E-ISSN: 2708-1508
P-ISSN: 2708-1494
Impact Factor (RJIF): 5.39
IJCRS 2026; 8(1): 01-04
www.casereportsofsurgery.com
Received: 09-11-2025
Accepted: 10-12-2025

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Nipple reconstruction with hyaluronic acid filler: A case report

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DOI: https://www.doi.org/10.22271/27081494.2026.v8.i1a.249

Abstract
Introduction: Reconstruction of the Nipple Areola Complex (NAC) is a crucial step in breast reconstruction, yet maintaining long-term nipple projection remains a common challenge, particularly in patients with limited reconstructive options.
Case Report: We report the case of a 57-year-old woman with a history of breast cancer treated with mastectomy, implant-based reconstruction, and adjuvant radiotherapy, who developed complete loss of nipple projection following NAC reconstruction with a local flap. Due to thin mastectomy skin flaps and refusal of contralateral nipple grafting, a combined approach using areolar tattooing and staged hyaluronic acid filler injections was performed, resulting in restoration and maintenance of nipple projection with no associated complications.
Conclusion: Hyaluronic acid filler represents a minimally invasive, safe, and reversible adjunct in nipple reconstruction, offering a valuable alternative for restoring nipple projection and shape when conventional surgical techniques are contraindicated or unsuccessful.

Keywords: Nipple reconstruction, hyaluronic acid, hyaluronic acid filler, case report, unsuccessful

Introduction
represents a critical component of breast reconstruction and has a substantial impact on overall patient satisfaction. Multiple reconstructive techniques have been described, including the use of local flap procedures and three-dimensional areolar tattooing; however, a universally accepted gold standard has yet to be established [1].
One of the principal limitations associated with nipple reconstruction using local flaps is the progressive loss of nipple projection over time, primarily due to gradual resorption or insufficient support of the underlying connective tissue, which may ultimately result in patient dissatisfaction [2].
We present a clinical case in which hyaluronic acid filler is used as a promising minimally invasive option to restore nipple projection and shape in a reconstructed breast when conventional reconstructive techniques are not suitable.

Clinical Case
A 57-year-old woman with a history of breast cancer underwent mastectomy followed by immediate reconstruction with a tissue expander and implant 10 years prior to presentation, in addition to receiving adjuvant radiotherapy. Nine years later, she underwent reconstruction of the nipple-areola complex (NAC) using a C-V local flap; however, this resulted in complete loss of nipple projection over time.
The patient presented with extremely thin mastectomy skin flaps and declined the use of a contralateral nipple graft, rendering conventional nipple reconstruction techniques unfeasible. An attempt to restore nipple projection using a dermal graft was subsequently performed; however, complete loss of projection was observed within six months.
Clinical evaluation revealed extremely thin mastectomy skin flaps. In addition, the patient declined harvesting of a contralateral nipple graft, thereby rendering conventional nipple reconstruction techniques unsuitable.
Given these limitations, a combined approach involving areolar tattooing and hyaluronic acid filler injection was selected in order to address the patient's specific desire to restore nipple projection.

In the first stage, areolar tattooing was performed using shading techniques to recreate the contour, pigmentation, and natural texture of the NAC. One month following tattooing, nipple augmentation was carried out with the injection of 0.2 mL of hyaluronic acid (Juvederm Voluma®). The procedure was subsequently repeated at two weeks and three months, using the same volume of filler at each session. Figures 1-4 illustrate the sequential stages of the procedure, including the pre-procedural appearance, immediate post-treatment results, and the six-month follow-up.

Discussion

In 2020, a pivotal study was published describing the use of hyaluronic acid fillers as a safe and reversible alternative for enhancing nipple projection in patients undergoing breast reconstruction. The authors demonstrated the effectiveness of hyaluronic acid in both primary nipple reconstruction, frequently in combination with three-dimensional areolar tattooing, and in augmenting the projection of nipples reconstructed using local flaps, as well as native nipples [2].

To date, no significant complications associated with the use of hyaluronic acid for nipple augmentation have been reported [2]. Nevertheless, from a theoretical standpoint, excessive filler injection may pose a risk of tissue ischemia or necrosis, and there is also a potential risk of implant perforation. These risks can be mitigated through meticulous technique and adherence to appropriate safety precautions.

As hyaluronic acid is a biodegradable material, this approach is considered relatively safe; however, its effects are not permanent, necessitating periodic maintenance treatments at intervals of approximately 6 to 9 months.

An additional advantage of this technique is the minimal volume of hyaluronic acid required for nipple augmentation, allowing any remaining product to be utilized in other anatomical areas according to patient preference [2].

Overall, this combined approach enables the achievement of an aesthetically satisfactory outcome with adequate nipple projection, without the need for additional surgical incisions and with a low complication profile. Areolar tattooing provides a natural-appearing skin tone and simulates nipple relief through shading effects, while hyaluronic acid filler restores the necessary projection, thereby enhancing both the visual and tactile characteristics of the reconstructed nipple.

Fig 1: Pre-procedural appearance demonstrating complete loss of nipple projection.

Fig 2 and 3: Immediate postoperative appearance following the first hyaluronic acid filler injection, showing restoration of nipple projection

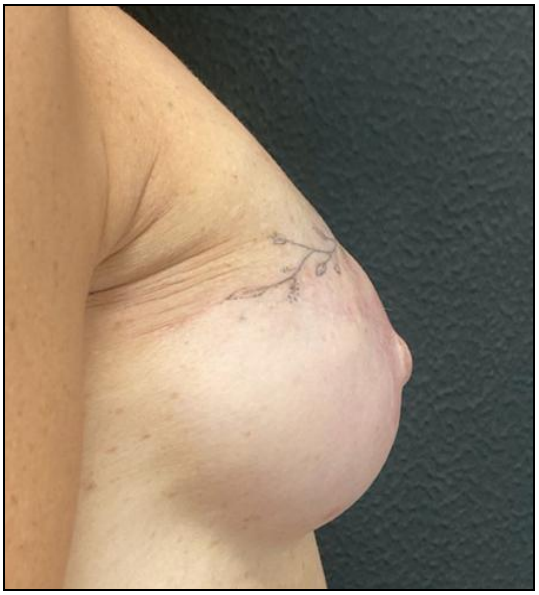

Fig 4: Clinical appearance six months after hyaluronic acid filler treatment, demonstrating maintenance of nipple projection

Conflict of Interest
Not available

Financial Support
Not available

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How to Cite This Article
Gouveia CP, Branco D, Conduto D, Ribeiro G. Nipple reconstruction with hyaluronic acid filler: A case report. International Journal of Case Reports in Surgery. 2026;8(1):01-04.