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ORIGINAL ARTICLE – BREAST ONCOLOGY

Single-Incision Approach for Breast-Conserving Surgery: Effectiveness, Complications and Quality of Life

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ABSTRACT

Objective. The aim of this study was to assess the success of tumor resection and its postoperative complications, satisfaction, and quality of life using a single-incision approach for breast-conserving surgery.

Materials and Methods. This was an observational, prospective study conducted between 2015 and 2018. The study group consisted of patients in whom tumor extirpation and lymph node (LN) staging was performed using a single incision, while the control group consisted of patients who underwent a breast-conserving procedure with independent incisions. All patients were given the preoperative and postoperative module of the Breast-Q^{TM} questionnaire.

Results. Overall, 226 patients met the study's inclusion criteria, 152 of whom successfully underwent breast and LN removal using a single-incision approach (98.7% overall success). There were no significant differences in postoperative complications, although there was a greater tendency towards breast seroma in the study group and axillary neuralgia in the control group. Both groups presented a similar rate of breast and axillary salvage surgery. The postoperative Breast-Q^{TM} questionnaire showed that the study group had greater satisfaction with both the breast and the information provided by the surgeon.

Conclusion. The single-incision approach is as effective as standard surgery, with custom incisions in terms of breast resection, LN staging, and complications. There was greater satisfaction with both the breast and the information provided.

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Conservative surgery is the procedure of choice for woman with breast cancer due to its identical overall survival rate as that of mastectomy.[1,2] Various studies have shown locoregional control in 90–95% of patients at the 10-year follow-up[3] using lumpectomy or an oncoplastic procedure (OP). Currently, local resection of the breast, as well as sentinel lymph node biopsy (SLNB), are the most common procedures in breast-conserving surgery due to the early diagnosis of the disease, the increase in complete response after primary systemic treatment,[4] and the use of SLNB for both N0 patients and other N1 patients who meet the American College of Surgeons Oncology Group (ACOSOG) Z0011 criteria.[5] This new context enables opportunities for minimally invasive surgery based on a single incision that enables the simultaneous extirpation of the tumor and SLNB using a low-visibility approach.[6]

Various studies have evaluated the implementation of minimally invasive procedures in breast cancer through the use of single incisions for the breast and lymph node (LN) approaches,[7,8] or through the use of endoscopic support.[9,10] However, these studies have not evaluated the healthcare impact of these procedures, their efficacy in OPs and axillary lymphadenectomy (AL), or the patients' satisfaction and quality of life.

The aim of this study was to assess the use of a single-incision approach for breast-conserving surgery to determine its technical feasibility and its impact on the success of tumor resection, its postoperative complications, and the patient's satisfaction and quality of life using the Breast-Q^{TM} questionnaire.

PATIENTS AND METHODS

We conducted an observational prospective study between 2015 and 2018 that included women with a histological diagnosis of infiltrating carcinoma or ductal carcinoma in situ who underwent breast-conserving

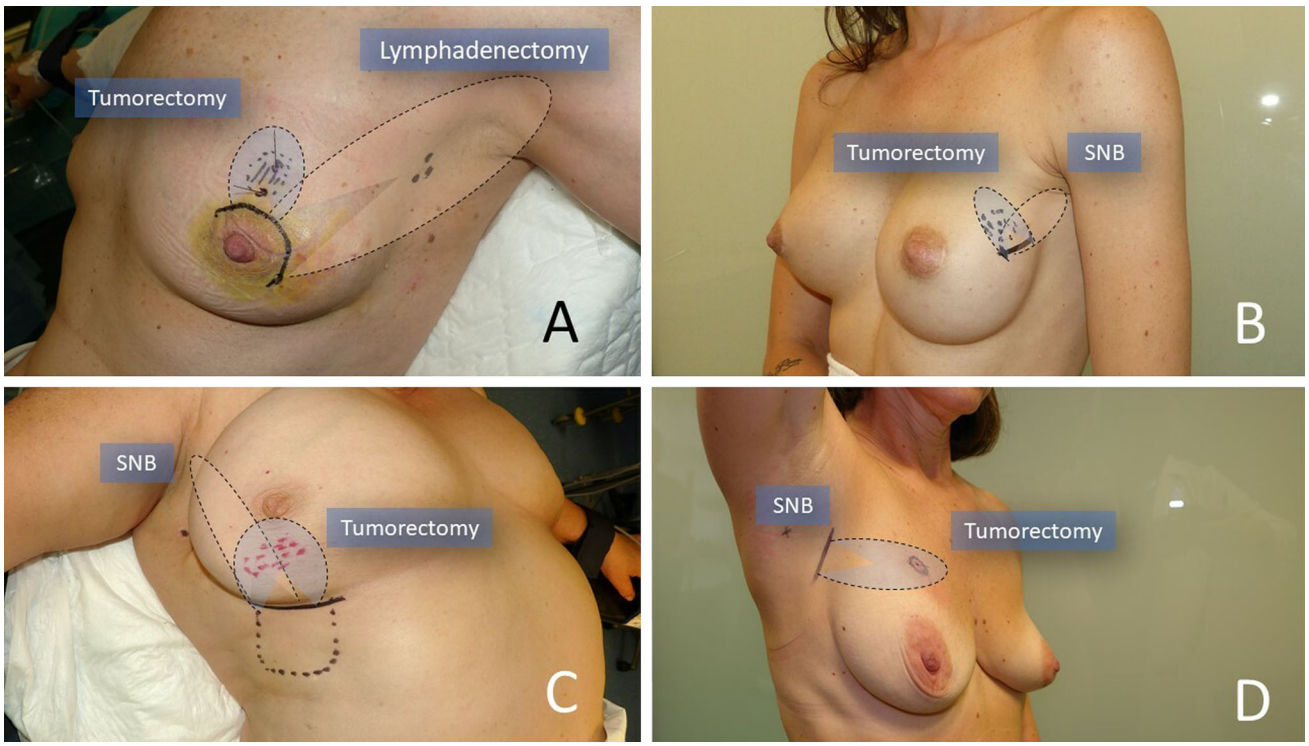

FIG. 1 Single-incision approaches for lumpectomy: **a** areolar, **b** lateral, **c** inframammary, and **d** axillary. *SNB* sentinel node biopsy

surgery in our breast unit. We excluded from the study those patients with T3–T4 tumors, those who indicated mastectomy was the primary surgery, and those who refused to participate in the study. The study group consisted of patients in whom tumor extirpation and LN staging (SLNB or AL) was performed using a single incision, while the control group consisted of patients who underwent a breast-conserving procedure with independent incisions for the breast and axilla. Both groups were analyzed for their clinical and oncologic characteristics, intraoperative and perioperative management, and the assessment of their satisfaction and quality of life using the Breast-Q^{TM} questionnaire. The study was authorized by our hospital's Research Ethics Committee (code SAT-CCM 2016/028).

Surgical Technique

An OP was performed in all patients. Lumpectomy with local remodeling (level I OP according to Clough's classification[11]) was used in those patients with a good breast/tumor ratio and for whom local extirpation did not jeopardize the cosmetic result. The incision type depended on the tumor's location and the breast characteristics, but aimed at low visibility. Patients with upper pole tumors underwent a periareolar incision, while patients with tumors in the upper outer quadrant were offered a lateral radial incision at the breast equator. The inframammary fold was employed in the lower outer quadrant tumors, while tumors located in the vicinity of the axilla were approached using an axillary incision for joint extirpation of the tumor and axillary LNs (Figs. 1, 2). An incision (3–4 cm) was made in the skin and a subcutaneous flap was dissected to access the tumor. To access the axillary fat, we used a lighted fiber optic retractor to visualize axillary fat and perform an SLNB or AL. The approach from the breast towards the axilla was performed through the retromammary space on the surface of the pectoralis major, until the external edge of the pectoral muscle where, after sectioning the clavipectoral fascia, the axillary fat can be accessed.

We performed a level II OP according to Clough's classification[11] in those patients in whom the extent of the breast removal (multifocality, multicentricity) jeopardized the final cosmetic result, or in those patients in whom the breast irradiation was optimized through oncoplastic reduction due to macromastia. We employed reduction mammoplasty (Wise pattern), horizontal mammoplasty (batwing) and the round block technique (donut). Axillary access performed was similar to that described in the lumpectomy.

We performed SLNB using periareolar radioisotope labeling, which we combined with a dye (patent blue) for

FIG. 2 Patients operated through a single-incision approach. **a** Bilateral periareolar incision design. **b** Results of a periareolar incision. **c** Design of an axillary single incision. **d** Results of an axillary incision. **e** Lateral single-incision design. **f** Results of a lateral single-incision. **g** Design of an inframammary fold single-incision. **h** Access to the axilla through an inframammary fold incision: 'moving window'

TABLE 1 Clinical-epidemiological characteristics of the study patients

	Total	Study group [*N* = 152]	Control group [*N* = 74]	*p* value
Age at diagnosis, years [mean ± SD]	55.93 ± 12.46	55.01 ± 11.69	57.82 ± 13.8	0.152
Menstrual status				
Premenopausal	104 (46.02)	74 (48.68)	30 (40.54)	0.249
Postmenopausal	122 (53.98)	78 (51.32)	44 (59.46)	
BMI [mean ± SD]	26.27 ± 5.10	26.02 ± 5.32	26.62 ± 4.74	0.324
Screening	67 (29.65)	45 (29.61)	21 (28.38)	0.764
Neoadjuvant therapy	59 (26.10)	34 (22.37)	25 (33.78)	0.067
Laterality				
Right breast	107 (47.35)	66 (43.42)	41 (55.41)	0.200
Left breast	118 (52.21)	85 (55.92)	33 (44.59)	
Bilateral	1 (0.44)	1 (0.67)	0 (0)	
Location				
UIQ	32 (14.16)	15 (9.87)	17 (22.97)	0.030
UOQ	132 (58.41)	98 (64.47)	34 (45.95)	
LIQ	18 (7.96)	8 (5.26)	10 (13.51)	
LOQ	25 (11.06)	17 (11.18)	8 (10.81)	
Retroareolar	14 (6.19)	10 (6.58)	4 (5.4)	
Axillary	4 (1.77)	3 (1.97)	1 (1.35)	
Nipple	1 (0.44)	1 (0.66)	0 (0)	
Tumor size [mean ± SD]	1.59 ± 1.20	1.69 ± 1.27	1.41 ± 1.03	0.312
Tumor size				
T0: in situ	21 (9.29)	15 (9.86)	8 (10.81)	0.100
T1a	18 (7.96)	7 (4.6)	10 (13.51)	
T1b	34 (15.04)	23 (15.13)	10 (13.51)	
T1c	85 (37.61)	63 (41.44)	22 (29.72)	
T2	42 (18.58)	29 (19.08)	14 (18.92)	
T3	3 (1.33)	3 (1.97)	0 (0)	
Tx	23 (10.18)	12 (7.89)	10 (13.51)	
No. of affected lymph nodes [mean ± SD]	0.83 ± 2.25	0.87 ± 2.21	0.74 ± 2.32	0.263
Lymph node staging				
N0	154 (68.14)	99 (65.13)	55 (74.32)	0.633
N1	61 (26.99)	45 (29.60)	16 (21.62)	
N2	8 (3.54)	6 (3.94)	2 (2.70)	
N3	3 (1.33)	2 (1.32)	1 (1.35)	
Molecular profile				
Luminal A	73 (32.3)	54 (35.53)	19 (25.67)	0.514
Luminal B HER2−	72 (31.85)	48 (31.58)	24 (32.43)	
Luminal B HER2+	27 (11.95)	18 (11.84)	9 (12.16)	
HER2+	12 (5.31)	6 (3.95)	6 (8.10)	
Triple negative	22 (9.74)	14 (9.21)	8 (10.81)	
Not classifiable	20 (8.85)	12 (7.89)	8 (10.81)	
Complementary treatment				
Radiation therapy	226 (100)	152 (100)	74 (100)	–
Hormone therapy	183 (81)	127 (83.6)	56 (75.7)	0.157
Chemotherapy	115 (50.9)	76 (50)	39 (52.7)	0.703
Antibodies	36 (15.9)	22 (14.5)	14 (18.9)	0.391
Adjuvant delay [mean ± SD]	53.2 ± 29.74	54.3 ± 32.61	51.42 ± 24.83	0.357
Chemotherapy delay [mean ± SD]	41.00 ± 11.59	46.16 ± 12.34	35.42 ± 7.12	0.015
Radiation therapy delay [mean ± SD]	72.03 ± 52.39	71.62 ± 51.46	72.63 ± 54.27	0.526

Data are expressed as *n* (%) unless otherwise specified

BMI body mass index, *UIQ* upper inner quadrant, *UOQ* upper outer quadrant, *LIQ* lower inner quadrant, *LOQ* lower outer quadrant, *HER2* human epidermal growth factor receptor, *SD* standard deviation

TABLE 2 Surgical characteristics, complications, reoperations and follow-up of the study patients

	Total	Study group [*N* = 152]	Control group [*N* = 74]	*p* value
Mean total stay [mean ± SD]	1.39 ± 0.65	1.47 ± 0.70	1.22 ± 0.50	0.002
Lumpectomy	1.20 ± 0.65	1.26 ± 0.77	1.12 ± 0.42	0.370
Oncoplasty	1.69 ± 0.54	1.72 ± 0.51	1.56 ± 0.63	0.237
Total surgical time [mean ± SD]	82.37 ± 46.77	88.54 ± 49.35	69.93 ± 38.43	0.017
Lumpectomy	53.02 ± 16.81	51.67 ± 14.62	54.91 ± 19.43	0.455
Oncoplasty	130.35 ± 39.84	131.74 ± 39.64	124.38 ± 41.47	0.509
Surgical technique				
A. lateral equator	48 (21.24)	42 (27.6)	6 (8.11)	< 0.001
A. medial equator	8 (3.54)	0 (0)	8 (10.81)	
A. axillary	12 (5.31)	12 (7.9)	0 (0)	
A. areolar	60 (26.55)	25 (16.4)	35 (47.29)	
A. inframammary	12 (5.31)	4 (2.6)	8 (10.81)	
M. vertical	77 (34.07)	63 (41.4)	14 (18.9)	
M. horizontal	4 (1.77)	4 (2.6)	0 (0)	
Round-block	4 (1.77)	2 (1.3)	2 (2.7)	
Extirpated SNs [mean ± SD]	2.11 ± 1.03	2.14 ± 0.99	2.04 ± 1.09	0.284
Positive SNs [mean ± SD]	0.35 ± 0.68	0.35 ± 0.65	0.36 ± 0.75	0.686
No. of ALs	22 (9.73)	18 (11.84)	4 (5.4)	0.126
Extirpated ALNs [mean ± SD]	3.43 ± 3.92	3.52 ± 3.80	3.27 ± 4.13	0.269
ALN in AL [mean ± SD]	12.76 ± 4.61	12.12 ± 4.64	15.50 ± 3.87	0.194
Lumpectomy	13.09 ± 5.77	11.75 ± 5.99	16.67 ± 3.78	0.225
Oncoplasty	12.40 ± 3.17	12.44 ± 3.36	12	1
Complications				
Axillary seroma	1 (0.44)	1 (0.66)	0 (0)	0.081
Hematoma	4 (1.77)	2 (1.32)	2 (2.70)	
Abscess	2 (0.88)	0 (0)	2 (2.70)	
Breast seroma	7 (3.09)	7 (4.61)	0 (0)	
Axillary bleeding	1 (0.44)	0 (0)	1 (1.35)	
Partial necrosis of the NAC	1 (0.44)	1 (0.66)	0 (0)	
Skin necrosis	3 (1.33)	1 (0.66)	2 (2.70)	
Reoperation due to complications	7 (3.09)	3 (1.97)	4 (5.40)	0.176
Re-admissions	3 (1.33)	1 (0.66)	2 (2.70)	0.208
Neuralgia	6 (2.65)	2 (1.32)	4 (5.41)	0.073
Lymphedema	6 (2.65)	4 (2.63)	2 (2.70)	0.987
Salvage surgery				
Lymphadenectomy	4 (1.77)	2 (1.32)	2 (2.70)	0.384
Margin expansion	11 (4.87)	7 (4.61)	4 (5.41)	
Follow-up time [mean ± SD]	16.81 ± 10.65	14.03 ± 9.63	22.52 ± 10.40	< 0.001
Locoregional relapse				
Breast	0 (0)	0 (0)	0 (0)	–
Axilla	0 (0)	0 (0)	0 (0)	
Supraclavicular	1 (0.44)	1 (0.66)	0 (0)	
Distant metastases	1 (0.44)	1 (0.66)	0 (0)	–
Death	1 (0.44)	1 (0.66)	0 (0)	–

Data are expressed as *n* (%) unless otherwise specified

A approach, *M* mammoplasty, *AL* axillary lymphadenectomy, *SN* sentinel node, *ALN* axillary lymph node, *NAC* nipple-areolar complex, *SD* standard deviation

those patients undergoing primary systemic treatment. AL consisted of level I/II extirpation preserving the thoracodorsal pedicle and long thoracic nerve.

Adjuvant Therapy

Patients with tumors that expressed hormone receptors underwent hormone therapy for 5–10 years. Adjuvant chemotherapy was indicated according to the decision of our center's tumor committee using the clinical guidelines corresponding to each period. In most cases, patients who required chemotherapy underwent a sequential regimen of adriamycin and cyclophosphamide followed by paclitaxel, whereas patients with human epidermal growth factor receptor 2 (HER2) overexpression were prescribed trastuzumab for 1 year.

All patients included in the study underwent tangential field breast radiation therapy at a 50 Gy dose in 25 fractions of 2 Gy each. In the event of a boost, we administered an additional 8–10 Gy dose. Women who underwent axillary radiation therapy in the supraclavicular region were administered a 50 Gy dose in 25 sessions. Axillary radiation therapy is indicated for women who have at least one of the following criteria: capsular rupture of the LN, lymphovascular invasion, tumoral grade 3, involvement of three or more LNs, and the absence of hormone receptor expression. The internal mammary chain was not irradiated in any cases.

Neoadjuvant Chemotherapy

Neoadjuvant chemotherapy was indicated for those patients with locally advanced tumors (stage III), poor breast size to tumor ratio, and subtypes of tumors with a high probability of full response to chemotherapy (triple negative, HER2 subtype).

Satisfaction and Quality-of-Life Assessment

All patients were given the preoperative module of the Breast-Q^{TM} questionnaire to determine their satisfaction and quality of life prior to the surgery. Subsequently, the postoperative module was delivered 12–24 months after completion of the radiation therapy. The final score was calculated according to the Mapi Research Trust criteria[12] on a scale from 0 to 100 (the higher the score, the greater the satisfaction). All patients signed a specific informed consent document prior to participation in this study.

Axillary neuralgia is defined as pain in the armpit that persists for more than 3 months after surgery.

Statistical Analysis

We performed a descriptive analysis of all variables, expressing the quantitative variables as mean ± standard deviation, and the qualitative variables as absolute values and percentages. The association of the qualitative variables was performed using the Chi square test. After

TABLE 3 Results of the Breast-Q^{TM} Questionnaire

	Total	Study group [N = 152]	Control group [N = 74]	p value
Preoperative results				
Breast satisfaction	58.04 ± 16.63	55.56 ± 15.07	64.54 ± 18.97	0.090
Psychosocial wellbeing	69.49 ± 18.19	69.04 ± 18.11	70.38 ± 18.75	0.524
Sexual wellbeing	62.44 ± 22.38	63.29 ± 23.41	60.19 ± 19.73	0.519
Physical wellbeing	75.79 ± 19.11	71.72 ± 18.93	88.42 ± 15.37	< 0.001
Postoperative results				
Breast satisfaction	73.21 ± 16.02	78.17 ± 15.97	66.65 ± 13.76	0.002
Postradiotherapy wellbeing	83.77 ± 19.22	85.43 ± 14.32	81.92 ± 27.72	0.978
Physical wellbeing	84.05 ± 15.09	85.39 ± 15.59	82.23 ± 14.44	0.295
Sexual wellbeing	69.49 ± 20.56	72.19 ± 20.62	65.20 ± 21.14	0.201
Psychosocial wellbeing	70.90 ± 22.35	73.58 ± 21.59	63.20 ± 20.69	0.147
Surgeon information	79.73 ± 19.57	85.32 ± 16.59	72.10 ± 20.99	0.010
Satisfaction with the surgeon	96.68 ± 8.93	97.85 ± 6.28	95.07 ± 11.55	0.225
Satisfaction with the medical team	98.11 ± 6.36	97.39 ± 7.99	99.14 ± 2.59	0.698
Satisfaction with the nonmedical personnel	95.88 ± 12.54	95.73 ± 12.49	96.11 ± 12.83	0.952

Data are expressed as mean ± SD

verifying the normality, we employed the Student's *t* test or Mann–Whitney U test, as appropriate.

RESULTS

A total of 339 patients underwent surgery during the study period, 226 of whom met the inclusion criteria, while 113 were excluded (107 mastectomies, 5 patients with ductal carcinoma in situ without LN staging, and 1 Phyllodes tumor). The study group consisted of 152 women with one access (single incision), while the control group consisted of 74 patients with independent incisions for the breast and axilla.

Patient Characteristics

Table 1 summarizes the patient clinical and epidemiological characteristics. There were no differences between the two groups, except for a lower rate of tumors located in the medial quadrants in the study group. The study group also had a longer delay in starting chemotherapy.

Surgical Results

We planned a single-incision procedure for 154 patients, 152 of whom had a successful outcome for breast and LN removal using only one incision (98.7% overall success, 97.6% in lumpectomy, and 100% in oncoplasty). Two patients required conversion of the procedure to an individual axillary incision due to difficulties in the axillary approach from the breast (two lumpectomies performed from the inframammary fold and upper inner quadrant). All OPs with single-incision planning had successful outcomes. Table 2 summarizes the surgical characteristics of both groups. The mean duration of the single-incision procedures was significantly longer for the study group (88 min) than for the control group (69 min), although the individual study for lumpectomy and oncoplasty showed no significant differences. Furthermore, we observed a greater proportion of OPs in the study group than in the control group (41% vs. 18%), while areolar access was more common in the control group (47% vs. 16%). There were no differences in the number of extirpated LNs, both in the SLNBs and ALs, between the two study groups.

Complications and Re-interventions

There were no significant differences in postoperative complications (Table 2), although the study reflected a higher tendency towards breast seroma in the study group, and towards axillary neuralgia in the control group. Both groups presented a similar incidence of breast and axillary salvage surgery.

Satisfaction and Quality of Life

All study patients completed the preoperative Breast-Q^{TM} questionnaire for breast-conserving surgery, while 116 (51.3%) patients also completed the postoperative questionnaire (Table 3). The remaining patients did not complete this questionnaire due to not completing 1 year of follow-up after breast irradiation (109), or due to death (1). The study group presented poorer physical wellbeing prior to surgery compared with the control group. Furthermore, in the study group, postoperative assessment showed greater satisfaction with both the breast and the information provided by the surgeon.

DISCUSSION

Minimally invasive surgery is a recent concept in breast cancer surgery, and its development has been based on two procedures: endoscopic assistance and single incision. The endoscopic procedures were prompted by Asian, Japanese[9,10,13] and Korean teams,[14,15] who ensured tumor extirpation and LN staging using an axillary and periareolar incision. This concept was subsequently employed in the dissection of the latissimus dorsi to reconstruct breast defects during conservative surgery.[16,17] The single-incision approach is based on the planning of one incision, generally from the breast, for the simultaneous performance of lumpectomy and SLNB. This technical modality introduced two new technical concepts: the use of the 'transmammary route'[7,8] and the use of the 'moving window'.[18,19] This term was introduced by Noguchi et al.[18] to describe a technique with a small periareolar incision and a dermocutaneous flap to introduce a wound retractor that allows tissue mobility and to protect the skin. We have also used the term 'moving window' to define the approximation of the mammary incision to the armpit in order to realize axillary staging. Both procedures, endoscopic and the single incision, use the retromammary space as a communication between the breast and axilla, enabling the simultaneous performance of the tumor extirpation and LN staging. From a theoretical standpoint, these techniques break two classical principles of breast cancer surgery: the incision on the breast tumor, obviated by tunneling to prioritize low-visibility access, and the creation of two independent cavities, in this case joined by the retromammary access. The oncologic safety of these approaches has not been demonstrated because neither these studies nor ours have a medium-term patient follow-up. Nevertheless,

another study[3] has analyzed case series in which lumpectomy was performed by tunneling, observing local control of 95% at 10 years.

The planning of a single-incision approach has a high success rate, especially when indicated in lateral and central breast tumors. As with our study, Spillane and Brennan[7] and Cocilovo et al.[8] reported success rates of 97% for lumpectomy and SLNB in their experience. The limitations of this approach center on medial breast tumors and those located in the vicinity of the inframammary fold, as demonstrated in our study of the two failures using the single-incision approach. In these two patients, the distance to the axilla from an incision in the inframammary fold, and the curvature of the chest from a medial quadrant, limited the access to the axilla, unless OPs were employed. In our study, level II oncoplastic surgery had a 100% success rate because access to the axilla was favored due to the larger wound size, thus allowing an SLNB or AL to be performed.

The main advantage of the single-incision approach is the suppression of the axillary wound because this preserves the superficial lymphatic network and the local nerve terminals. This facilitates mobilization of the arm, limits the onset of local paresthesia, and decreases the incidence of axillary web syndrome.[20,21] Our study has shown this benefit by demonstrating a lower incidence of axillary neuralgia in the study group. In contrast, the detachment of the retromammary access represented an increase in breast seroma compared with the control group. No previous studies have observed these data, given their lack of a control group. The second advantage of the single-incision approach is that it constitutes open surgery that does not require a specific learning curve. This characteristic differentiates the single-incision approach from approaches with endoscopic support that require specific material and training, and whose implementation significantly increases the surgical duration. Thus, Saimura et al.[10] and Park et al.[14] reported a mean surgical duration of 167 and 110 min, respectively, in their experience with endoscopic support, which was much longer than the 51 min for the lumpectomies in our study. In contrast, patients who underwent an OP had a mean surgical duration of 131 min, although this increase in surgical time was not due to the LN approach but rather to the implementation of symmetrization in the healthy breast.

The single-incision approach should ensure reoperation rates due to margin involvement similar to those of standard resection. Our study showed a lower reoperation rate (4.6%) than that published by Spillane and Brennan (14%), and, unlike these authors,[7] we did not perform salvage mastectomy. In terms of LN staging, these approaches should ensure similar rates for identifying the sentinel node and for the mean number of LNs. Our study has shown that there are no differences in the sentinel node identification rates and that the single-incision approach for AL ensures a mean number of LNs similar to axillary incision.

Few studies have analyzed the satisfaction and quality of life of breast-preserving surgery. Acea-Nebril et al.[3] recently published their experience with the use of oncoreductive mammoplasty, and observed high satisfaction with the breast and practitioner care (83 and 97, respectively). To our knowledge, our study is the first to present a preoperative and postoperative assessment to determine the impact of surgery on the satisfaction and quality of life of women with breast cancer who underwent lumpectomy.

This study has three main findings. First, the single-incision approach significantly improves patients' satisfaction with the breast compared with the baseline condition prior to surgery. Second, this improvement in satisfaction with the breast is significantly greater for the single-incision approach than for the control group. Third, the single-incision approach presented greater satisfaction in the informational process compared with the standard approach. The lack of other similar studies limits our ability to compare and discuss our results.

This study has several limitations, including its observational nature, which prevents us from comparing the single-incision approach and the control group using randomized assignment. The short follow-up for the series also prevents us from analyzing the safety of this procedure in the medium term in terms of overall and disease-free survival. Finally, there is currently a low indication for AL in breast-conserving surgery, which resulted in a low number of patients being included our study, thereby limiting the conclusions on the validity of the single-incision approach for this surgical procedure.

CONCLUSION

The single-incision approach in breast-conserving surgery has a high success rate in its implementation, both for lumpectomy and for an OP. It has ensured appropriate resection of mammary lesions and appropriate LN staging, with low reoperation rates. Patients operated on using this procedure presented greater satisfaction with both the breast and with the informational process compared with standard surgery.

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