

Case Series

Aesthetic outcomes of oncoplastic surgical techniques in large benign lump of breast using breast Q tool

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ABSTRACT

Large benign breast tumors encompass an array of conditions resulting in breast asymmetry with significant physical and mental morbidities. Breast oncoplasty, in these conditions have better aesthetic outcomes. Here, as the opinion of the patient is superior when compared to subjective opinion of the surgeon, breast Q tool, can be a tool to assess outcomes after using oncoplastic techniques. The following case series includes 20 patients admitted with large benign lesions of breast undergoing oncoplastic surgery, who were assessed to evaluate their satisfaction with breast, nipples, information surgeon and medical team, before and after breast oncoplasty, using breast Q tool version 2.0 reduction mastopexy module, where pre-operative and post operative scores are noted and also converted into equivalent RASCH scores (statistical analysis used: statistical package for the social sciences (SPSS) v.20 software). From the case series it was found that the average pre-operative scores for satisfaction with breasts was 21.95 and post-operative score was 42.95 (p value of 0.0001). Majority of patients had maximum scores for satisfaction with nipples (47% with breast Q score of 20 out of 20), satisfaction with outcome (45% with RASCH score of 100 and 55% with RASCH score of 92), satisfaction with information (55% with RASCH score of 100) and satisfaction with medical team (75% with RASCH score of 100). It was clearly noted that from breast Q tool for reduction mammoplasty, there was excellent post-operative satisfaction among patients across various domains, when oncoplasty is employed for large benign breast diseases.

Keywords: Breast Q tool, Oncoplasty, Reduction mammoplasty, Large benign breast tumours

INTRODUCTION

The breast, in every culture is a potent symbol of beauty, motherhood, and vitality. The breasts of every female is associated with her femininity, throughout her adolescent and adult life. When these breasts become diseased, a woman is faced with disfigurement and distress. Advancement in the field of breast surgeries bring forth an array of options that alleviate concerns regarding un-aesthetic outcomes after breast surgeries.¹ Mammoplasty is one such technique which has been shown to provide excellent aesthetic outcomes, even in surgeries requiring large excision of breast tissues that in earlier days was an impossibility.²

Also, symmetry is of utmost importance in paired organs such as breasts. Even though neoplastic aetiology is a common cause for breast asymmetry, a major spectrum of benign breast diseases like unilateral physiological hypertrophy, benign giant tumours like giant fibroadenoma, giant lipoma, PASH, haematoma, fat necrosis and benign phyllodes tumour, also cause significant breast asymmetry.³

Of these, giant breast masses are entities of great concern as they continue to pose a diagnostic as well as a therapeutic challenge.⁴ In very large tumors, simple enucleation or resection will leave the residual breast deflated and unaesthetic, with spontaneous skin retraction

giving unpredictable results.⁵ The treatment of a small- to medium-sized benign breast tumour is excision, and minor asymmetries get corrected by spontaneous retraction of skin. This is more so in a developing breast. But when there is a 20 to 50% volume loss, reshaping is needed to restore symmetry.⁶

Oncoplastic surgical techniques were developed to allow for large tumor excision and immediate breast reconstruction with the goal of optimal breast shape and symmetry.⁷ Although initially used in women who underwent lumpectomy for breast malignancy, these techniques can also be useful for resolving cosmetic issues caused by benign breast disease.⁸ Oncoplasty, which is a blend of breast oncosurgery and plastic surgery, utilizes techniques like volume displacement and volume replacement.^{9,10} The surgical technique leaves no scar on the breast skin envelope, maintaining the natural appearance and shape of the breast, avoiding the need for contralateral symmetrisation.¹¹

Pusiatic et al (New York, Canada and UK) in the year 2009 published a study where, three procedure-specific questionnaires (augmentation, reduction, and reconstruction) were developed and cognitive debriefing interviews used to pilot each questionnaire, to develop a new patient-reported outcome measure (the breast-Q) to assess the unique outcomes of breast surgery patients.¹² Since, patient-reported outcomes in cosmetic and reconstructive breast surgery are increasingly important for clinical research endeavours. Traditional surgical outcomes, centred on morbidity and mortality, remain important but are no longer sufficient on their own. Quality of life has become a crucial research topic augmenting traditional concerns focused on complications and survival. Given this, reliable and valid patient questionnaires are essential for aesthetic and reconstructive breast surgeons.¹³

CASE SERIES

The following case series involves 20 female patients (between menarche to menopause) with benign breast lump presenting in department of general surgery, Dr. BRAM Hospital, Raipur, Chhattisgarh, from November 2021 to October 2023.

After proper history and clinical examination, imaging and histopathological diagnosis of patients with complaints of large breast lump. The breast Q tool version 2.0 reduction mastopexy module, regarding their satisfaction with breast, satisfaction with information, satisfaction with surgeon and the satisfaction with the medical team is handed over to the patient pre-operatively to assess her breast Q tool score. The oncoplastic surgery is performed based on the patient's need, tumor-breast ratio and surgeon's preference (volume displacement and volume replacement). Specimen is sent for histopathological examination for confirming the diagnosis. The patients are followed up after discharge and they are again handed the

breast Q tool version 2.0 reduction mastopexy module regarding their satisfaction with breast, satisfaction with nipples (post-operatively), satisfaction with information, satisfaction with surgeon and the satisfaction with the medical team to assess their breast Q tool score. The pre-operative and post operative scores are assessed to evaluate their satisfaction with breast before and after breast surgery. The scores obtained are converted into equivalent RASCH scores (max range: 100), which allows a better understanding of the scores. Co-relations are drawn between variables such as age, diagnosis, size of lump, operative procedure and scores obtained by breast Q tool. Qualitative data is expressed in the form of variables and quantitative data is expressed in the form of numbers. The data is entered onto an excel sheet and the co-relation and statistical significance is derived from statistical package for the social sciences (SPSS) v.20 software. Correlations are drawn between variables such as age, diagnosis, size of lump, operative procedure and scores (pre and post-operative) obtained by breast Q tool version 2.0 reduction mastopexy module. After evaluation, a p value of <0.001 was considered statistically significant.

The mean age was 22.8 years. Most of the patients were less than 20 years of age (11 cases, 55%), while the next common age group was 21-25 years of age (4 cases, 20%), there was 1 case (5%) in each of the age groups, 26-30 years, 31-35 years, 36-40 years, 41-45 years and >45 years (Table 1).

Table 1: Age distribution of cases.

Age (in years)	Frequency
≤20	11
21–25	4
26–30	1
31–35	1
36–40	1
41–45	1
>45	1
N	20

The most common cause of breast asymmetry was giant fibroadenoma (60%, 12 cases) with almost equal preponderance in both breast, there were six cases (30%) of phyllodes tumor and two cases with breast hypertrophy and gigantomastia (10%) (Figure 1).

Volume displacement technique was employed in 16 cases (80%), while volume replacement was performed in the rest of four cases (20%). The most commonly used among them was latissimus dorsi flap (three cases) followed by medial intercostal artery perforator flap (one case) (Figure 2).

Most of the cases (12 cases, 60%) had their length in largest dimension ranging between 5 to 7.5 cm, with the giant fibroadenoma being the most common diagnosis among them. There were five cases (25%) with the largest

dimension ranging between 7.6–10 cm and three cases (15%) with largest dimension >10 cm. All the cases with their length more >10 cm were diagnosed with phyllodes tumor, while three of the five cases with length ranging between 7.6–10 cm were diagnosed with phyllodes tumor (Figure 3).

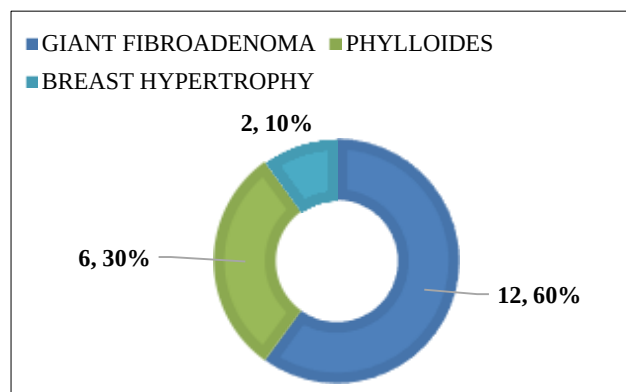


Figure 1: Diagnostic distribution of cases.

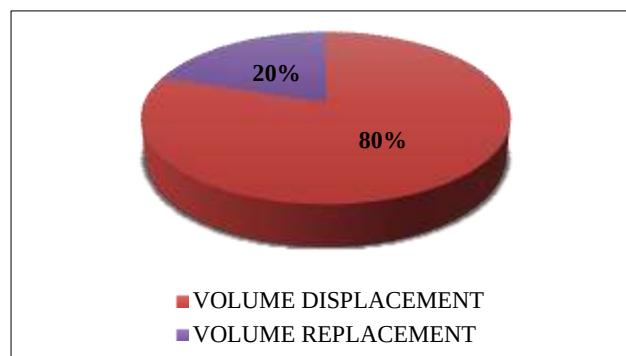


Figure 2: Type of oncoplastic technique employed.

By the scores obtained by using breast Q™ tool for satisfaction with breasts (pre-operative) we found that eight cases (40%) had scores ranging between 21–25, eight cases (40%) had scores ranging between 16–25 and four cases (20%) had scores ranging between 26–30. The average score was 21.95 with an equivalent RASCH score of 37.7. Similarly, post-operatively we found that 11 cases (55%) had scores ranging between 41–45, five cases (25%) had scores ranging between 36–40 and four cases (20%) had scores ranging between 46–50. The average score was 42.95 with an equivalent RASCH score of 66.45. There was a significant difference between the breast scores obtained pre-operatively and post-operatively ($p < 0.0001$; extremely significant) (Figure 4).

From the scores obtained from each of the questions from breast Q™ tool for the satisfaction of breasts (pre-operative), patients were most satisfied with their appearance in the mirror when clothed (average score of 2.95 out of 4) and were least satisfied with the shape of their breast when not wearing a bra (average score of 1.34

out of 4). Similarly, after surgery, patients were most satisfied with the appearance of breasts in the mirror when clothed (average score of 3.79 out of 4) and were least satisfied with their looks in the mirror unclothed (average score of 2.95 out of 4) and the way breast hung on their chest (average score of 2.99 out of 4) (Table 2).

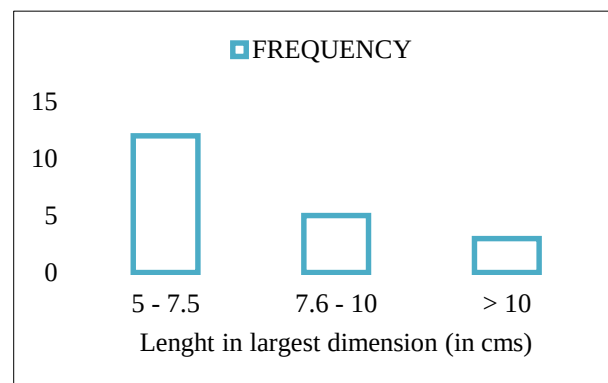


Figure 3: Length of breast lump in largest dimension.

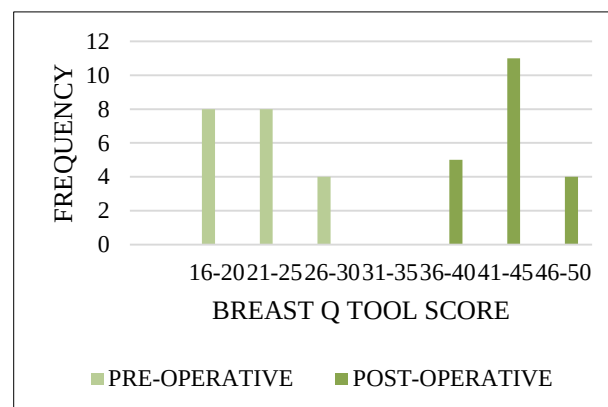


Figure 4: Breast Q tool score for satisfaction with Breasts.

The average pre-operative score for satisfaction with breast among cases diagnosed with fibroadenoma was 23.74 (pre-operative) and 43.15 (post-operative), while those diagnosed with phyllodes had scores of 19.5 (pre-operative) and 43.5 (post-operative), those diagnosed with breast hypertrophy or gigantomastia had scores of 18.5 (pre-operative) and 40 (post-operative) respectively. Thus, even though those diagnosed with phyllodes had lower levels of satisfaction with their breasts pre-operatively, after the procedure they showed more satisfaction with their breast when compared with those with other diagnosis (Figure 5).

In our study, most of the equivalent RASCH scores for satisfaction with breasts, pre-operatively ranged between 41–50 (9 cases), there were 8 cases with scores ranging between 31–40 and 3 cases with scores between 21–30. The minimum and maximum scores obtained were 29 and 46 respectively. The average score was 37.7.

Table 2: Breast Q tool questionnaire for satisfaction with breasts.

Questionnaire	Average score (pre-operative)	Average score (post-operative)
How your breasts look in clothes?	2.78	3.79
How your breast size matches the rest of your body?	1.7	2.99
The size of your breasts?	1.94	2.99
The shape of your breasts when you are wearing a bra?	2.64	3.59
How equal in size your breasts are to each other?	1.49	3.19
How comfortably your bras fit?	2.19	3.35
The shape of your breasts when you are not wearing a bra?	1.34	3.19
How you look in the mirror clothed?	2.95	3.75
How your breasts sit/hang on your chest?	1.39	2.99
How normal your breasts look?	1.55	3.05
How you look in the mirror unclothed?	1.64	2.95
The location of your scars?		3.64
How your scars look?		3.59

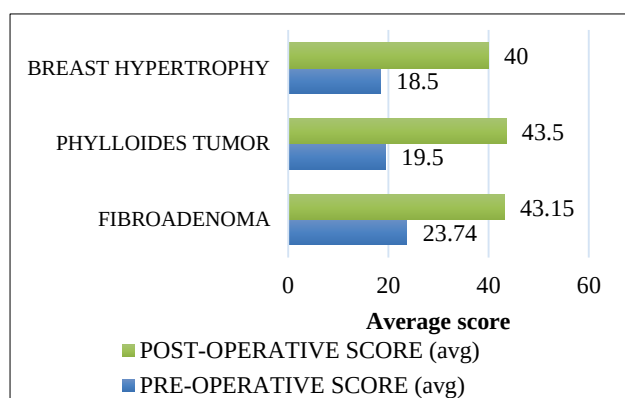


Figure 5: Breast Q tool score versus diagnosis of breast disease.

Similarly, most of the scores post-operatively ranged between 61-70 (11 cases), there were 4 cases with scores ranging between 51-60 and 5 cases with scores ranging between 71-80. The minimum and maximum scores obtained were 59 and 75 respectively. The average score was 66.45 (Figure 6).

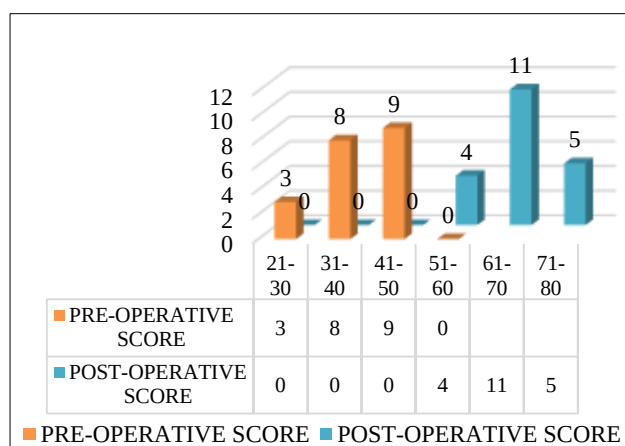


Figure 6: Equivalent RASCH scores.

From the data obtained, we found that the majority of patients (8 cases, 47%) had maximum scores for satisfaction with nipples (breast Q score of 20 out of 20), 4 cases (23%) had scores of 18 out of 20, 3 cases (18%) had a score of 19 out of 20.

Of the study group, 9 patients (45%) had breast Q score of 24 out of 24 (RASCH score of 100) for satisfaction with outcome, while 11 cases (55%) had scores of 23 out of 24 (RASCH score of 92).

We also noted that most patients (55%) had breast Q score of 52 out of 52 (RASCH score of 100) for satisfaction with information, while 4 cases (20%) had scores of 50 out of 52 (RASCH score of 84), 3 cases (15%) had score of 48 out of 52 (RASCH score of 75). Also, most patients (15 cases, 75%) had breast Q score of 28 out of 28 (RASCH score of 100) for satisfaction with medical team, while 4 cases (20%) had scores of 27 out of 28 (RASCH score of 92).

DISCUSSION

The overall outcome of a surgical procedure, especially of the breast, are best assessed by patient related outcome measures (PROM) like breast-Q, EORTC-Q30/Q23, short form 36, FACT-B. Tools like this measure the satisfaction and outcome from a patient's perspective, which is important as it is the patient who lives with the outcome of the surgery for the rest of her life.¹⁴

Of these breast Q tool (Pusiac et al) emphasizes on patient's satisfaction with breasts, satisfaction with overall outcome, psychosocial well-being, sexual well-being, physical well-being and satisfaction with care after breast surgery. Initially developed to know PROM with regard to patient's satisfaction in various aspects after surgery in breast cancer, it can be also used to know the outcomes of breast surgeries in benign diseases of breast.¹⁵

There are various modules of breast Q tool for a variety of breast oncoplastic methods like reduction mammoplasty, augmentation mammoplasty. We, in the current study have employed the use of breast-Q™ - reduction mastopexy module (preoperative) version 2.0, to know the outcomes of reduction mammoplasty like satisfaction with breasts, satisfaction with nipples, satisfaction with information, satisfaction with surgeon, satisfaction with outcomes and satisfaction with medical team.

Most of the patients were noted to be lesser than 20 years of age (11 cases, 55%). The mean age was 22.8 years. Liana et al also noted that, in 200 patients undergoing mammoplasty, the average age at the time of the reduction was 39 years.¹⁶ Corridi et al noted that among the 49 patients undergoing breast surgery, the mean age was 36.3±12.9 years.¹⁷ Adriana et al found that among the 100 women in their study (50 in hypertrophy group and 50 in mammoplasty group), the mean age (highest 45 years and lowest 18 years) for hypertrophy group was 31 years, while that for mammoplasty group was 33 years.¹⁸ Mallick et al in their study of 33 cases of phyllodes tumor noted that the median age was 36 years (17–55 years).¹⁹

While we found that the most common cause of breast asymmetry was giant fibroadenoma (60%, 12 cases) with almost equal pre-ponderance in both breast, there were 6 cases (30%) of phyllodes tumor and two cases with breast hypertrophy and gigantomastia (10%). Naraynsingh in his study over 2642 patients over 7 years, found that the most common breast lump in teenage girls (13-17 years) was fibroadenoma (511 cases, 77.6%).²⁰

The most common oncoplastic technique employed was volume displacement in 16 cases (80%), while volume replacement was performed in the rest of 4 cases (20%). The most commonly used among them was latissimus dorsi flap (3 cases) followed by medial intercostal artery perforator flap (1 case). It was also noted to take into consideration to maintain an adequate margin in cases of tumors diagnosed with phyllodes tumor to prevent recurrence and achieve negative margins in they were found to be malignant later. Liana et al in their study employed supero-medial-pedicle reduction mammoplasty in most of the cases.¹⁶ Corridi et al reported that of 49 cases of breast reduction, superomedial pedicle based reduction mammoplasty was employed in 16 cases (33%), Inferior pedicle based reduction mammoplasty was employed in 33 cases (67%). Also, wise pattern incision was employed in 37 cases (76%) and vertical incision was employed in 12 cases (24%).¹⁷

Majority of cases (12 cases, 60%) had their length in largest dimension ranging between 5 to 7.5 cms, with the giant fibroadenoma being the most common diagnosis among them. There were 5 cases (25%) with the largest dimension ranging between 7.6–10 cms and 3 cases (15%) with largest dimension >10 cms. All the cases with their length more >10 cms were diagnosed with phyllodes tumor, while 3 of the 5 cases with length ranging between

7.6–10 cms were diagnosed with phyllodes tumor. Liana et al in their study among 200 patients, found that the average sternal notch to nipple distance was 35.5 cm for the right breast and 35.6 cm for the left breast. Average breast resection weight was 1277 g for the right and 1283 g for the left.¹⁶ Demian in their study among 35 cases of phyllodes tumor, found that the median pathological tumor size was 6.8 cm (3–25 cm).²¹ Mallick et al in his study of 33 cases of phyllodes tumor noted that the median size of tumor was 13.6 cm.¹⁹

The scores obtained by using breast Q™ tool for satisfaction with breasts (pre-operative) depicted that 8 cases (40%) had scores ranging between 21–25, 8 cases (40%) had scores ranging between 16–25 and 4 cases (20%) had scores ranging between 26–30. The average score was 21.95 with an equivalent RASCH score of 37.7. Whereas, post-operatively 11 cases (55%) had scores ranging between 41–45, 5 cases (25%) had scores ranging between 36–40 and 4 cases (20%) had scores ranging between 46–50. The average score was 42.95 with an equivalent RASCH score of 66.45. There was a significant difference between the breast scores obtained pre-operatively (21.95) and post-operatively (42.95). (p value <0.0001; extremely significant). Most of the equivalent RASCH scores for satisfaction with breasts, pre-operatively ranged between 41–50 (9 cases), there were 8 cases with scores ranging between 31–40 and 3 cases with scores between 21–30. The minimum and maximum scores obtained were 29 and 46 respectively. The average score was 37.7. Post-operatively the scores ranged between 61–70 (11 cases), there were 4 cases with scores ranging between 51–60 and 5 cases with scores ranging between 71–80. The minimum and maximum scores obtained were 59 and 75 respectively. The average score was 66.45. Corridi et al in their study noted that the Satisfaction with breast appearance improved from a value of 19.8±16.1 preoperatively to 82.6±14.1 postoperatively (p<0.001).¹⁷ Adriana et al in their study found that “satisfaction with breasts” in both groups and comparison by the Mann-Whitney test found that those with breast hypertrophy had a score of 23 while those who underwent mammoplasty had a score of 71 (6-month post op) with a p value=0.001.¹⁸ Marilia et al in their prospective cohort study of 83 patients with breast hypertrophy found that the mean pre-operative scores were 16.55±10.5996, while the mean post-operative score was 78.37±16.639 with a significant p value of 0.001.²² Wampler et al in their study of breast reduction oncoplasty, noted that mean pre-operative breast-Q scores were below normative values (p<0.001) and mean post-operative scores were above normative values (p<0.001) for satisfaction with breasts.²³ Parnis et al in the study for the analysis of physical and psychological symptoms using the breast-Q in 43 patients found that the average scores (21-100) obtained post-operatively in patients was 75.²⁴

Of the questions from breast Q™ tool for the satisfaction of breasts (pre-operative), patients were most satisfied with their appearance in the mirror when clothed (average

score of 2.95 out of 4) and were least satisfied with the shape of their breast when not wearing a bra (average score of 1.34 out of 4). While, post-surgery, patients were most satisfied with the appearance of breasts in the mirror when clothed (average score of 3.79 out of 4) and were least satisfied with their looks in the mirror unclothed (average score of 2.95 out of 4) and the way breast hung on their chest (average score of 2.99 out of 4). Corridi et al noted that the satisfaction with breast appearance improved from a value of 19.8 ± 16.1 preoperatively to 82.6 ± 14.1 postoperatively ($p < 0.001$). Within this category, postoperatively, 82 percent were very satisfied with the size of their breast and 84 percent were very satisfied with how their breasts sat/hang on their chests, as compared with preoperative values of 3 and 3 percent, respectively ($p < 0.001$).¹⁷

From the data obtained, we found that the majority of patients (8 cases, 47%) had maximum scores for satisfaction with nipples (breast Q score of 20 out of 20), 4 cases (23%) had scores of 18 out of 20, 3 cases (18%) had a score of 19 out of 20. Marilia et al in their prospective cohort study of 83 patients noted that maximum patient satisfaction was observed in nipple appearance in the late postoperative period.²²

We found that 9 patients (45%) had breast Q score of 24 out of 24 (RASCH score of 100) for satisfaction with outcome, while 11 cases (55%) had scores of 23 out of 24 (RASCH score of 92). Marilia et al in their study also concluded that the breast-Q[®] showed that patients who underwent breast reduction surgery achieved a significant improvement in quality of life and were satisfied with the overall surgical outcome.²²

Likewise, 11 patients (55%) had breast Q score of 52 out of 52 (RASCH score of 100) for satisfaction with information, while 4 cases (20%) had scores of 50 out of 52 (RASCH score of 84), 3 cases (15%) had score of 48 out of 52 (RASCH score of 75). Marilia et al also noted that patients who underwent breast reduction surgery were satisfied with information provided.²²

Also, maximum patients (15 cases, 75%) had Breast Q score of 28 out of 28 (RASCH score of 100) for satisfaction with medical team, while 4 cases (20%) had scores of 27 out of 28 (RASCH score of 92). Marilia et al states that all patients in their study were satisfied with the medical team.²²

CONCLUSION

With the advent of mammoplasty, patients with large benign diseases have found oncoplastic surgical techniques to produce aesthetically pleasing results. However, to measure this, breast Q tool is an excellent measure of patient satisfaction which considers all the aspects of the surgical outcome and experience with regard to the patient. Although it was developed to know the PROM with relation to satisfaction with breast and

nipples, psycho-social well-being, sexual well-being and physical well-being based on patient's perspective in cases undergoing BCS for breast malignancy, it has evolved across the years to become a frequent tool to assess patient's satisfaction after oncoplastic breast surgeries for large benign breast diseases as well. Yet, there are fewer studies combining oncoplasty techniques for large benign diseases and breast Q tool to assess patient satisfaction thereafter.

Thus, although through breast Q tool for reduction mammoplasty, we find excellent post-operative satisfaction among patients across various domains, there is a dearth in the number of studies that use breast Q tool in surgical oncoplasty for large benign breast diseases among women.

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