

Original Research

Total Lumpectomy vs Nipple-Sparing Lumpectomy: Long-Term Outcomes and Quality of Life Considerations in Breast Cancer Surgery A Narrative Review

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Objective

To evaluate and compare the long-term oncologic and quality-of-life outcomes of total lumpectomy (with nipple–areola complex removal) versus nipple-sparing lumpectomy (NSL) in patients undergoing breast-conserving surgery for early-stage breast cancer.

Methods

This narrative review synthesizes peer-reviewed literature from 1999 to 2025, examining clinical, cosmetic, and psychological outcomes following lumpectomy procedures with or without nipple preservation. Eligible sources included retrospective cohort studies, population-based analyses, meta-analyses, and patient-reported outcome studies. Results were organized thematically into oncologic, psychosocial, and aesthetic domains.

Results

Available data show that NSL provides oncologic safety comparable to traditional lumpectomy, with no significant differences in survival or distant recurrence. However, a modest increase in local recurrence risk has been observed in some studies. In terms of quality of life, NSL is consistently associated with better outcomes in body image, cosmetic satisfaction, and sexual well-being. Patients who undergo NSL also report lower levels of depression and anxiety during early survivorship. When nipple preservation is not feasible, immediate oncoplastic reconstruction techniques have been shown to improve satisfaction and help mitigate psychosocial distress. Lumpectomy, with no significant differences in survival or distant recurrence.

Conclusion

Nipple-sparing lumpectomy, when clinically appropriate, offers a meaningful balance between oncologic control and long-term quality of life. Preserving the nipple may enhance emotional recovery, appearance confidence, and overall patient satisfaction. Given the impact of surgical approach on survivorship, shared decision-making should integrate both oncologic safety and patient-reported values. Nipple-sparing lumpectomy, when clinically appropriate, offers a meaningful balance between oncologic control and long-term quality of life. Preserving the nipple may enhance emotional recovery, appearance, and confidence.

INTRODUCTION

Breast-conserving surgery (BCS), often referred to as lumpectomy, has become a cornerstone of therapy for early-stage breast cancer. Unlike mastectomy, which removes the entire breast, lumpectomy excises the tumor along with a margin of healthy tissue, typically preserving the nipple–areola complex (NAC). However, for centrally located tumors behind the nipple, traditional lumpectomy

often involves removing the NAC, a procedure sometimes termed “central lumpectomy” or total lumpectomy.^{1,2}

Recent surgical innovations have explored nipple-sparing lumpectomy, an approach that aims to remove the tumor while retaining the nipple, mirroring the evolution of nipple-sparing mastectomy.^{2,3} As long-term survival rates improve, breast cancer treatment decisions increasingly consider quality of life alongside oncologic safety. These quality of life factors include emotional health (e.g., de-

pression, anxiety), body image, cosmetic satisfaction, and sexual well-being.

In this narrative review, we compare lumpectomy with NAC removal to nipple-sparing lumpectomy in terms of oncologic, psychological, and aesthetic outcomes, focusing on peer-reviewed data from the past decade.

METHODS

This narrative review was conducted through a non-systematic search of English-language literature using PubMed. The search covered studies from 1999 through 2025 that examined BCS with and without NAC preservation. Included sources consisted of retrospective cohort studies, systematic reviews, meta-analyses, and population-based studies. Outcomes of interest included oncologic safety, local recurrence, survival, psychological distress, cosmetic satisfaction, and cultural disparities in access or outcomes. Thematic synthesis was used to organize results into oncologic, psychological, aesthetic, and sociodemographic domains.

RESULTS

ONCOLOGIC OUTCOMES: SURVIVAL AND RECURRENCE

Equivalence in Survival: Decades of evidence have established that for early-stage cancers, BCS with radiation yields survival rates equivalent to mastectomy. This holds true even for centrally located tumors, provided clear margins and appropriate adjuvant therapy. A 2023 population-based study using SEER data found *no significant differences in overall or breast cancer-specific survival* between women with centrally located breast cancers treated with BCS (lumpectomy plus radiation) and those who had mastectomy.¹ In fact, their outcomes were comparable to patients with non-central tumors who underwent BCS.¹ These findings reinforce that opting for breast preservation (even in challenging tumor locations) does not inherently compromise long-term survival outcomes.

Local Control and Nipple Preservation: The main oncologic concern in nipple-sparing approaches is the risk of cancer involvement or recurrence in the retained nipple tissue. Centrally located cancers have about a four-fold higher likelihood of NAC involvement than peripheral tumors, which is why surgeons traditionally removed the nipple in these cases.¹ Preserving the nipple during lumpectomy raises the question: Does this increase local recurrence? Recent data suggest a slight trade-off. In a 2024 propensity matched study of over 400 patients with centrally located tumors, those who underwent nipple-sparing BCS experienced a *higher rate of ipsilateral breast tumor recurrence (IBTR)* than those who had the nipple removed.² At 10 years, the local recurrence-free survival was ~92.9% for nipple-sparing lumpectomy versus 99.1% for central lumpectomy ($p = 0.03$).² In practical terms, about 5% of patients who preserved their nipple had a recurrence, and 40% of these recurrences occurred in the remaining nipple or areo-

lar area.² By contrast, among patients whose nipple was removed, the IBTR rate was under 1%.²

Encouragingly, this modest difference in local recurrence has not translated into worse overall outcomes. The same 2024 study reported *no significant differences in regional recurrence, distant metastasis, or overall survival* between the nipple-sparing and nipple-removing lumpectomy groups.² In other words, preserving the nipple did not worsen distant disease control or survival; it mainly affected the risk of a local in-breast recurrence, which is often treatable. These findings align with broader research on nipple-sparing mastectomy, in which keeping the nipple does not significantly raise recurrence rates in well-selected patients.³ Nevertheless, patients considering nipple-sparing lumpectomy should be counseled about the *slightly elevated risk of local recurrence* and the importance of vigilant follow-up.² Adjuvant radiation therapy is a critical component of BCS in all cases; it markedly reduces local recurrence risk and is generally recommended for breast conservation to maintain equivalent outcomes to mastectomy.¹

In summary, long-term oncologic outcomes are excellent with both standard and nipple-sparing lumpectomy. Overall survival and distant disease control are comparable, and while nipple preservation may increase the chance of a local recurrence by a few percentage points, absolute rates remain low with proper multidisciplinary care.² The decision can therefore hinge on patient preferences and weighing local control versus quality-of-life factors.

PSYCHOLOGICAL OUTCOMES: DEPRESSION, ANXIETY, AND QUALITY OF LIFE

A breast cancer diagnosis and its surgical treatment can profoundly impact mental health. Many survivors experience some level of depression or anxiety during or after treatment. Estimates range from about 10% to as high as 50% of patients having clinically significant depressive symptoms at some point.⁴ The type of surgery can play a role in this psychosocial adjustment, largely through its effect on body image and sense of loss. Losing one or both breasts (and especially the nipple) can be traumatic for a woman's self-image, whereas breast-conserving surgery often helps maintain a sense of normalcy.

BCS vs. Mastectomy – General Trends: Research has generally shown that women who undergo lumpectomy tend to report *better psychosocial well-being and body image* than those who have mastectomy. For example, multiple studies have found that mastectomy patients often experience more body image dissatisfaction, lower quality of life, and self-esteem issues compared to women who had BCS. In contrast, breast-conserving therapy is associated with higher breast satisfaction and often higher overall quality-of-life scores, as the intact breast contour can help women feel "whole".⁵ One study noted that patients choosing lumpectomy were significantly more likely to be satisfied with their cosmetic outcome, whereas those who had mastectomy (even with reconstruction) more frequently struggled with their post-surgical body image.⁶ In a survey of over 1,600 survivors, 62.7% of lumpectomy patients were satisfied or very satisfied with their cosmetic results, versus

only ~52% of mastectomy patients.⁶ This difference in satisfaction is substantial, and it reflects the psychological benefit many women derive from preserving their breast and nipple.

Importantly, better cosmetic/body image outcomes often translate into lower rates of depression and anxiety. Negative body image in cancer survivors is strongly linked to psychological distress, including depressive and anxious symptoms.⁷ By preserving the breast shape and often the nipple, lumpectomy can mitigate some of these body image disruptions. A recent systematic review and meta-analysis (2024) examining depression after breast surgery found that undergoing breast-conserving surgery was associated with lower levels of post-operative depression compared to mastectomy in many studies.⁵ Similarly, anxiety levels tend to be lower or quicker to resolve in women who did not lose their entire breast. That said, not all studies find stark differences once patients are past the immediate recovery period. Some long-term quality-of-life research suggests that with time, and especially if reconstruction is done, the *average* mental health scores of mastectomy vs. lumpectomy patients may become more comparable.⁸ Nonetheless, in the early survivorship phase, women with breast-conserving therapy often have an easier psychosocial adjustment.

Impact of Nipple Preservation on Psychosocial Health: Within the spectrum of breast surgeries, preserving the nipple-areola appears to confer additional psychological benefits. The nipple has symbolic and cosmetic importance, and its loss can affect a woman's sense of femininity, sexuality, and wholeness. Studies focusing on nipple-sparing mastectomy (with immediate reconstruction) give insight into these effects. In one prospective study, patients who had nipple-sparing mastectomies reported moderately low body image disturbance and normal ranges of anxiety/depression scores postoperatively.⁹ The authors concluded that preserving the NAC “*may minimise adverse psychological impacts*” of mastectomy by maintaining a more natural body image.⁹ Another recent trial compared patient-reported outcomes between nipple-sparing vs. skin-sparing mastectomy (i.e., with vs. without the nipple, both with reconstruction). Those who kept their nipples had *significantly higher satisfaction* with their breasts and *improved sexual well-being* on the BREAST-Q questionnaire.¹⁰ Psychosocial well-being and decision regret also trended better in the nipple-sparing group.¹⁰ These findings make intuitive sense. A breast with its nipple looks and feels more familiar, potentially improving confidence during intimacy and reducing the daily visual reminder of cancer.

By extension, we can infer that in lumpectomy scenarios, preserving the nipple when oncologically feasible would likely support better emotional outcomes. While direct studies of “nipple-sparing lumpectomy” per se are sparse, the principles are similar. Patients who avoid an obvious deformity (like absence of the nipple) often find it easier to accept their post-cancer body. Conversely, women who undergo a central lumpectomy with removal of the nipple may experience grief or distress over that loss. It's not uncommon for patients to describe losing the nipple as emotion-

ally difficult; some view it as losing a part of their identity or womanhood. Early counseling and, if appropriate, referral to peer support or counseling can help in this adjustment.

Quality of Life Domains: Beyond mood disorders, overall quality of life (QOL) encompasses physical, social, and functional well-being. Breast-conserving surgery generally scores well in these domains because it causes less disruption to body integrity. For instance, physical functioning can be slightly better with lumpectomy (which is a smaller surgery) compared to mastectomy, and issues like chest wall pain or lymphedema are typically less frequent.⁶ Socially, women who preserve their breasts might feel more comfortable in public or in clothing, thereby engaging more confidently in social activities. However, it's worth noting that lumpectomy usually necessitates radiation therapy, which has its side effects that can temporarily diminish QOL (fatigue, skin changes, etc.).⁶ Mastectomy patients often avoid radiation (depending on the case) but face a longer surgical recovery and possible reconstructive procedures. In the long run, studies have found no major difference in general health-related QOL between BCS and mastectomy patients. Most women adapt over time, and each approach has trade-offs.⁸ Thus, the surgical choice should be individualized, balancing oncologic safety with the patient's values and mental well-being.

Cosmetic Outcomes and Body Image: The cosmetic result of breast cancer surgery is closely intertwined with psychological health, but it's a crucial topic on its own. Cosmetic satisfaction refers to how patients perceive the appearance of their treated breast (or breasts) after surgery, including symmetry, scarring, and how natural they feel. It also extends to aspects of sensuality – for example, whether the breast has sensation and whether the woman feels attractive and confident.

Lumpectomy and Appearance: One of the key advantages of lumpectomy is the potential to *preserve the breast's external appearance*. In typical lumpectomies (tumors not near the center), surgeons make incisions away from the nipple, remove the tumor with a rim of healthy tissue, and often rearrange the remaining tissue to minimize deformity. The natural contour and even the nipple are preserved, so in clothes (and often even unclothed), the breast may look very similar to pre-surgery.¹¹ This often translates into high patient-reported cosmetic satisfaction. Clinical series consistently show that a majority of women (often 70–80%) rate their cosmetic outcome after BCS as “good” or “excellent,” especially when modern oncoplastic techniques are used.^{12,13} In one cohort, only about 28% of patients were dissatisfied with their breasts' appearance after lumpectomy, meaning over 70% were satisfied to some degree.¹⁴ These positive outcomes are attributed to BCS leaving the breast largely intact. Most women appreciate still having their own breast tissue and nipple present.

However, not every lumpectomy yields a perfect cosmetic result. Factors like tumor size relative to breast volume, tumor location, and need for radiation can impact appearance. Up to a third of women may experience noticeable cosmetic changes, such as indentation, asymmetry,

or firmness, that they find bothersome.¹⁵ Central lumpectomies (when the nipple is removed) historically had *some of the poorest cosmetic scores*, because the eye is immediately drawn to the missing nipple on the breast mound. Patients often describe a central lumpectomy defect as making the breast look “abnormal” or “unfinished.” Loss of the nipple also can entail loss of pigmentation (the areola) and a focal scar, further affecting aesthetics and even sexual self-image.

Nipple-Sparing Approaches and Cosmetic Satisfaction: Preserving the nipple–areola complex can dramatically improve cosmetic outcomes. Patients who undergo nipple-sparing mastectomy with reconstruction frequently report better breast satisfaction than those with the nipple removed. As mentioned, one study noted significantly higher BREAST-Q satisfaction scores in nipple-sparing cases, reflecting that the breast looked and felt more like a breast.¹⁰ Women value the nipple for completing the look of the breast and as an erogenous zone; even if sensation is reduced, having an intact nipple (vs. a reconstruction or flat scar) tends to improve sensual self-confidence. In a series where patients had the nipple removed but later reconstructed (with techniques like tattooing or surgical nipple creation), satisfaction was a bit lower (59% satisfied) compared to those who kept their original nipple (75% satisfied), although not statistically significant in that small sample.¹⁶ The trend favored the natural nipple, again underscoring its importance to patients.

In the context of lumpectomy for central tumors, if the nipple can be oncologically spared, the cosmetic benefit is clear: the breast might have virtually no externally visible change aside from a scar, as opposed to a missing NAC. Even if the nipple cannot be saved, modern oncoplastic surgery offers solutions. A classic technique is the Grisotti flap, used after central lumpectomy to immediately reconstruct a new “nipple” mound from local tissue. In a 2025 case series, seven women with tumors behind the nipple underwent lumpectomy with NAC removal followed by a Grisotti flap reconstruction; *all patients were reported to have excellent cosmetic outcomes with “no loss of body image”* after the procedure.¹⁷ None had significant complications, and they were satisfied with the breast’s appearance.¹⁷ This suggests that even when the nipple must be sacrificed, surgical reconstruction can help restore the look of the breast and preserve a woman’s sense of femininity. Other oncoplastic approaches (such as local tissue rearrangement, mastopexy (breast lift) techniques, or partial reconstruction with fat grafting) can also improve cosmetic symmetry and contour after larger lumpectomies.¹ Achieving a *good cosmetic outcome is more than just vanity*; studies show it directly contributes to better psychosocial adjustment and quality of life.¹ Patients who feel pleased with their post-surgery appearance tend to have higher self-esteem, more confidence in resuming social and sexual activities, and less emotional distress related to their cancer.

Sensory and Sexual Considerations: Another aspect of cosmetic outcome is sensuality or sexual well-being. Lumpectomy generally preserves more breast sensation than mastectomy, since much of the breast skin and nipple

(if untouched) remain innervated. Nipple-sparing mastectomy often leads to an insensate nipple (nerves are cut under it), whereas an untouched nipple in lumpectomy can retain feeling. This can affect sexual arousal or comfort. Studies on sexual QOL after breast surgery indicate that women who keep their breasts (and especially their nipples) often report better sexual functioning or satisfaction than those who do not.¹⁰ For example, one matched study found nipple-sparing surgery patients scored higher on sexual well-being metrics (mean score 52.4 vs 38.9 in nipple-sacrificing surgery).¹⁰ Patients frequently say that having their own nipple makes them *feel more attractive and “normal”* during intimacy. On the other hand, women who lost their nipple may feel self-conscious with partners or experience grief over the changed appearance. Open communication, counseling, and, if desired, nipple reconstruction/tattoos can help address these intimate concerns.

Cosmetic satisfaction tends to be highest when the breast and nipple are preserved close to their natural state. Lumpectomy (especially for peripheral tumors) often achieves that, resulting in high rates of patient happiness with appearance. When the nipple must be removed, immediate reconstruction techniques are strongly encouraged to improve the aesthetic result. By prioritizing the cosmetic outcome, of course, without compromising cancer control, surgeons can significantly influence a survivor’s long-term body image and quality of life.

DISCUSSION

Breast-conserving surgery has long offered patients a viable alternative to mastectomy, achieving comparable oncologic outcomes with less disruption to body image. Within this framework, the decision to preserve or remove the nipple–areola complex introduces a subtle but meaningful choice that blends surgical precision with survivorship priorities. This review suggests that, in well-selected patients, nipple-sparing lumpectomy (NSL) provides oncologic safety equivalent to total lumpectomy, with no observed differences in overall or recurrence-free survival. However, a modest increase in local recurrence risk has been reported when the nipple is retained, particularly for centrally located tumors. While these recurrences are rare and generally manageable, the risk warrants clear patient counseling and close follow-up.

From a psychosocial perspective, the preservation of the nipple appears to support better emotional recovery. Several studies have linked NSL to lower rates of postoperative depression, reduced anxiety, and enhanced body image. These psychological benefits are closely tied to improved satisfaction with the breast’s appearance and sensual integrity — outcomes that matter to many patients, even if they’re harder to quantify. While not all patients prioritize aesthetics, for many, the ability to recognize their own body in the mirror after cancer treatment carries a quiet but powerful therapeutic value.

Cosmetic outcomes play a central role in this discussion. NSL, where feasible, consistently yields higher satisfaction scores in both appearance and sexual well-being domains.

Patients often describe preserved nipples as contributing to a feeling of wholeness or normalcy. When nipple preservation is not possible, oncoplastic techniques such as the Grisotti flap offer promising options to restore form and mitigate distress. Importantly, these cosmetic results are not just about vanity; they intersect with confidence, intimacy, and self-esteem, shaping how patients navigate life after surgery.

Like any narrative review, this work has limitations. Our synthesis was based on existing literature, much of which draws from retrospective studies and does not uniformly report outcomes by demographic subgroups. While we aimed to identify broadly applicable trends, the absence of detailed, stratified data limits our ability to conclude specific populations. In future studies, we hope to explore surgical outcomes in Latina patients more directly, a group for whom access, preferences, and cultural values may shape both treatment decisions and survivorship in distinct ways.

CONCLUSION

Total lumpectomy vs. nipple-sparing lumpectomy represents a nuanced choice between removing the nipple for absolute oncologic thoroughness versus preserving it for better post-operative quality of life. The evidence to date indicates that sparing the nipple during breast-conserving surgery is *oncologically safe* for most early cancers, with no detriment to survival or distant control.² There is a slight increase in local recurrence risk when the nipple is preserved, especially for tumors originally near the nipple, so careful patient selection and informed consent are paramount.² From the patient's perspective, the potential benefits of nipple preservation are significant: improved cosmetic outcomes, higher satisfaction with one's body, better sexual well-being, and possibly a lower likelihood of de-

pression or anxiety related to the surgery.^{9,10} When the nipple cannot be saved, immediate reconstruction techniques can help reduce the negative impact on body image.¹⁷

It's also clear that one size does not fit all – individual factors (tumor characteristics, genetics, patient values, and cultural background) should guide the surgical plan. Shared decision-making is key. A woman with pre-existing body image concerns or psychiatric vulnerabilities might lean towards nipple-sparing approaches if oncologically feasible, whereas someone with extreme cancer anxiety might prioritize the perceived “safety” of a more extensive resection. Neither preference is wrong; the role of the care team is to present accurate data and support the patient's informed choice.

Lastly, we must acknowledge the gaps in knowledge, particularly regarding minority populations like Latina survivors. They bear a heavier burden of advanced disease and psychosocial stressors.¹⁸ Future research should specifically evaluate how surgical choices impact long-term quality of life in these groups, and whether tailored interventions (medical or psychosocial) can close the QOL gap. Such research could inform guidelines to ensure *equitable survivorship care*.

In conclusion, the balance between oncologic excellence and quality of life defines modern breast surgical oncology. Nipple-sparing lumpectomy, where appropriate, embodies this balance, aiming to cure the cancer while preserving the woman's sense of self. The accumulating evidence suggests that we can achieve both goals in many cases. By keeping the patient's holistic well-being at the center of decision-making, we move closer to truly comprehensive breast cancer care that heals both body and spirit.

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REFERENCES

1. Yuan YW, Liu PC, Li FF, et al. Breast-conserving surgery is an appropriate procedure for centrally located breast cancer: a population-based retrospective cohort study. *BMC Surg.* 2023;23:298. doi:[10.1186/s12893-023-02181-6](https://doi.org/10.1186/s12893-023-02181-6)
2. Hwang YH, Yoo TK, Lee SB, et al. Comparison of long-term oncological outcomes after central lumpectomy versus nipple-sparing breast-conserving surgery for centrally located breast cancer: A propensity score-matched study. *Breast Cancer Res Treat.* 2024;205(1):117-125. doi:[10.1007/s10549-024-07267-0](https://doi.org/10.1007/s10549-024-07267-0)
3. Cavalli A, Bhimani F, Coe LG, et al. Ethnic Disparities in Complication Rates and Outcomes of Nipple-Sparing Mastectomy: A Comprehensive Analysis. *41st Annual Miami Breast Cancer Conference Abstracts.* 2024;38(4). Accessed May 16, 2025. <https://www.cancernetwork.com/view/40-ethnic-disparities-in-complication-rates-and-outcomes-of-nipple-sparing-mastectomy-a-comprehensive-analysis>
4. Giwa KA, Rosales M, Lai L, et al. Depressive symptomatology among Latina breast cancer survivors. *Psychooncology.* 2012;22(4):845-853. doi:[10.1002/pon.3084](https://doi.org/10.1002/pon.3084)
5. Jung JJ, Cheun JH, Kim HK, et al. Comparison of long-term oncologic outcomes of central lumpectomy and conventional breast-conserving surgery for invasive breast cancer: propensity score matching analysis. *Breast Cancer Res Treat.* 2024;205(1):465-474. doi:[10.1007/s10549-024-07297-8](https://doi.org/10.1007/s10549-024-07297-8)
6. Admoun C, Mayrovitz H. Choosing Mastectomy vs. Lumpectomy-With-Radiation: Experiences of Breast Cancer Survivors. *Cureus.* 2021;13(10):e18433. doi:[10.7759/cureus.18433](https://doi.org/10.7759/cureus.18433)
7. Ahn J, Suh EE. Body image alteration in women with breast cancer: A concept analysis using an evolutionary method. *Asia Pac J Oncol Nurs.* 2023;10(5):100214. doi:[10.1016/j.apjon.2023.100214](https://doi.org/10.1016/j.apjon.2023.100214)
8. Zwakman M, Tan A, Boersma C, et al. Long-term quality of life and aesthetic outcomes after breast conserving surgery in patients with breast cancer. *Eur J Surg Oncol.* 2022;48(8):1692-1698. doi:[10.1016/j.ejso.2022.02.011](https://doi.org/10.1016/j.ejso.2022.02.011)
9. Sherman KA, Woon S, French J, et al. Body image and psychological distress in nipple-sparing mastectomy: the roles of self-compassion and appearance investment. *Psychooncology.* 2017;26(3):337-345. doi:[10.1002/pon.4138](https://doi.org/10.1002/pon.4138)
10. Song Y, Wang L, Huang W, Guo S, Wu X, Zheng H. Comparison of nipple sparing and skin sparing mastectomy with immediate reconstruction based on patient reported outcomes. *Sci Rep.* 2025;15(1):14989. doi:[10.1038/s41598-025-99834-8](https://doi.org/10.1038/s41598-025-99834-8)
11. Kumar S. Lumpectomy for Breast Cancer with Attention to Cosmetic Results- The Rise of Oncoplastic Surgery. RWJ Barnabas Health. September 26, 2019. Accessed May 16, 2025. <https://cinj.org/lumpectomy-breast-cancer-attention-cosmetic-results-rise-oncoplastic-surgery#:~:text=Lumpectomy%20for%20Breast%20Cancer%20with,well%20as%20the%20nipple%2C>
12. Rosenkranz KM, Ballman K, McCall L, et al. Cosmetic Outcomes Following Breast-Conservation Surgery and Radiation for Multiple Ipsilateral Breast Cancer: Data from the Alliance Z11102 Study. *Ann Surg Oncol.* 2020;27(12):4650-4661. doi:[10.1245/s10434-020-08893-w](https://doi.org/10.1245/s10434-020-08893-w)
13. Al-Ghazal SK, Fallowfield L, Blamey RW. Patient evaluation of cosmetic outcome after conserving surgery for treatment of primary breast cancer. *Eur J Surg Oncol.* 1999;25(4):344-346. doi:[10.1053/ejso.1999.0654](https://doi.org/10.1053/ejso.1999.0654)
14. Wang HT, Barone CM, Steigelman MB, et al. Aesthetic Outcomes in Breast Conservation Therapy. *Aesthet Surg J.* 2008;28(2):165-170. doi:[10.1016/j.asj.2007.12.001](https://doi.org/10.1016/j.asj.2007.12.001)
15. Hadjittofi C, Almalki H, Mirshekar-Syahkal B, et al. Simple oncoplastic breast defect closure improves long-term cosmetic outcome of breast conserving surgery for breast cancer: A randomised controlled trial. *Breast.* 2022;65:104-109. doi:[10.1016/j.breast.2022.07.001](https://doi.org/10.1016/j.breast.2022.07.001)
16. Mesdag V, Régis C, Tresch E, et al. Nipple sparing mastectomy for breast cancer is associated with high patient satisfaction and safe oncological outcomes. *J Gynecol Obstet Hum Reprod.* 2017;46(8):637-642. doi:[10.1016/j.jogoh.2017.07.003](https://doi.org/10.1016/j.jogoh.2017.07.003)
17. Sharma S, Pao K. Grisotti flap for central quadrant breast tumours: quick, cosmetic and easy to learn- a case series. *Vis Cancer Med.* 2025;6(2):117-124. doi:[10.1051/vcm/2025002](https://doi.org/10.1051/vcm/2025002)
18. Yanez B, Thompson EH, Stanton AL. Quality of life among Latina breast cancer patients: a systematic review of the literature. *J Cancer Surviv.* 2011;5(2):191-207. doi:[10.1007/s11764-011-0171-0](https://doi.org/10.1007/s11764-011-0171-0)