

Non-Touch Breast Augmentation with Minimal Incision: A Pilot Comparative Study on Breast Implant Disease and ASIA-Related Symptoms

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ABSTRACT

Introduction: The non-touch technique has gained increasing relevance in aesthetic breast surgery due to its potential to reduce implant contamination, improve aesthetic outcomes, and shorten postoperative recovery. By minimizing direct contact between the implant and the patient's skin, this approach has been proposed as a strategy to reduce capsular contracture and possibly reduce symptoms associated with breast implant disease, including manifestations of Autoimmune/Inflammatory Syndrome Induced by Adjuvants (ASIA).

Methods: A retrospective observational pilot study was conducted, including 32 female patients who underwent breast augmentation or implant replacement performed by a single surgeon between 2024 and 2025. Patients were divided into two groups: a conventional technique involving direct implant contact (n=12) and a non-touch technique using incisions <3 cm without drains (n=20). Follow-up ranged from 6 to 12 months. Outcomes assessed included capsular contracture according to Baker's classification, capsular thickness measured by ultrasound, patient satisfaction using a 3-point scale, and ASIA-related symptoms. Data were analyzed using descriptive statistics.

Results: At 12 months of follow-up, significant capsular contracture (Baker grade III–IV) was observed in 5 of 12 patients (41.6%) in the conventional group, whereas no cases were identified in the non-touch group (0%). Most patients in the non-touch cohort remained Baker grade I (85%), compared with 16.6% in the conventional group. Fatigue was reported more frequently in the non-touch group (60% vs. 25%), while memory disturbances were more prevalent in the conventional group (50% vs. 10%). The prevalence of generalized pain was similar between groups (33.3% vs. 30%). Overall patient satisfaction was higher in the non-touch group (90%) compared with the conventional group (58.3%).

Conclusions: This pilot study suggests that the non-touch technique with a minimal incision is associated with a lower incidence of significant capsular contracture and higher patient satisfaction than the conventional approach. Although ASIA-related symptoms were reported in both groups, cognitive complaints were less frequent among patients treated with the non-touch technique. Given the exploratory nature of the study and limited sample size, further prospective research with larger cohorts and standardized outcome measures is required.

Keywords:

Mammoplasty, Implants, Non-touch. Minimal incision, Breast Augmentation.

Introduction

The female breast is anatomically located in the anterior thoracic wall between the second and sixth ribs, extending from the sternum to the midaxillary line [1,2]. It is supported by skin, fat pads, fascia, glandular tissue, and surrounding muscles such as the pectoralis major and minor, serratus anterior, and rectus abdominis, which together contribute to the function of the Nipple–Areola Complex (NAC) [2]. Breast dimensions vary widely among individuals, influencing morphology and fat distribution [3]. Structural elements such as the tail of Spence and the inframammary fold, formed by Cooper's ligaments, provide contour and support. The vascular supply derives mainly from the internal mammary and intercostal branches, with venous drainage through thoracic and axillary veins; sensory innervation is supplied by intercostal nerves T2–T6 [4]. This anatomical description is relevant to surgical planning, as knowledge of these structures underpins minimal-incision and

non-touch approaches in breast augmentation.

When talking about breast augmentation, a significant concern amongst patients undergoing breast augmentation is whether they'll have a visible scar. Owing to ongoing technological innovation and medical advances, the inframammary approach is "the most popular technique among plastic surgeons" [5].

Although silicone implants are the preferred material for both patients and surgeons, and the techniques discussed in this article primarily focus on this material, it is essential to consider alternatives, including both materials and surgical approaches. The transumbilical breast augmentation (TUBA) is an endoscopic-guided procedure that can only be used for saline implants that "allows for placement of saline breast implants above or below the pectoralis major muscle without placing any incisions on or near the breasts". Although it is not widely used due to the requirement for advanced endoscopic skills and a steep learning curve, the method has a high patient satisfaction rate and a shorter operative time than other techniques [6].

Beyond surgical outcomes, breast implants have been associated with Autoimmune/Inflammatory Syndrome Induced

by Adjuvants (ASIA), and the Breast Implant Illness (BII) includes a wide range of nonspecific signs and symptoms, such as chronic fatigue, cognitive difficulties (“brain fog”), musculoskeletal pain, alopecia, as well as psychiatric symptoms like anxiety and depression. The onset of these manifestations is highly variable, with reports occurring both in the immediate postoperative period and several years after implant placement [7].

ASIA has been defined through proposed diagnostic criteria intended to standardize its identification and early diagnosis. These include primary criteria such as previous exposure to a triggering factor, followed by typical clinical features, including myalgia, arthralgia, chronic fatigue, cognitive impairment, or neurological disturbances, with improvement frequently observed after removal of the causative agent. Minor criteria include the presence of autoantibodies, additional systemic manifestations, specific HLA haplotypes, and, in some cases, the later development of a defined autoimmune disease [8].

Breast augmentation surgery is one of the most performed plastic surgeries worldwide. Since 1992, when silicone implants were introduced, techniques, approaches, materials, and postoperative care have been diversified to improve results and reduce postoperative complications [9-11].

Data from the ISAPS Global Survey 2022 indicate that breast augmentation ranks as the second most frequently performed aesthetic surgical procedure worldwide, accounting for 14.5% of all aesthetic surgeries. At the same time, implant removal procedures increased by 26.5%. However, the true epidemiology of implant-related systemic illness remains undefined, as current estimates are limited by underreporting, variations in surgical techniques, and differences in implant characteristics, all of which complicate the establishment of causal associations [7,12].

Plastic surgeon Kevin Keller created a device that allowed other surgeons “to facilitate the delivery of silicone gel implants during augmentation mammoplasty, utilizing a no-touch technique” [13]. The Keller Funnel is an FDA class I device made of a vinyl sleeve with a hydrophilic inside layer, according to a comparative meta-analysis, the Keller Funnel method is associated with “a shorter operating time and decreased incision length”, can be used with alternative access incisions, such as transaxillary or periareolar, as well as a possibility in reduction in postoperative pain due to the lesser pressure applied with the device [10].

Among all innovations, the “no-touch” technique has been increasingly used due to its role in reducing infections and capsular contracture incidence, which can result from direct contact between the patient’s skin and the implant. “The no-touch technique was initially described as retraction of the skin around the incision from contacting the implant during placement to avoid bacterial contamination [10]”. It “was adapted for breast augmentation in 1993 by Mladick using a submuscular technique with a saline prosthesis implant” [14]. The reversed globe sleeve technique “is a simple, available, reproducible, and cost-effective method of achieving “no touch” breast implant insertion. It requires the use of a single, large, sterile, latex-free glove for each side, thereby reducing the risk of contamination when reusing a sleeve/funnel for subsequent implant insertion”.

Given the increasing concern regarding Breast Implant Associated Illness and the proposed Autoimmune/Inflammatory Syndrome Induced by Adjuvants (ASIA), the choice of surgical technique has become a relevant factor in patient outcomes. The non-touch technique has been proposed to minimize implant contamination and inflammatory response, which may in turn reduce the risk of capsular contracture and ASIA-related manifestations. Therefore, this study was designed as a descriptive comparative analysis of patients undergoing breast augmentation or implant replacement with either touch or non-touch techniques to evaluate early postoperative outcomes and the frequency of ASIA-related symptoms.

Materials and Methods

This was a retrospective observational study that included 32 patients who underwent breast augmentation or implant replacement performed by a single surgeon, comparing patients who used non-touch surgery with those who used conventional surgery that involved touching the implant. The study was conducted between January 2024 and August 2025 at a private hospital in Querétaro, Mexico.

Patients were divided into two groups based on the surgical technique used: a conventional technique that involved touching the implant (n=12) and a non-touch technique (n=20).

Surgical technique

The non-touch technique was performed using incisions shorter than 3 cm, without drains. Implant insertion was achieved using a sterile funnel device (V-Cone), avoiding direct contact between the implant and the patient’s skin. A dual-plane pocket was created with partial release of the anterior fibers of the pectoralis major muscle. Pocket irrigation was performed with Microdacyn, povidone-iodine, and sterile saline prior to implant placement. The conventional technique group included patients who underwent conventional implant handling.

Follow up

All patients were followed for at least 6 months and up to 12 months postoperatively. Clinical evaluations were performed at 3, 6, and 12 months.

Parameters used to evaluate patients

- Capsular contracture: assessed by the Baker classification at 3, 6, and 12 months
- Capsular thickness: evaluated with ultrasound at 3, 6, and 12 months
- Patient satisfaction: evaluated with a 3-point scale (1=satisfied, 2=unsatisfied, 3=no significant change)
- ASIA-related symptoms: recorded through directed questioning about fatigue, generalized pain, and memory difficulties

Statistical analysis

All data were analyzed using descriptive statistics. Categorical variables (such as Baker grade, ASIA syndrome-related symptoms, and patient satisfaction) were expressed as absolute numbers and percentages. Continuous variables (age) were reported as median and range. Results were summarized and compared descriptively between groups.

Results

A total of 32 patients were included; in 12 patients the conventional technique of touching the implant was used, and 20 underwent the non-touch technique. All patients were female, with a mean age of 28.5 years (range, 19–55 years). Motiva implants were the most frequently used in both groups, although Silimed implants were used in two reconstructions within the non-touch group.

After 12 months of follow-up, significant capsular contracture (Baker grade III–IV) was observed in 5 of 12 patients (41.6%) in the group in which the conventional surgical technique was used, with implant contact, whereas no cases were observed in the non-touch group (0%). Most non-touch patients (17 of 20; 85%) remained Baker I, compared with only 2 of 12 (16.6%) in the touch group (Table 1 and Figure 1).

Table 1: Distribution of capsular contracture: data are presented as absolute counts and percentages.

Baker grade	Pilot group (n=12)	Non-touch group (n=20)
I	2 (16.6%)	17 (85%)
II	5 (41.6%)	3 (15%)
III	4 (33.3%)	0 (0%)
IV	1 (8.3%)	0 (0%)

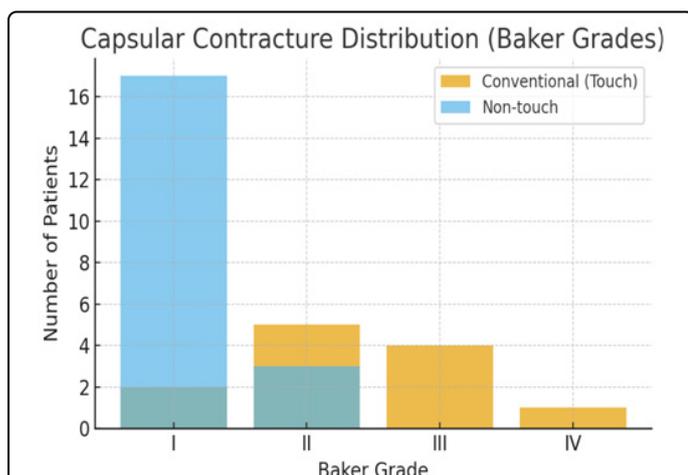


Figure 1: Distribution of capsular contracture according to Baker's classification at 12 months of follow-up in patients undergoing breast augmentation using conventional (touch) versus non-touch techniques.

The distribution of Asia syndrome-related symptoms varied between groups. Fatigue was reported by three patients (25%) in the pilot group and by 12 patients (60%) in the non-touch group. Memory disturbances were more frequent in the pilot group (6 of 12; 50%) than in the non-touch group (2 of 20; 10%). Generalized pain was reported in 4 patients (33.3%) in the pilot group and in 6 patients (30%) in the non-touch group (Table 2 and Figure 2).

Table 2: Distribution of ASIA-related symptoms in patients undergoing conventional (touch) and non-touch breast augmentation.

Symptom	Pilot group (n=12)	Non-touch group (n=20)
Fatigue	3 (25%)	12 (60%)
Memory disturbances	6 (50%)	2 (10%)
Generalized pain	4 (33.3%)	6 (30%)

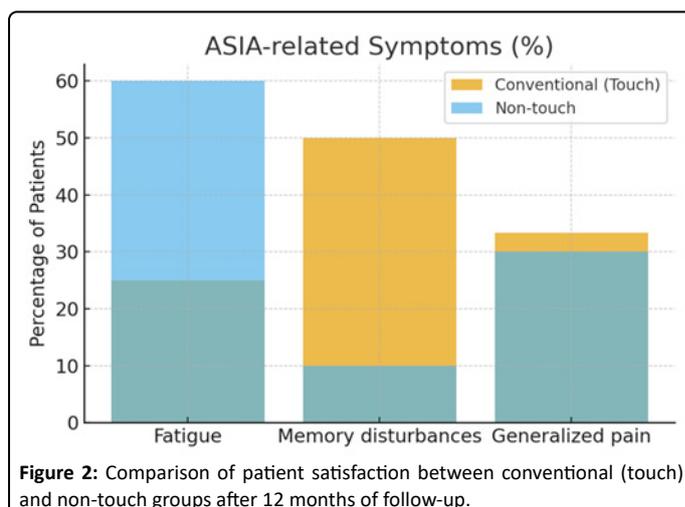


Figure 2: Comparison of patient satisfaction between conventional (touch) and non-touch groups after 12 months of follow-up.

Patient satisfaction was higher in the non-touch cohort, with 18 of 20 patients (90%) reporting satisfaction, compared with 7 of 12 (58.3%) in the pilot group. Dissatisfaction was more common in the pilot group (3 of 12; 25%) than in the non-touch group (1 of 20; 5%). No patient in the non-touch group reported any significant change, whereas 2 of 12 patients (16.6%) in the pilot group did (Table 3 and Figure 3).

Table 3: Patient satisfaction with surgical technique at 12-month follow-up.

Satisfaction level	Pilot group (n=12)	Non-touch group (n=20)
Satisfied	7 (58.3%)	18 (90%)
Unsatisfied	3 (25%)	1 (5%)
No significant change	2 (16.6%)	0 (0%)

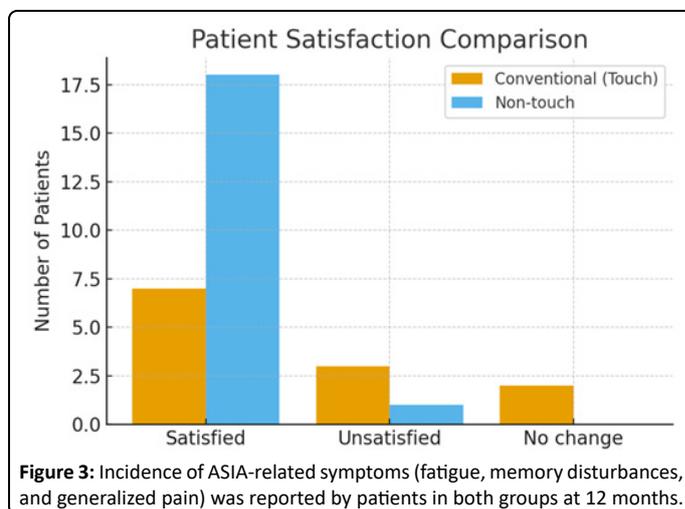


Figure 3: Incidence of ASIA-related symptoms (fatigue, memory disturbances, and generalized pain) was reported by patients in both groups at 12 months.

Conventional group (n=12)

- Baker: I=2 (16.6%), II=5 (41.6%), III=4 (33.3%), IV=1 (8.3%)
- ASIA symptoms: Fatigue 3 (25%), Memory 6 (50%), Pain 4 (33.3%)
- Self-esteem: Satisfied 7 (58.3%), Unsatisfied 3 (25%), No change 2 (16.6%)

Non-touch group (n=20)

- Baker: I=17 (85%), II=3 (15%), III–IV=0
- ASIA symptoms: Fatigue 12 (60%), Memory 2 (10%), Pain 6 (30%)

- Self-esteem: Satisfied 18 (90%), Unsatisfied 1 (5%), No change 0

Capsular contracture according to Baker’s classification

- Touch: 5/12 patients (41.6%) developed significant contracture (grades III–IV)
- Non-touch: 0/20 patients (0%) developed significant contracture

Asia syndrome-related symptoms

- Fatigue: Touch 25% vs. Non-touch 60%
- Memory disturbances: Touch 50% vs. Non-touch 10%
- Generalized pain: Touch 33.3% vs. Non-touch 30%

Self-esteem

- Touch: 58.3% satisfied, 25% dissatisfied
- Non-touch: 90% satisfied, 5% dissatisfied

Given the small sample size, no inferential statistical testing was performed; results are reported as descriptive comparisons.

Discussion

This retrospective comparative study demonstrated that the non-touch technique was associated with a markedly lower incidence of significant capsular contracture and greater patient satisfaction compared with the conventional method. None of the patients in the non-touch group developed a Baker grade III–IV contracture after 12 months, whereas 41.6% of those treated with the traditional technique did. These findings highlight the importance of meticulous implant handling in

reducing postoperative complications.

The present results are consistent with previous studies reporting lower rates of infection and contracture with barrier- or funnel-assisted insertion devices [10,14]. By minimizing direct skin contact and bacterial contamination of the implant surface, the non-touch approach likely decreases the local inflammatory response that contributes to fibrotic capsule formation. Additionally, the smaller incision and absence of drains enhance patient comfort and aesthetic satisfaction.

Interestingly, fatigue was reported more frequently among non-touch patients, whereas memory disturbances were observed primarily in the conventional group. Although these differences are difficult to interpret given the small sample size, they underscore the ongoing debate surrounding breast-implant illness and ASIA-related manifestations. Further standardized tools are needed to assess systemic symptoms and clarify these associations.

Additionally, a brief survey of practicing plastic surgeons revealed a growing adoption of the non-touch technique, primarily through submammary or dual-plane approaches. However, most respondents reported that they had not formally documented cases of breast implant illness (BII) or ASIA-related symptoms in their patients. This may reflect either underreporting due to limited patient awareness or a lack of systematic postoperative screening for such manifestations. These findings suggest that although the technique is gaining popularity, awareness and intentional evaluation of implant-related systemic symptoms remain limited in daily practice.

Variable	Most common response	Frequency (%)
Preferred incision	Submammary	70-80%
Preferred plane	Dual or subfascial	60-70%
Use of drains	Rarely used	85%
BII/ ASIA cases	No	65-70%
Attribute decrease in mammoplasties due to BII/ASIA concerns	Yes	60%

Our survey of practicing board-certified plastic surgeons revealed a growing preference for minimal-incision and non-touch techniques, supporting the clinical relevance of this approach. Nevertheless, opinions regarding implant-related disease remain divided, and prospective multicenter analyses are essential to reach a consensus.

The limitations of this study include its small cohort, single-surgeon experience, and 12-month follow-up period, which may not capture late-onset complications. Despite these constraints, the data provide preliminary evidence that surgical refinement can meaningfully improve outcomes and patient perception. Future research with larger, multicenter populations and standardized patient-reported outcome measures will help determine the long-term impact of non-touch breast augmentation on implant longevity and the prevention of systemic complications.

Conclusion

The non-touch technique with minimal incision demonstrated superior outcomes compared with the conventional approach across all parameters analyzed in this study, including lower rates of capsular contracture, fewer ASIA- and BII-related

manifestations, and greater postoperative satisfaction. These results reaffirm the relevance of meticulous surgical handling and aseptic precision in achieving long-term success in breast implant surgery.

Beyond technical advantages, the non-touch approach reflects a paradigm shift toward patient safety, reduced contamination, and biologically respectful tissue manipulation. By minimizing direct implant contact and eliminating unnecessary drainage, this method contributes to shorter recovery times and enhanced aesthetic predictability.

Nevertheless, despite its promising outcomes, this study represents an initial step in a broader process. The limited sample size, single-surgeon experience, and 12-month follow-up underline the need for multicenter research with standardized protocols and extended observation periods. Such future studies could provide more substantial evidence to validate these findings and establish formal guidelines for non-touch implant placement.

Ultimately, the progressive adoption of this technique aligns with the current global trend toward safer, evidence-based plastic surgery. Standardizing non-touch breast implant

procedures may not only improve surgical precision but also restore patient confidence by addressing the growing concern surrounding implant-related disease.

Conflict of Interest

The authors declare no conflict of interest related to this work.

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References

1. Spear SL, Davison SP. Surgical anatomy of reduction mammoplasty: a historical perspective and current concepts. *Plast Reconstr Surg*. 2003;111(2):478–486.
2. Hall-Findlay E. Aesthetic and reconstructive surgery of the breast. Chapter 1. 1–7.
3. Stahl DL, Columbus KS, Baggish MS. Atlas of pelvic anatomy and gynecologic surgery. Chapter 103. 1219–1230.
4. Vesalius A. De humani corporis fabrica libri septem. Basilea: Johannes Oporinus; 1543.
5. Fanous N, Tawilé C, Brousseau VJ. Minimal inframammary incision for breast augmentation. *Can J Plast Surg*. 2008;16(1):14–17.
6. Akkary E, Contic S, Benning E, et al. Our experience with transumbilical breast augmentation: largest published series to date with 2263 patients. *Am J Cosmet Surg*. 2019;37(2):81–90.
7. U.S. Food and Drug Administration. Medical device reports for systemic symptoms in women with breast implants [Internet]. [cited 2025 Aug 22]. Available from: <https://www.fda.gov/medical-devices/breast-implants/medical-device-reports-systemic-symptoms-women-breast-implants>
8. Watad A, Sharif K, Shoenfeld Y. The ASIA syndrome: basic concepts. *Mediterr J Rheumatol*. 2017;28(2):64–69.
9. Tapia L. Abordaje areolar vs submamario en la mamoplastia de aumento. *RECIMUNDO*. 2021.
10. Morkuzu S, Ozdemir M, Leach GA, et al. Keller funnel efficacy in “no touch” breast augmentation and reconstruction: a systematic review. *Plast Reconstr Surg Glob Open*. 2022;10(11):e4676.
11. Fardo D, Sequeira Campos MB, Pensler JM. Breast augmentation. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan–. Updated 2023 Jul 18. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482206/>
12. International Society of Aesthetic Plastic Surgery (ISAPS). *ISAPS international survey on aesthetic/cosmetic procedures performed in 2022*. Hanover: ISAPS; 2023. Available from: https://www.isaps.org/media/a0qfm4h3/isaps-global-survey_2022.pdf
13. Keller Medical Inc. Company profile. *Business Wire*. 2011.
14. Barker AS, Law J, Nicholson M, Collett D, Deva AK. The reversed glove sleeve: a readily available and cost-effective way to achieve “no touch” breast implant insertion. *Plast Reconstr Surg Glob Open*. 2020;8(4):e2650.