

Outcome Review of Modified Central Mound Technique in Breast Reduction AND Mastopexy

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ABSTRACT

Background: The Central Mound (CM) technique is one of the most reliable and safe mammoplasty techniques, based on the use of a highly vascular central pedicle.

Method: From January 2020 to December 2020, a retrospective review of 28 patients, who underwent reduction mammoplasty or mastopexy using our modified technique, were included in this study. All procedures were performed by the senior author of this paper in a private setting. Patients' demographics, operative and postoperative outcomes were collected and analyzed.

Results: In this study, 28 patients identified for inclusion. The mean age was 44.5 years, and mean Body Mass Index (BMI) was 30.2 kg/m². Postoperatively, mean follow up period was 5.5 months, with no mortalities and few morbidities and high satisfaction rate.

Keywords: Central mound; Reduction mammoplasty; Mastopexy, Outcomes

Introduction

Macromastia, or sometimes known as symptomatic mammary hypertrophy, is a common condition in women. Excessive breast tissue can cause physical problems such as musculoskeletal pain, posture difficulties and erythema intertrigo. Moreover, it can cause psychological distress and negatively impact body image perception and quality of life [1,2].

The mainstay treatment for macromastia is a reduction mammoplasty, which is a highly prevalent aesthetic breast procedure. There are various techniques for reducing mammoplasty, and the type of nipple pedicle employed in breast reconstruction is a matter of debate. There has been considerable development and refinement in the different techniques of reduction mammoplasty, categorized by different pedicle

designs and skin pattern reductions [3-9]. One of those commonly used procedures is the Central Mound (CM) mammoplasty, which has proved effective at volume reduction, minimizing scar burden and retaining the neurovascular pedicle and lactational potential [4,10].

In 1981, Balch introduced the CM technique as an unconventional approach, but it has come forth as a safe and effective approach consisting of a wide range of advantages [11]. This technique revolves around opting for a highly vascular glandular pedicle directly from the chest wall, with a specific feature that it can be used reliably in re-reductions regardless of the pedicle design in the prior reduction [3,4].

This study has revisited the central mound technique with touch up modifications to maximize the overall outcome. The aim was to

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analyze and evaluate the postoperative results using this technique in terms of post operative complications and patient's satisfaction.

Methods

■ Study design

A retrospective review of all patients who underwent reduction mammoplasty or mastopexy using a modified CM technique got included in this study from January 2020 to December 2020. All procedures were performed by the senior author of this article. Patients' demographics, comorbidities, operative and postoperative details were collected and statistically analyzed.

■ Operative technique

Preoperative marking was done while the patient in a standing position with a typical Wise pattern skin incision. The Midline was marked from the manubrium sterni to the umbilicus, then marking the mid-axis of each breast from the middle point of the clavicle to the areola. Measuring the distance of the new Nipple Areola Complex (NAC) transposition, the new nipple-areola complex position tagged at Pitanguy point.

Dissection of the subcutaneous pocket superior to the new nipple areola complex position, with a distance equal to or more than the required distance of the nipple transposition. The pedicle base was not detached from the posterior region of the pectoralis fascia.

The technique is carried out by First, the areola is marked using the cookie cutter and incised, and depithelialization of the keyhole skin pattern is done using Colorado needle. Then, the breast tissue is excised only caudal to transverse limbs of the pillars down to but not breaching the pectoral fascia. 2 cm-thick pillars are dissected medially, laterally. Superiorly, 0.5 cm-1 cm skin flap is adopted freeing the entire central breast mound. The length of superior/cephalic dissection is equal to the distance needed for NAC superior mobilization. The cephalic pocket must provide an ample room to accommodate the breast tissue to slide with minimal tension.

The constructed central mound is now freely mobile to slide up. Fixation of the central mound upper pole dermis to pectoralis fascia or at the second intercostal space with an absorbable suture 3/0 Monocryl at 9 o'clock, 12 o'clock and

3 o'clock. Finally, meticulous hemostasis, drains were never used.

Once upper pole is fixed, then pillars are wrapped around the central mound and secured using stay stitch to the crossing of the breast meridian with IMF.

Closure is started caudal to cephalic. Initially, closure starts in the horizontal limb from periphery towards centre to enhance the breast perkiness and eliminate dog ears. Usually starting lateral first, done in layers. First layer using barbed suture to block the dead space and prevent the breast falling laterally. Second layer is a dermal layer, followed by the skin layer. Similar way of closure is done medially apart from the first layer "barbed suture layer" which is omitted medially to give more room for the breast to shift medially. Lateral side contour adjustment by liposuction was infrequently used.

Results

A total of 28 patients were included. The mean age was 44.5 ± 11.2 years, mean body mass index (BMI) $30.2 \text{ kg/m}^2 \pm 3.4 \text{ kg/m}^2$, 10.7% were diabetic, and all the participants were non-smokers, as listed in **Table 1**.

Table 1: Perioperative characteristics.

Mean age \pm SD, year	44.5 ± 11.2
Mean BMI \pm SD, kg/m^2	30.2 ± 3.4
Diabetes Mellitus	10.7%
Mean follow-up \pm SD, month	5.5 ± 0.9
Mean operative time \pm SD, minute	175 ± 9.8
Mean resected breast weight \pm SD, gram	437.3 ± 206.6

Preoperatively, 78.6% had Regnault's grade III ptosis, 14.3% had breast asymmetry, a mean distance from the suprasternal notch to the nipple was $29.4 \text{ cm} \pm 3.9 \text{ cm}$, and nipple to inframammary fold was $12.7 \text{ cm} \pm 2.3 \text{ cm}$.

Mean operative time was 175 minutes ± 9.8 minutes, with resected breast tissue weight being $437.3 \text{ gm} \pm 206.6 \text{ gm}$ and mean follow-up period being 5.5 months ± 0.9 months. The following complications were reported: hypertrophic scar $n=9$ (32.1%), skin flap necrosis $n=1$ (3.6%), fat necrosis $n=4$ (14.3%), partial NAC necrosis $n=1$ (3.6%) and NAC sensation loss $n=2$ (7.2%). Revision surgery needed in $n=5$ (17.9%). Most of the patients reported being "Very satisfied" with the results $n=27$ (96.4%). The postoperative

Table 2: Postoperative outcomes and complications.

Skin flap necrosis	3.7% (1)
Fat necrosis	14.8% (4)
Partial NAC necrosis	3.7% (1)
Hypertrophic Scar	33.3% (9)
Revision surgery needed	18.5% (5)

outcomes and complications have been tabulated in **Table 2** below.

Discussion

Over the years, many breast techniques were developed and undergone refinement. Many plastic surgeons find it difficult to choose a suitable and reliable pedicle for reduction mammoplasty and mastopexy. Moreover, ongoing arguments still exist regarding the ideal design for a dermo-glandular pedicle, with reliable NAC vascularity and sensation alongside the cosmetic outcomes of shape, size, symmetry, and patient's satisfaction.

Training and familiarity with the technique are the standards that surgeons base when choosing the surgical procedure. The familiarity with the inferior pedicle approach and the ability to transpose the nipple across long distances-particularly in large breasts, are reasons why this approach is still used commonly for reduction mammoplasty, despite its associated postoperative issues-such as pseudoptosis (bottoming out) that can develop as early as a few months and progressively get worse [12].

The Central Mound technique generally offers a superior patient's satisfaction compared with other approaches. This technique can be safely employed in majority of breast types, including gigantic breasts while maintaining satisfactory results and fewer complications. Specific areas where Central Mound excels are the preservation of NAC sensation, NAC viability, and producing an enhanced aesthetic result. Parenchymal circulation is the basis on which nipple-areola viability depends and not on a dermal pedicle [11,13,14].

Overall, postoperatively the breast profile has no concerns throughout follow-up regarding pseudoptosis, recurrence of ptosis and upward rotation of the nipple areola complex. However, these issues and hypertrophic scar tissue occurrence are prevalent when using the inferior pedicle technique [12, 15].

Additionally, the central mound technique gives a well-formed conical shape, upper pole fullness and an aesthetically pleasing projection [3]. This approach can be applied in reductions consisting of any scale and the pedicle length is not an issue-unlike in superior or superior-medial pedicle approach whereby pedicle length is a limiting factor [16,17]. Also, despite several studies concluding that superior or superior-medial reduction in gigantomastia is reliable, there is apprehension about the compromise of the NAC blood supply [9,18-21]. Moreover, other advantages of the central mound approach include eliminating the need for free nipple-areolar grafting in large reductions, correction of severe ptosis, and a significant improvement of aesthetic results in more complicated cases such as severe asymmetries [14].

Grant and Ran noted, in their series of 153 patients, a 50% reduction in morbidity rate, a 35% reduction in operating time, no nipple losses, preservation of sensation and vascularity levels were excellent [22]. Also, the CM approach can be carried out in both small and large reductions [23]. When the primary pedicle is unknown, a safer alternative for pedicle design in secondary reduction is a modified central mound. This is attributable to preserving the remaining vascularity in the central mound tissue while simultaneously maintaining the superior and inferior pedicles [24]. Furthermore, the CM technique has proven its reliability and consistency in producing satisfactory results. Thus, it should be considered when dealing with patients undergoing a reduction mammoplasty for macromastia/asymmetry and history of irradiation [25].

In our retrospective review, we noted that the CM technique had a short operative time because of the limited de-epithelialization. Other positive findings were reduced complication rates, preservation of NAC vascularity and sensation in 92.8%, and 96.4% of patients reported as being "very satisfied" with the result (**Figure 1**). Regarding complications, the following problems occurred; fat necrosis in 3.5% (n=4), hypertrophic scar in 33.3% (n=9), revision surgery was required in 18.5% (n=5), partial NAC necrosis in 3.7% (n=1), and skin flap necrosis in 3.7% (n=1).

Although our data came from a small sample



Figure 1: Pre operative and post operative result in a patient who underwent bilateral reduction mammoplasty using central mound technique-3 months post op.

size, usage of single surgeon technique, limited time to follow up, and subjective postoperative satisfaction, the findings fall in line with and support the currently existing evidence. Further large scale and robust analysis are required to aid understanding, particularly of the relative advantages and disadvantages of the various approaches.

Conclusion

The CM technique has ticked many boxes to justify its prioritization, in ladies seeking reduction mammoplasty. Its versatility, short operative time, perseverance of vascularity and sensation, low complication rates, and pleasing aesthetic result, all affirm its superiority to other techniques.

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