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Case Report

Successful correction of inverted nipple using silicone implants: A pioneering surgical approach

Bruce P. Dos-Santos, Mireia Ruiz-Castilla*

Plastic and Reconstructive Surgery Department, Hospital Quironsalud Barcelona, Universitat Autònoma de Barcelona, Barcelona, Spain

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ABSTRACT

Inverted nipples are commonly observed and can lead to challenges in breastfeeding, sexual experiences, and dissatisfaction with one's physical appearance. Currently, there is a lack of consensus on the optimal treatment approach. The use of a smooth silicone implant to reconstruct the nipple-areola complex in post-mastectomy breast reconstruction has recently been proposed. This study presents the first case using this approach in a patient with a grade II inverted nipple who previously failed conventional reconstructive surgical treatment.

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Introduction

The condition of inverted nipples is commonly observed and can lead to challenges in breastfeeding, sexual experiences, and dissatisfaction with one's physical appearance. Currently, there is a lack of consensus regarding the optimal treatment approach. Release of fibrotic tissue and internal sutures is the treatment modality that is more frequently used, and local de-epithelialized dermal flaps are used

* Corresponding author at: Plastic and Reconstructive Surgery Department, Hospital Quironsalud Barcelona, Plaza Alfonso Comín 5-7, 08023 Barcelona, Spain.

E-mail address: mireia.ruiz@quironsalud.es (M. Ruiz-Castilla).



Figure 1. Preoperative clinical situation.

in more restricted cases.¹ Nevertheless, it has been observed that nipple projection may diminish as time progresses and recurrence rates up to 41 % of cases,² and complementary treatments have been proposed.³ The utilisation of a smooth silicone implant to reconstruct the nipple-areola complex in post-mastectomy breast reconstruction has been recently proposed. In this study, we present the first case of using this approach in a patient with a grade II inverted nipple who previously failed with conventional surgical treatment.

Case report

The patient was 21 years old, with no comorbidities, and had undergone previous surgery to liberate the fibrous bands and the lactiferous ducts at the base of nipples and perform lateral dermal flaps with a temporary external splinting. She presented a first recurrence in the left nipple and underwent scar tissue release surgery and external splinting. Two years after surgery, the right nipple remained with a favourable surgical outcome, while the left breast persisted with a grade II inverted nipple (Figure 1). Treatment with hyaluronic acid injections was administered in two different sessions separated by 3 months, but there was no significant improvement. Then, all available surgical alternatives were carefully explained to the patient, including the reconstruction with autologous tissues (bone or cartilage), emphasising the pros and cons of each technique. The patient did not accept the bone or cartilage reconstruction and, although it has never been used before for this specific indication, she finally decided on a nipple-areola complex reconstruction by using a silicone implant (FixNip™ NRI - GC Aesthetics, Caesarea, Israel).

The surgical procedure started drawing the circumference of the silicone implant with a skin marker over the patient's nipple-areola complex. Ten mm outwards of the drawn circumference, a perimetric incision was planned; it was set parallel to the drawn line and completely located in the lower external quadrant. According to anatomical studies, this quadrant was chosen because it is the quadrant from which circulation is least likely to reach the nipple-areola complex in 10 % of all patients. A subcutaneous pocket approximately 4–5 mm in thickness was dissected and then washed. The surgical site was then covered with sterile film (Opsite, Smith & Nephew), and sterile drapes and gloves were changed. Then, a gentle infiltration of a triple antibiotic solution was performed. Finally, the sterile film was cut with a new scalpel over the incision, the nipple-areola implant was inserted and the planes were closed with monofilament sutures. The device was implanted successfully, with no malformations detected during the implantation procedure.

The patient was discharged the day following the surgical procedure. One week of relative rest followed the surgery, and the sutures were removed ten days later. At 4 months of follow-up, the nipple projection of the left breast was 10.1 mm (Figure 2). It was comparable to those observed in the right breast (10 mm) (Figure 3). Aspect, touch, and feel evaluations were also performed on both breasts (left breast with implant, right breast without implant) using a 1-to-10-point analogue scale (where 1 was extremely dissatisfied and 10 was very satisfied). Aspect evaluation received a rating of 8, and touch and feel evaluation received a punctuation of 9. The right (nonimplanted nipple-areola complex) also underwent the same evaluation, which resulted in a 9 and 9 punctuation, respectively. No complications were observed within the first 4 months of follow-up (Figure 4).



Figure 2. Left breast projection at 4 months follow-up after implantation of silicone implant for inverted nipple correction.

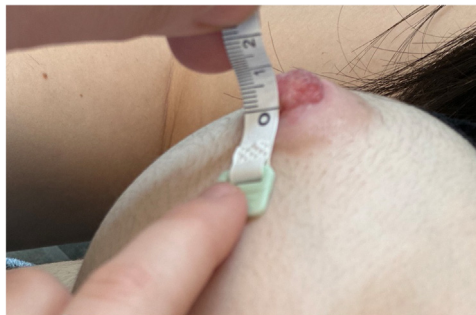


Figure 3. Right breast projection after two years of the first surgical procedure that consists of the liberation of fibrous bands and the lactiferous ducts at the base of nipples and lateral dermal flaps with temporary external splinting (4 months of follow-up after silicone implant procedure on the left breast).

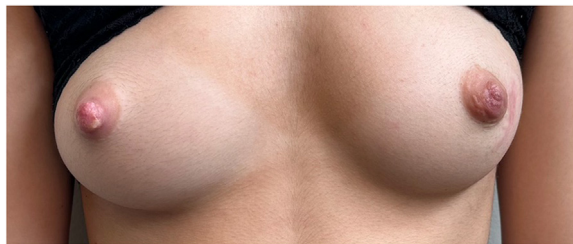


Figure 4. Four-month follow-up after silicone implant for inverted nipple correction.

Discussion

This is the first case report with mid-term results of using a silicone nipple-areola implant for reconstruction in a patient with an inverted nipple. Importantly, previous conventional surgical treatment failed. Moreover, our approach to nipple-areola complex reconstruction using silicone implants is underpinned by a comprehensive ethical framework that respects patient autonomy and ensures informed consent. The patient's choice was made following an exhaustive presentation of the available options, including traditional methods and autologous materials. By providing a balanced view of the potential difficulties, such as the removal of silicone implants, alongside their benefits, the patient's decision was both informed and aligned with her values and preferences.

The use of nipple-areola implant after failure of conventional surgical treatment showed similar aesthetic results compared to the traditional surgical technique used in the right breast, and no com-

plications were reported. This technique has been previously approved for the nipple-areola complex reconstruction after a post-mastectomy breast reconstruction. However, clinical data about its use in this specific indication is lacking, and therefore, concerns about potential technical difficulties with eventual implant removal may exist. In contrast, this alloplastic reconstruction is free of donor-site morbidity compared to autologous reconstruction.

The advantages of this technique include that it can decrease recurrence rates as the nipple projection is achieved with the use of the silicone implant with an internal metallic structure, and it is free of donor-site morbidity. This implant structure ensures a satisfactory long-term result. For this reason, it might not be used as a first-line treatment in grade I inverted nipples, as the conventional technique can correct most of these cases with a good aesthetic result. However, it can be helpful in patients with more severe grades of inverted nipple, or those with an unsatisfactory result or lower nipple projection after conventional surgical repair. In these patients, it may provide excellent aesthetic results in terms of the patient's evaluation aspect and touch and feeling and a stable projection over time.

We only report the results after the first 4 months of follow-up, and a more prolonged follow-up period would be needed. We obtained a good aesthetic result during this period, and no complications were reported. However, we will continue monitoring the patient's condition and report any findings that may contribute to the collective understanding of the long-term outcomes of this procedure. It should be noted that silicone implants may have other potential complications, such as contracture, rupture, extrusion, displacement or infection. Thus, long-term studies that specifically assess the incidence of these complications would be necessary.

In conclusion, despite the fact that its utility as a first-line treatment in patients with inverted nipples remains unclear, these results suggested that nipple-areola silicone implants may be a safe and useful surgical alternative to be used in those patients with inverted nipples who failed a primary reconstruction using conventional surgical techniques. Our manuscript presents a novel surgical procedure and stimulates an ethical dialogue regarding patient-centred care in the face of surgical advancements, advocating for a reflective practice that considers patient autonomy, informed choices, and the honest and ethical introduction of innovative techniques within reconstructive surgery.

Ethical approval

Not required.

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None.

Declaration of competing interest

None declared.

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