticity in some areas. The nasal subunits, which were described by Burget & Menick,<sup>5</sup> are

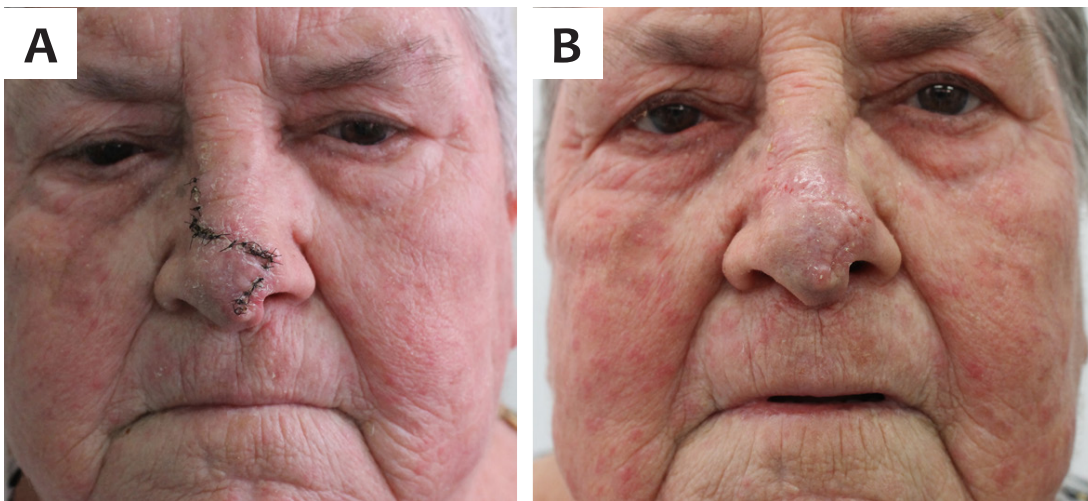


**FIGURE 4:** A - Main sutures. B - Sutured flap

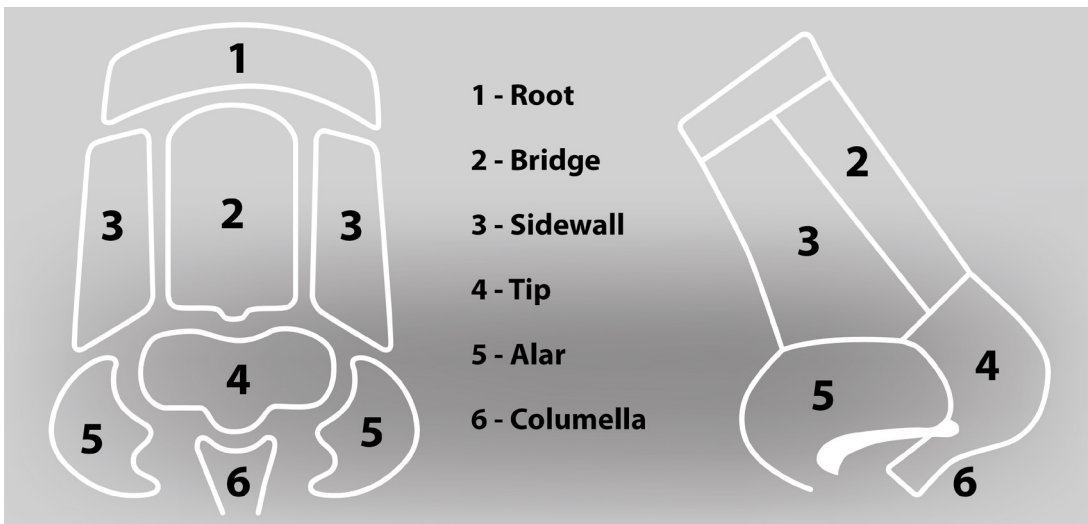
separated by differences in elasticity, color, contour, and tissue type. This description revolutionized nasal reconstruction, including the development of the best flap or graft proposals for each region (Figure 6).

Different techniques for the nasal region have been described in the literature. A Brazilian cross-sectional study analyzed 103 nasal skin flaps used for reconstruction in oncological surgery<sup>6</sup>, with 21.6% of the cases in the bridge region and 12.7% in the tip region. In the bridge region, the most common technique was the extended glabellar flap, followed by bilobed and

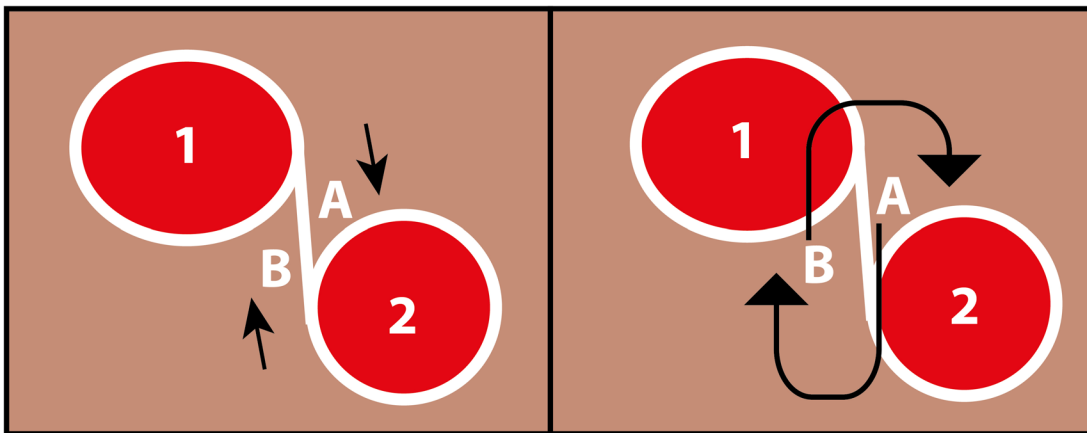




**FIGURE 5:**  
Patient 1 week  
postoperatively.  
**A** - With sutures.  
**B** - After suture  
removal



**FIGURE 6:** Nasal  
subunits. Source:  
Adapted from Berget &  
Menick



**FIGURE 7:** Diagram showing the difference between Burrow's triangle advancement and transposition flaps. In the advancement type, flap A advances over defect 2 and flap B advances towards defect 1. In the transposition type, flap B is transposed over A, closing defect 2, while flap A is transposed over B, closing defect 1. Source: Schematic drawing by the corresponding author

rhomboid flaps. In the tip region, the bilobed flap was the most common, followed by extended glabellar and rhomboid flaps. However, the vast majority of cases only involved a single lesion.

However, the present case involved two synchronous lesions. We opted for Z-plasty instead of Burrow's triangle advancement,<sup>3</sup> due to the better adjustment when transposing the flap, which avoids nasal distortion, since the resulting defects were on opposite sides and at different levels (middle third and nasal tip), i.e., they involved different subunits (the difference between the two flap types is illustrated in figure 7).

Z-plasty orchestrates defect coverage by transposing the first flap to the required area, while the second flap serves the dual purpose of closing the donor site for the first flap and realigning the scar.<sup>2</sup> Due to similarity in color and texture, the flaps may be preferable for repairing tissue loss. Because it is versatile

and simple to perform in a single surgical procedure, Z-plasty may be a useful technique for reconstructing adjacent double defects.<sup>4</sup>

The additional tissue relaxation provided by an unequal Z-plasty and the use of similar skin tissue to close two closely spaced nasal defects appear to be the advantages of this type of procedure, since it does not require the excision of additional healthy tissue.<sup>4</sup>

## CONCLUSIONS

This case report demonstrated that Z-plasty is a remarkable and versatile option for reconstructive plastic surgery. It is essential to know the available techniques to best apply them in nasal reconstruction. ●

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Approval of the final version of the manuscript for publication; conceptualization; writing – original draft; data curation; formal analysis; supervision; writing – review & editing.



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nasal defects: a case report**

*Surgical & Cosmetic Dermatology*  
vol. 17, e20250340, 2025  
Sociedade Brasileira de Dermatologia,  
**ISSN:** 1984-5510  
**ISSN-E:** 1984-8773

**DOI:** <https://doi.org/10.5935/scd1984-8773.2025170340>