



# Breast Auto-augmentation (Mastopexy and Lipofilling): An Option for Quitting Breast Implants

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## Abstract

**Background** Breast augmentation with implants is one of the most commonly performed plastic surgical procedures, but has potential complications—asymmetry, implant displacement, rippling and wrinkling, capsular contracture, late seromas, and benign and malignant tumors—and potential financial costs. The auto-augmentation procedure, with mastopexy and lipofilling, is a second option to offer to patients who do not desire to continue with breast implants in secondary procedures.

**Objective** This study aimed to present a series of patients who intended to quit having breast implants, and they went to an auto-augmentation procedure, with mastopexy and lipofilling.

**Method** The study included patients who underwent a mastopexy plus lipofilling following breast implant removal. The indications for the surgical procedure were: desire of not having breast implants anymore and smaller breasts, capsular contracture, and implant rupture. The surgical procedure is detailed. Fat grafting and mastopexy are done immediately at the time of explantation.

**Results** A total of 26 patients (mean age 59.1 years) underwent mastopexy plus lipofilling following breast

implant removal. The mean follow-up was 18 months. The mean amount of lipofilling was 258 cc. No major complications were observed, no infection, dehiscence, hematoma, or seroma. One patient had an oil cyst which was handled with resection.

**Conclusion** The auto-augmentation procedure after implant removal with local flaps and lipofilling is the better option for patients in whom breast implants are not an option anymore. Complication and reoperation rates are low and patient satisfaction is good.

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**Keywords** Secondary mammoplasty · Lipofilling · Auto-augmentation · Breast

## Introduction

Breast augmentation with implants is one of the most commonly performed plastic surgical procedures, with more than 1,400,000 patients treated annually worldwide (ISAPS International Survey on Aesthetic, 2016). The popularity of this surgical procedure emphasizes the importance of understanding the potential complications, their respective rates of occurrence, and need for reoperation [1]. Recent reviews have demonstrated that approximately 20% of women develop some type of problem related to the procedure, which includes asymmetry, implant displacement, rippling and wrinkling, capsular contracture, late hematomas, and benign and malignant tumors [2]. Recently, all efforts and attention have been

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shifted to the occurrence of breast implant-associated anaplastic large cell lymphoma (ALCL), which is a distinctive type of T cell lymphoma that arises around breast implants, most commonly diagnosed during revision surgery for a delayed or persistent seroma, associated with breast pain or swelling, in patients with previous textured breast implant insertion [3]. For patients with non-complicated outcomes, the estimated rupture-free implant survival is around 83–85% at 10 years, with the devices being considered durable for the first 6–8 years, after which the rupture rates increase [4].

It is important to address the potential financial costs of so many possible revision procedures. Patients should also be aware of the potential long-term surveillance costs, so far FDA recommendations are to have one magnetic resonance imaging (MRI) 3 years postoperatively, then every 2 years thereafter [5]. Therefore, thinking about that the mean age of primary breast augmentation is around 30s [1], it is strongly recommended to the physician to alert and explain to possible surgical candidates all these postoperative consequences and possible complications, and it is advised to have a second option to offer to patients who do not desire to continue with breast implants in secondary procedures.

This study aimed to present the auto-augmentation procedure, with mastopexy and lipofilling, as a safe option for breast implant removal without replacement. We conducted this retrospective study to evaluate complication and reoperation rates, even as patient satisfaction with auto-augmentation. Technical details of the surgical procedure are detailed.

## Patients and Method

Between 2014 and 2017, 26 patients (mean age 59.1 years; range 36–81 years) underwent a mastopexy plus lipofilling at the time of breast implant removal. The indications for the surgical procedure were desire of not having breast implants anymore and smaller breasts in 14 patients (53%), capsular contracture in five patients (19%), and implant rupture in seven patients (26%).

One year after the surgery, we assessed the patients with two simple questions: (1) Are you satisfied with the result? (2) Do you regret quitting breast implants? The result was considered satisfactory, if the patient answered positively to the first question and negatively for the second.

## Preoperative Markings

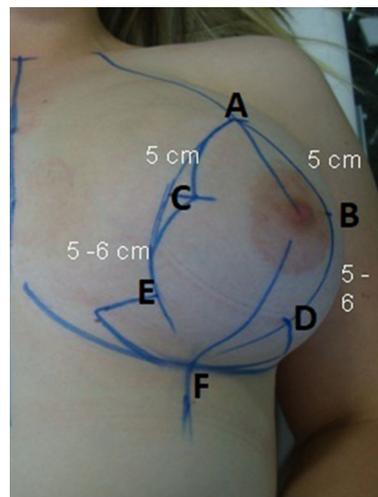
Marking is done with the patient standing. First a straight line in the midline is drawn, starting from the sternal notch until the xiphoid process. A second line is drawn from a

point five centimeters from the sternal notch on the clavicle to the nipple–areola complex (NAC) and then straight to the inframammary fold–point F (meridian of the breast). The inframammary fold is also marked following its characteristic contour. A point at 17–20 cm on the line connecting the sternal notch to the NAC is marked (point A) which will correspond to the top of the areola. Next, the breast is smoothly displaced laterally (technique described by Lejour) and a line is drawn, joining the A point to the F point, parallel to the midline. This maneuver will determine the amount of skin that will be resected in the medial. A similar line is drawn with the breast displaced medially. The distance of 5 cm is measured from point A on the lateral and medial lines determining points B and C. Points D and E should be marked 10 cm from point A (5 cm from points B and C) on the lateral line and medial, respectively. It is important to save skin at points B and C that will correspond to the area of tension below the areola, thus avoiding dehiscence at this location. The inverted T-marking is finished by two lines connecting points D and E to the inframammary fold (IMF) (Fig. 1).

To reduce scar extension, these lines should not extend to the lateral and medial limits of the IMF. Preferably, they have to end at a point 0.5 cm above the original IMF (Fig. 2A, B).

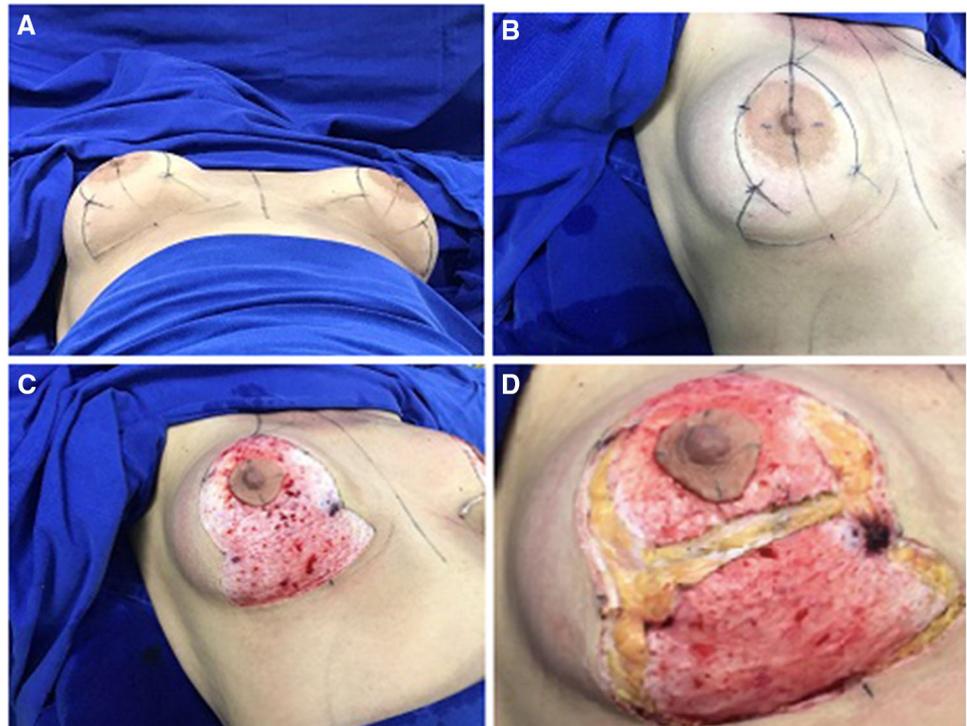
## Surgical Technique

The patient is placed supine on the operating table and, after induction with general or epidural anesthesia (local is possible) and prep and drape, the incision markings are infiltrated subdermal (except superior to the areola), with a dilute epinephrine in saline solution (1:100,000). The area of the skin demarcated by lines A–B, A–C, B–D, and C–E (Figs. 1, 2A, B) is de-epithelialized, leaving the NAC



**Fig. 1** Skin markings

**Fig. 2** In A and B, details of preoperative markings; in C: after de-epithelization; in D an incision is made all around the drawing preserving the superior pedicle to the areola and in the dermis transversely along lines D–E, passing 1 cm below NAC



(4.5–5 cm in diameter) in place (Fig. 2C). An incision is made all around the drawing preserving the superior pedicle to the areola and in the dermis transversely along lines D–E, passing 1 cm below NAC (Fig. 2D). This is the beginning of the creation of the chest wall-based flap. The flap is free from all of the four sides: superior, lateral, inferior, and medial (Fig. 3).

The implant pocket is commonly reached in this maneuver (Fig. 4A). At this time, the implant pocket is accessed (Fig. 4B, C). A total capsulectomy is performed to access the breast base and pectoralis muscle fascia (Fig. 4D).

It is very important that the flap not be restrained; if it is, continuous dissection should be extended to the pectoral

fascia. This freely mobile, totally chest wall-based flap is comprised of the tissue that in other procedures “bottoms out,” but in this procedure, it is being transposed into the upper pole where it will remain permanently.

Before starting the fixation of the chest wall-based flap to the pectoralis fascia, lipofilling is performed in the intramuscular plane, ranging about 200 cc—the medium volume of fat that the muscle can support with good retention—in each side, as described by Khoury and colleagues [6] (Fig. 5).

The dermis of the flap is then sutured to the pectoral fascia with a running 2-0 nylon suture, starting laterally and finishing medially. After that, one interrupted suture of 2-0 nylon is placed in the superior breast tissue and the pectoral fascia just cephalad to the flap (at the second intercostal space) to lift the undermined breast tissue and improve upper pole projection (Fig. 6).

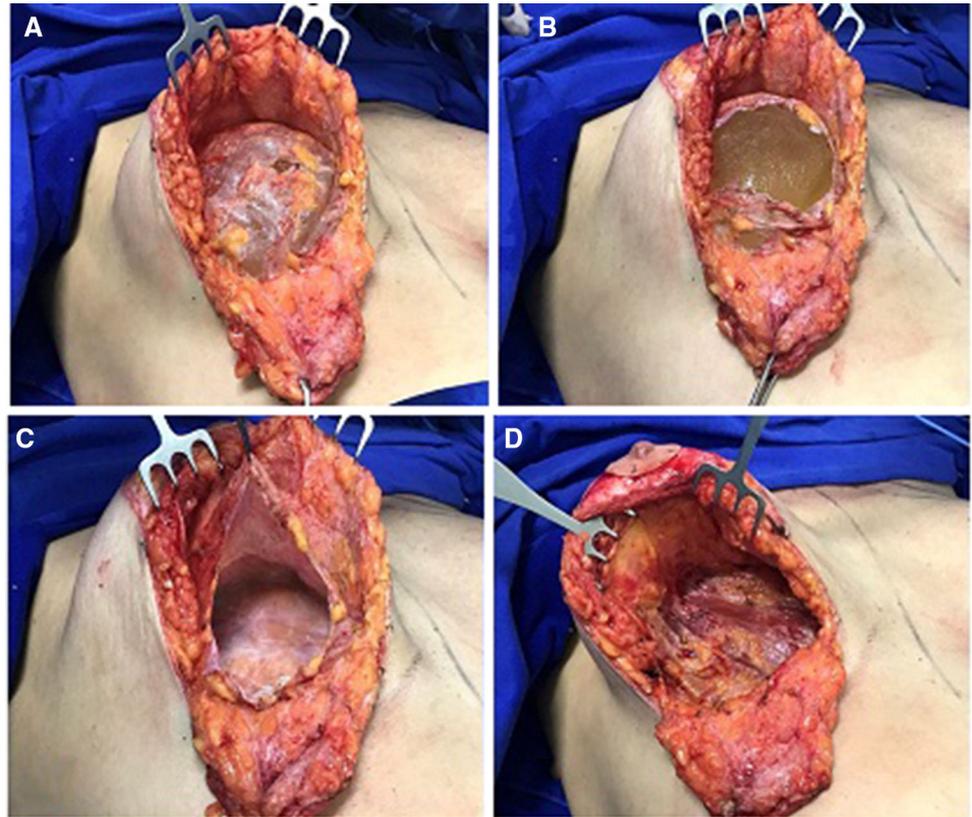
Closure starts with suturing the pillars with 2-0 nylon in several layers. It is preferable to place the needle laterally deeper than medially to preserve more fullness medially (Fig. 7). The deep dermis of the superior vertical wound is sutured placing together the subareolar points B and C.

Vertical skin and horizontal skin are closed with interrupted sutures of 4-0 Monocryl. With the breast in good shape, lipofilling, ranging about 100–150 cc, is performed of the skin envelope in the subdermal plane avoiding the intraglandular plane. We make this step to enhance the total volume until achieving adequate breast shape and with some overcorrection—considering fat resorption,

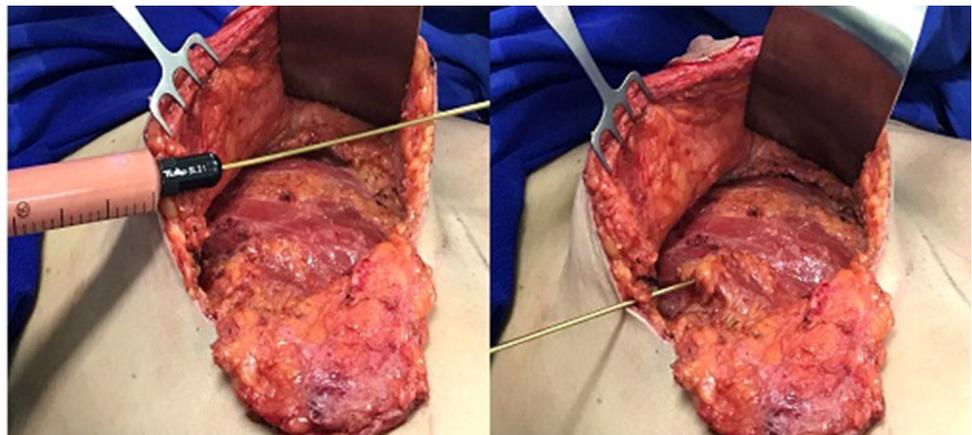


**Fig. 3** Chest wall-based flap dissected

**Fig. 4** In A, B and C, the implant pocket dissection; In D, after a total capsulectomy the breast base and pectoralis muscle fascia are accessed



**Fig. 5** Intramuscular lipofilling



especially when the patient has thin subcutaneous tissue (Fig. 8).

Final skin closure is done with a running intradermic suture of 4.0 Monocryl—see *Supplementary File* to access a video with our step-by-step approach.

No drains are routinely used.

## Results

Patient characteristics are described in Table 1.

Between the indications for breast implant removal and auto-augmentation, Fig. 9 shows a magnetic resonance imaging showing the preoperative capsular contracture—one of the five cases in our casuistic.

The mean amount of lipofilling was 258 cc. No major complications were observed, no infection, dehiscence, hematoma, or seroma. One patient had an oil cyst, which was handled with resection (Fig. 10).

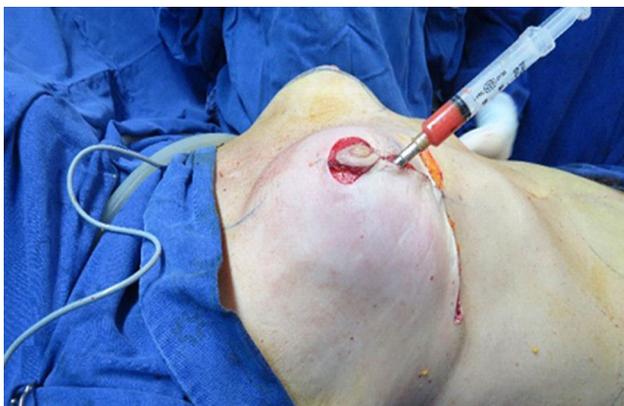
The mean follow-up was 18 months (12–30 months) (Figs. 11, 12, 13).



**Fig. 6** Postfixation of the chest wall-based flap to the pectoralis fascia



**Fig. 7** Breast pillars closure



**Fig. 8** Lipofilling of the skin envelope at the subdermal plane

One year after the surgery, all 26 patients answered that they were satisfied with the surgical result, and that they did not regret about quitting breast implants.

Even though we did not objectively measure loss of fat volume and long-term retention, none of the cases required

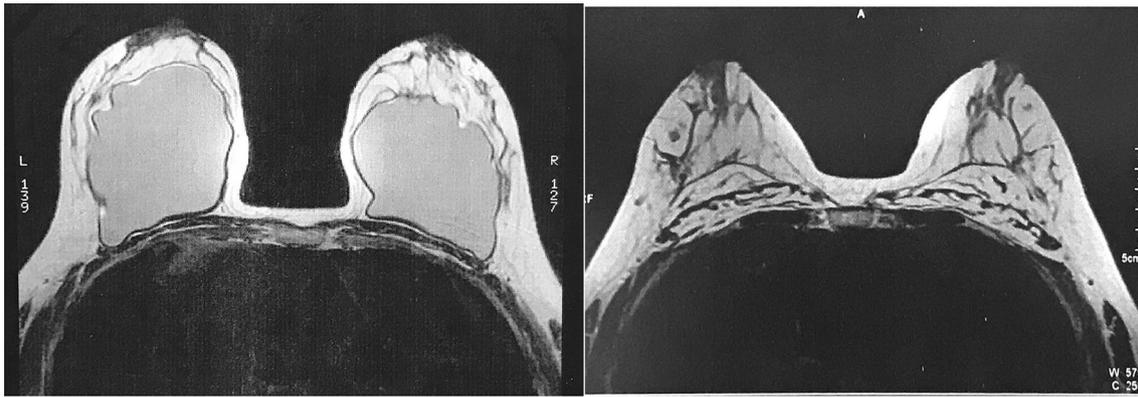
**Table 1** Patient characteristics

ID	Age	Indication	Lipofilling
LFY	53	Desire	200 cc, each side
PRC	58	Desire	250 cc, each side
VLO	65	Desire	260 cc, each side
RML	36	Desire	Left:100 cc/right:160 cc
NL	48	Implant rupture	Left: 240 cc/right: 440 cc
MD	75	Desire	200 cc, each side
RCL	54	Desire	Right: 200 m l/left: 260 ml
MB	59	Desire	Right: 300 cc/left: 320 cc
MGB	55	Desire	140 cc each side
RCM	59	Capsular contracture	Right: 380 cc/left: 440 cc
SCL	61	Desire	200 cc, each side
RCM	59	Capsular contracture	Right: 380 cc/left: 440 cc
IBP	61	Desire	Right: 400 cc/left: 340 cc
GGC	51	Capsular contracture	220 cc each side
MFR	58	Desire	260 cc each side
LFP	63	Desire	400 cc each side
LFY	54	Desire	200 cc each side
NP	69	Implant rupture	Right: 400 cc/left: 380 cc
VLS	66	Implant rupture	260 cc each side
LAJ	53	Capsular contracture	Right: 280 cc/left: 320 cc
MRC	66	Implant rupture	160 cc each side
HS	67	Implant rupture	200 cc each side
FMD	43	Desire	200 cc each side
MA	58	Capsular contracture	Right: 300 cc/left: 240 cc
MR	65	Implant rupture	Unilateral: 300 cc
JS	81	Implant rupture	250 cc each side

additional sessions of lipofilling or revisional procedures until now.

## Discussion

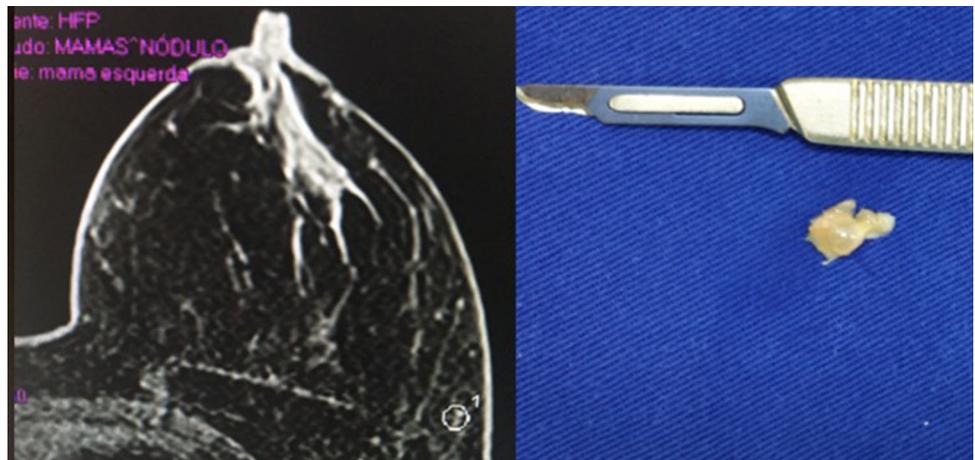
Despite lots of advances in the development of technology about breast implants, even the most experienced surgeons continue to report considerable complication rates for the procedure [7]. To postulate a more practical and understandable comparison, even major elective surgeries such as a total hip replacement is associated with reoperation rates of below 3% [8], and besides this, the numbers for breast augmentation reoperation can reach up to 30% within the first 6 years [9, 10]. Moreover, all the potential postoperative costs of the possible revision procedures and the follow-up screening for breast implant rupture have to be analyzed [5]. This is something to be aware of and to discuss with the patients when they come for the first medical consultation.



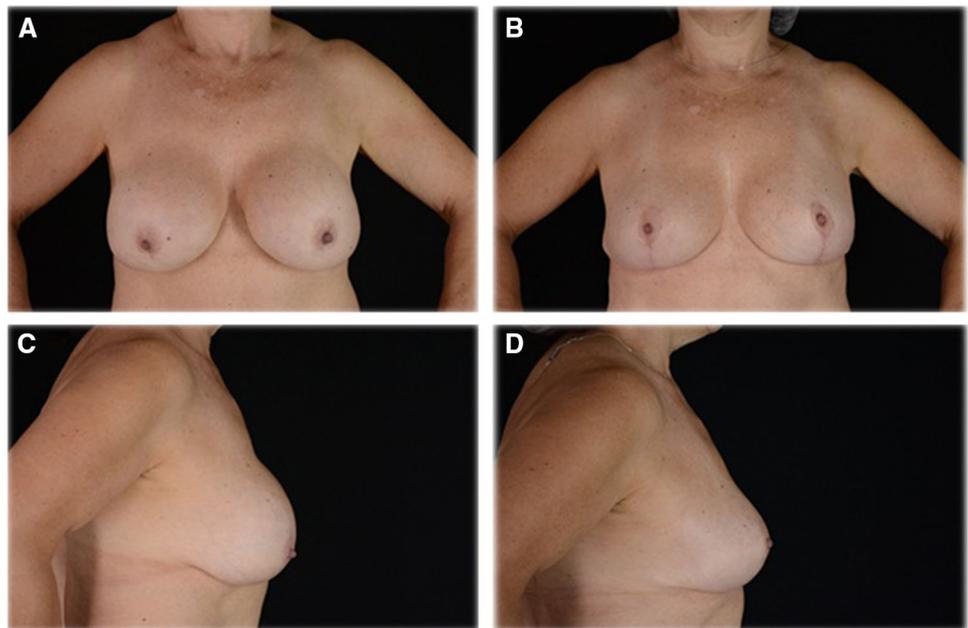
**Fig. 9** In left, axial view of a magnetic resonance imaging showing the preoperative capsular contracture; in right, axial view of a magnetic resonance imaging showing the postoperative result, at the

12-month follow-up, showing the fat transfer inside the pec muscle and subdermally and also the inferior flap

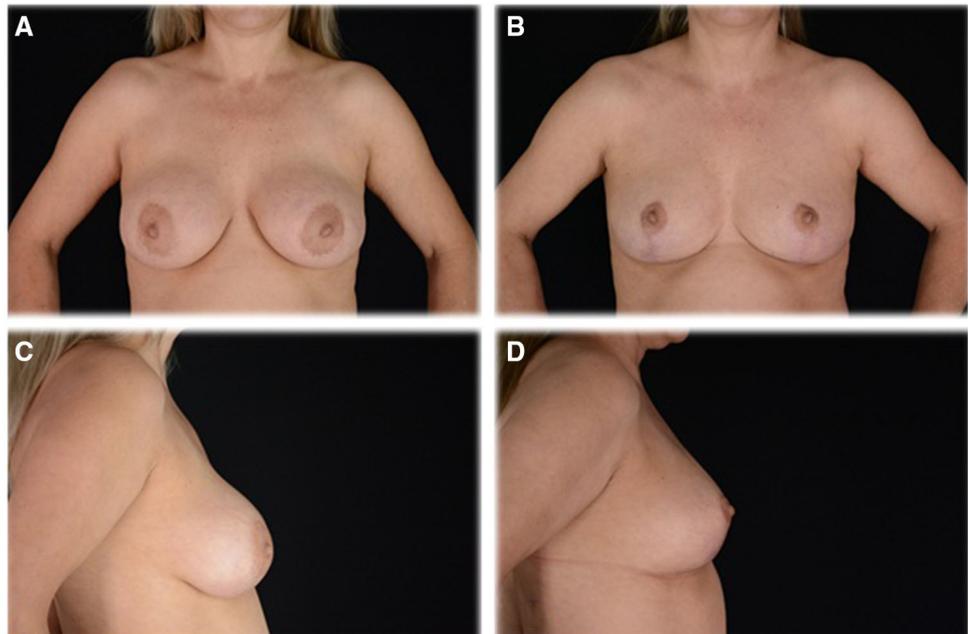
**Fig. 10** In left, sagittal view of a magnetic resonance imaging showing an oil cyst (marked by the white circle in the upper pole of breast); in right, the oil cyst resected



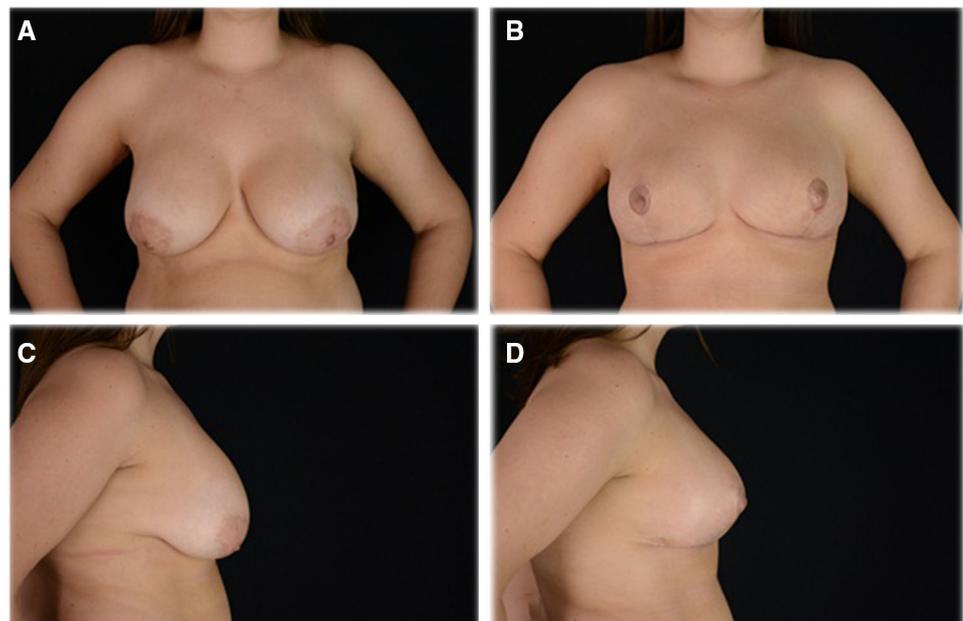
**Fig. 11** Patient number “24,” in Table 1. “A” and “C” preoperative appearance; “B” and “D” postoperative result, at 12-month follow-up



**Fig. 12** Patient number “23,” in Table 1. “A” and “C” Preoperative appearance; “B” and “D” postoperative result, at 13-month follow-up



**Fig. 13** Patient number “8,” in Table 1. “A” and “C” Preoperative appearance; “B” and “D” postoperative result, at 12-month follow-up



The average life expectancy of a US female is 81 years [5]. The mean age of the patients in this study is 59.1 years. If these patients have decided to keep the implants, they would be in place for 21.9 years. The average time for the first revision procedure is nearly 10 years for esthetic patients with breast implants. In a 10-year retrospective study, with 192 patients who had primary augmentation with implants for esthetic reasons, the cumulative risk for needing a second revision procedure at 12 months was 24.5% [7]. Therefore, probably, the decision to quit the

implants saves the patients in our study of subsequent revision procedures.

The main reason for surgical revisions is capsular contracture [1]. However, in the population around 50s, the desire of quitting using breast implants and smaller breasts are the complaint of lots of patients [11]. In this population, to achieve an esthetically pleasant breast mound and a full upper pole all-available remaining tissue must be used to achieve a flap as big as possible. The utilization of dermoglandular flaps after implant removal has been described previously [11, 12]. However, with the advent and

proved safety of breast lipofilling [13], this maneuver is of great benefit to increase total breast volume, especially when breast implants are not an option anymore, for example, in BIA-ALCL. The first case of BIA-ALCL was described in 1997 [14], but until 2011—when the U.S. Food and Drug Administration published a safety communication—this entity received limited attention. For women with textured implants, the risk is estimated between 1 in 1000 [15] to 30,000 [16]. To date, more 500 cases of BIA-ALCL have been reported [17].

Besides, autologous fat grafting reinforces a holistic approach to the patient: use undesirable fat from other sites to improve breast shape [18]. Fat grafting tends to resorb approximately 30 [21] to 50% [19]. There are numerous factors that can influence volume gain. For example, if the fat harvested had a high percentage of oil, the volume lost had the potential to be higher [20]. Choi et al. suggests that fat retention is time and volume dependent: Patients receiving higher volumes have lower loss and achieve volume stabilization faster [19]. The vascularization of the tissue bed is also important [21]: The intramuscular resorption is smaller. In one prospective study, the volume loss was measured at 21.5% 3 months after intramuscular lipofilling [22].

It is important to remember that the previous presence of the implant compromises the third, fourth and fifth posterior intercostal perforators. Therefore, in this approach, the dermoglandular flap cannot be extensively released on its lower portion, and we do not recommend the bipedicle pectoralis major muscle sling in these patients. Otherwise, we can compromise the inferior dermoglandular flap's vascularization. Nevertheless, in a different context, for example, in breast reduction, a muscular loop seems to provide greater and longer support to the flap position [23].

It is important to highlight that patients in this series had enough glandular tissue to perform an auto-augmentation. The method proposed by the authors cannot be applied to women who underwent simple breast augmentation for severe breast hypoplasia.

Another important technical detail is the necessity of performing a total or nearly total capsulectomy. It is also necessary to close breast pillars not only for reducing the potential dead space but also as a maneuver to achieve a more stable breast shape.

In search of an ideal “perfect breast shape,” we daily receive patients asking for what some surgeons call “breast substitution procedures” or “structured mammoplasty” [24], when the healthy breast parenchyma is replaced by breast implants, promising long lasting results and low rates of recurrent ptosis. We notice that many plastic surgeons are performing this kind of procedure and some questions remain unanswered: what will happen when these women reach their 50s, 60s, and their desire for an

ideal body shape change? Will we need to plan a breast reconstruction procedure using distant flaps or multiple sequential lipofilling sections to give them the possibility of quitting breast implants?

## Conclusion

We describe an option to reshape breasts after implant removal, using local flaps and lipofilling that can result in successful breast volume reshaping for patients in whom breast implants are not an option anymore. Complication and reoperation rates are low and patient satisfaction is high, supporting the theory that using the described technique we can offer promising and satisfactory outcomes for patients with similar problems.

## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no conflicts of interest to disclose.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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