ACADEMIC JOURNAL OF HEALTH

ORIGINAL ARTICLE

# A New Oncoplastic Surgical Technique in Breast Lower Inner Quadrant Tumors; Banana Incision Mammoplasty


## ABSTRACT

**Objectives:** Oncoplastic breast surgery provides breast cancer patients with the opportunity to remove more breast tissue while maintaining aesthetic outcomes. The choice of surgical method depends on the tumor's location in the breast quadrant, breast size, tumor-to-breast ratio, and the extent of breast sagging. The lower inner quadrant tumors, having less breast tissue, pose greater cosmetic challenges, making oncoplastic breast surgery increasingly significant. This article introduces the 'banana incision mammoplasty' technique, specifically designed for lower inner quadrant tumors.

**Methods:** The technique involves a concave, banana-shaped incision extending from the areola to the medial aspect of the breast fold and then superiorly. The incision's lower end terminates 2-3 cm above the inferior breast fold.

**Results:** The banana incision mammoplasty, tailored for lower inner quadrant breast tumors, is versatile, suitable for all breast sizes. This technique, as we described for these specific tumors, shows a complication rate (including wound infection, seroma, hematoma) comparable to other mammoplasty methods. Notably, the banana incision mammoplasty involves a smaller incision and avoids skin tension by preparing only the glandular flap.

**Conclusion:** The banana incision mammoplasty is poised to be recognized in medical literature as a reliable oncoplastic surgery technique. It allows for extensive surgical resection while ensuring favorable cosmetic results.


**Keywords:** Banana Incision Mammoplasty, breast inner quadrant tumor, new oncoplastic surgical technique

Oncoplastic breast surgery offers breast cancer patients the opportunity to remove more breast tissue without compromising cosmetic results. Patients are more satisfied with the cosmetic outcome than with conventional methods. Less distortion of body image ensures a better quality of life and fewer psychological problems in the postoperative period. Cosmetic results in the postoperative period are negatively affected by factors such as increasing tumor size, decreasing breast size, medial tumor location, inappropriate incisions, and increased scar length. While removing more than 20% of breast tissue with conventional methods is cosmetically unacceptable, even removing 5% of breast tissue in tumors located in the lower inner quadrant can result in poor cosmetic outcomes (1-3).

The surgical method to be used varies depending on the quadrant where the tumor is located, the size of the breast, the tumor-to-breast ratio, and the degree of breast sagging. Oncoplastic techniques suitable for the specific quadrant of the tumor have been defined. The presence of less breast tissue in lower inner quadrant tumors causes more cosmetic concern, making oncoplastic breast surgery increasingly important (4). This article aims to describe the 'banana incision mammoplasty' technique, which is applicable for tumors in the lower inner quadrant.

## METHODS

The study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethical Board of the Institutional Ethics Committee of Etlik City Hospital, Ankara, Turkey (AEŞH-EK1-2023-553).


**Mahmut Onur Kültüroğlu**[1]
**Ferit Aydin**[1]
**Fatih Aslan**[1]
**Kazım Çağlar Özçelik**[1]
**Lütfi Doğan**[1]

*Department of Surgical Oncology, Ankara Etlik City Hospital, Ankara, Türkiye*

**Corresponding author:**
Mahmut Onur Kültüroğlu
✉ mahmutonurkulturoglu@hotmail.com



**Received:** September 11, 2023
**Received:** October 02, 2023
**Accepted:** November 07, 2023

**Cite this article as:** Kültüroğlu MO, Aydın F, Aslan F, Özçelik KÇ, Doğan L. A new oncoplastic surgical technique in breast lower inner quadrant tumors; Banana incision mammoplasty. Acad J Health 2023;1(2):33-36.

DOI: 10.14744/ajh.2023.35220

**Figure 1. A banana-shaped incision is made medially, 2-3 cm above the inferior breast line, extending towards the areola, covering the tumor area located in the lower inner quadrant. De-epithelialization is performed towards the superolateral side to centralize the areola.**

**Figure 2. Postoperative image of the breast.**

**Figure 3. Image of the breast on the 3rd postoperative day.**

### Technical Description

The technique is specifically designed for tumors located between the lower middle and lower inner quadrants (7-8 o'clock for the left breast, 4-5 o'clock for the right breast). While applicable to any breast size, it is particularly suitable for cup sizes A and B.

A concave, banana-shaped incision is planned from the areola to the medial aspect of the breast fold and then extends superiorly. The lower end of the incision terminates 2-3 cm above the inferior breast fold (Figure 1). The extent of skin removal, typically 2-3 cm in width, may vary according to the tumor and breast size. Skin flaps are prepared up to 9 o'clock for the left breast at the top, 3 o'clock for the right breast, and down to the fold on the inferior side. The mass is resected with intact surgical margins. Glandular flaps are created from the superior and inferior parts of the incision by lifting them subcutaneously and over the pectoral muscle. These flaps are then approximated using polyglactin multifilament suture (vicryl), closing the defect area in the lower inner quadrant. Subcutaneous and skin tissues are subsequently sutured (Figure 2). After de-epithelialization to the superolateral of the areola, the areola is re-centered. This technique is primarily described for the lower inner quadrant, where glandular tissue is insufficient for creating glandular flaps. However, with the described incision, if there is not enough gland tissue to fill the defect inferior to the incision, no collapse will occur as this area aligns with the inferior breast fold. Thus, the lower end of the incision ends 2-3 cm above the inferior breast fold (Figure 3).

## DISCUSSION

The density of breast tissue varies across different quadrants. The outer quadrants, having denser breast tissue, allow for a wider range of oncoplastic surgical techniques and typically yield better cosmetic results. In contrast, the lower inner quadrant, characterized by less breast tissue, presents a challenge for cosmetic success post-surgery, with the outcome heavily dependent on the surgical technique employed. In tumors located in the lower inner quadrant, conventional breast-conserving surgical techniques often result in less satisfactory cosmetic outcomes compared to other quadrants (Figure 4)(5).

One of the oncoplastic techniques applicable to lower inner quadrant breast tumors is superior pedicled mammoplasty. This technique involves an inverted T-shaped incision. A potential complication is ischemia at the T junction, which can arise due to impaired skin vascularization (Figure 5)(6).

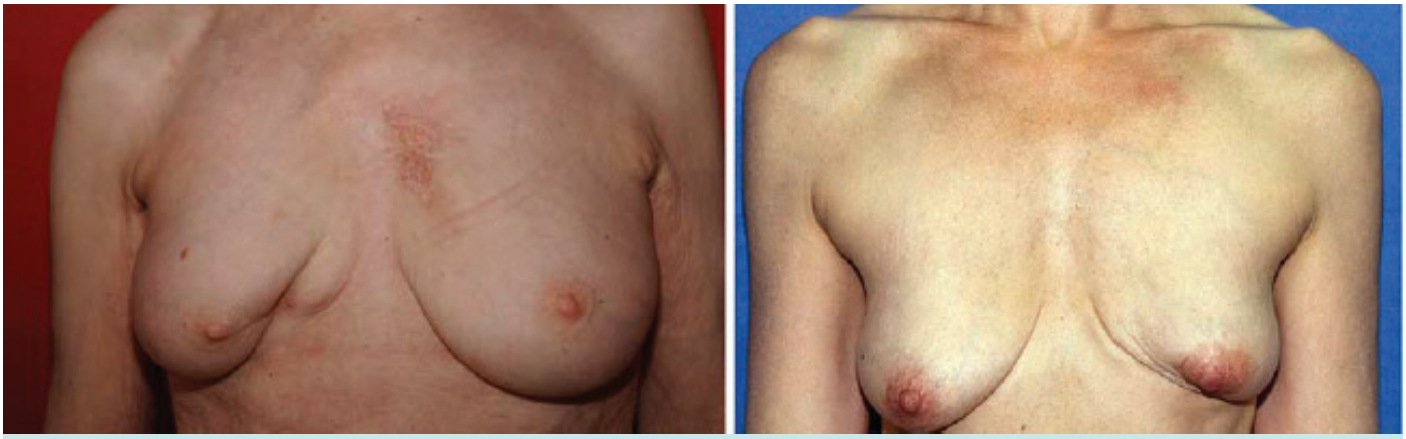

**Figure 4. Postoperative image of a patient who underwent conventional breast-conserving surgery for a lower inner quadrant tumor (From the archives of Prof. Dr. Lütfi Doğan).**

**Figure 5. Ischemia observed at the skin junction of the inverted T incision in a patient who underwent superior pedicled oncoplastic mammoplasty (From the archives of Prof. Dr. Lütfi Doğan).**

**Figure 6. Visible tension in the flap of a patient who underwent a dermoglandular rotation flap for a lower inner quadrant tumor (From the archives of Prof. Dr. Lütfi Doğan).**

**Figure 7. Postoperative image of a patient who underwent comma-shaped incision mammoplasty (From the archives of Prof. Dr. Lütfi Doğan).**

Another technique for the lower inner quadrant is the dermoglandular rotation flap. In this method, the prepared dermoglandular flap is shifted towards the lower inner quadrant, which may lead to ischemia in the skin due to tissue tension (Figure 6)(7).

The comma-shaped incision mammoplasty, another technique suitable for lower inner quadrant tumors, involves a long incision extending towards the fold with the prepared dermoglandular flap. This approach can lead to tension-related complications (Figure 7) (6).

The banana incision mammoplasty technique, specifically designed for lower inner quadrant breast tumors, is versatile and can be applied to tumors in this quadrant across all breast sizes. In our clinic, this technique was employed in 10 patients with breast tumors located in the lower inner quadrant. We observed that all patients achieved cosmetically satisfactory results while maintaining safe surgical margins. The complication rate of the banana inci-

sion mammoplasty technique, including wound infection, seroma, and hematoma, is comparable to that of other mammoplasty techniques.

In contrast to other mammoplasty techniques where a larger incision is made to prepare the dermoglandular flap, leading to more frequent complications such as ischemia due to tension, the banana incision mammoplasty technique involves a smaller incision with no tension on the skin, as it involves the preparation of only the glandular flap. Following the introduction of this technique to the medical literature, there are plans to present the surgical-cosmetic results and complication rates in comparison with other oncoplastic techniques.

## CONCLUSION

The banana incision mammoplasty technique is anticipated to establish its presence in medical literature as a safe and effective oncoplastic surgery option. It facilitates extensive surgical resection while ensuring favorable cosmetic outcomes, marking a significant advancement in the field of breast cancer surgery.

**Ethics Committee Approval:** Ethical approval for this study was obtained from the Ethical Board of the Institutional Ethics Committee of Etlik City Hospital (decision no: AEŞH-EK1-2023-553).

**Informed Consent:** Written informed consent was obtained from the patients who agreed to take part in the study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept – L.D.; Design – M.O.K.; Supervision – M.C.Ö.; Resources – F.A.; Materials – F.A.; Data Collection and/or Processing – M.O.K.; Analysis and/or Interpretation – L.D.; Literature Search – K.Ç.Ö.; Writing – M.O.K.; Critical Review – F.A.

**Declaration of Interests:** The authors have no conflict of interest to declare.

**Funding:** The authors declared that this study has received no financial support.

## REFERENCES

1. Bertozzi N, Pesce M, Santı PL, Raposıo E. Oncoplastic breast surgery: Comprehensive review. Eur Rev Med Pharmacol Sci 2017;21(11):2572-85. [CrossRef]
2. Zaha H, Onomura M, Unesoko M. A new scarless oncoplastic breast-conserving surgery: Modified round block technique. Breast 2013;22(6):1184-8. [CrossRef]
3. Savalia NB, Silverstein MJ. Oncoplastic breast reconstruction: Patient selection and surgical techniques. J Surg Oncol 2016;113(8):875-82. [CrossRef]
4. Clough KB, Oden S, Ihrai T, Massey E, Nos C, Sarfati I. Level 2 oncoplastic surgery for lower inner quadrant breast cancers: The LIQ-V mammoplasty. Ann Surg Oncol 2013;20(12):3847-54. [CrossRef]
5. Pukancsik D, Kelemen P, Újhelyi M, Kovács E, Udvarhelyi N, Mészáros N, et al. Objective decision making between conventional and oncoplastic breast-conserving surgery or mastectomy: An aesthetic and functional prospective cohort study. Eur J Surg Oncol 2017;43(2):303-10. [CrossRef]
6. Clough KB, Ihrai T, Oden S, Kaufman G, Massey E, Nos C. Oncoplastic surgery for breast cancer based on tumour location and a quadrant-per-quadrant atlas. Br J Surg 2012;99(10):1389-95. [CrossRef]
7. Soliani Bastos MC, Bagnoli F, Rinaldi JF, João TBF, de Oliveira VM. Dermoglandular advancement-rotation flap for conservative treatment of breast cancer - description of technique, objective and subjective assessments. Front Oncol 2023;13(1):1137924. [CrossRef]