



Breast Cancer Surgery during First COVID-19 Outbreak: The Role of Therapeutic Mammoplasty

Eleftherios Sfakianakis*, Peng Tan and Foivos Irakleidis

Oncoplastic Breast Surgery Unit, Royal Free Hospital NHS Trust, UK

Abstract

Introduction: During the first COVID-19 Outbreak treatment pathways for breast cancer patients were modified to minimize patients' exposure to hospital environment. In terms of surgical treatment, any oncoplastic approach should facilitate apart from oncological efficiency and best cosmesis, minimum exposure to the hospital environment.

Aim: Aim of this study is apart from comparing breast surgery cases in two consecutive years, to evaluate the efficacy of therapeutic mammoplasty in breast cancer patients during the first COVID-19 Outbreak era.

Materials and Methods: We compared breast surgery cases performed by a Consultant Oncoplastic Breast Surgeon in a high volume Oncoplastic Breast Surgery Unit in London, during the COVID-19 Outbreak (March-June 2020) to the cases done in the same period of time in 2019. Parameters like duration of hospital stay, oncological efficacy and cosmesis were evaluated and we investigated whether therapeutic mammoplasty can be safely performed during COVID-19 Outbreak.

Results: In total 25 patients had breast surgery during the first COVID-19 Outbreak for breast cancer and 13 patients underwent therapeutic mammoplasty. 23 patients had day surgery and no drain was used. Complications were 1 hematoma after mammoplasty and one seroma after mastectomy. Cosmetic outcome was excellent in the majority of the mammoplasty patients using Harvard Scale. A 1 patient had involved margins and underwent re-excision.

Conclusion: As our data demonstrate therapeutic mammoplasty is an oncologically efficient oncoplastic approach with excellent cosmetic results and can be safely be performed even in challenging times like COVID-19 Outbreak, when patients' exposure to hospital environment should be minimized.

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*Correspondence:

Eleftherios Sfakianakis, Oncoplastic Breast Surgery Unit, Royal Free Hospital NHS Trust, London, Pond St, Hampstead, London NW3 2QG, UK, E-mail: elsfakianakis@windowslive.com

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Introduction

There is no doubt, that Severe Acute Respiratory Syndrome Coronavirus-2 and its' associated disease (COVID-19) has been quite challenging not only for all Health Systems worldwide, but also for all medical professionals, particularly those dealing with cancer patients. There has been a rearrangement of healthcare resources, so that the health systems to be able to deal with the high volume of COVID-19 patients and the required facilities for their treatment. As a result, routine treatment pathways have been modified. Regarding cancer patients, the most comprehensive data that ASCO could identify is a report from the WHO-China Joint Mission on coronavirus disease, published on February 2020, showing a case fatality rate for patients with cancer as comorbid condition and COVID-19 infection was 7.6% compared to overall 3.8%, no comorbid condition 1.4%, cardiovascular disease 13.2%, diabetes 9.2%, hypertension 8.4%, chronic respiratory disease 8.0% [1-4]. Aim of this study is apart from comparing breast surgery cases in two consecutive years, to evaluate the efficacy of therapeutic mammoplasty in breast cancer patients in COVID-19 Outbreak era.

Therapeutic mammoplasty in breast cancer

Breast-Conserving Surgery (BCS) when is feasible is the preferable option for the majority of women diagnosed with breast cancer [5]. On the other hand standard BCS may result in poor cosmetic outcome that can influence quality of life [6,7]. Therapeutic Mammoplasty (TM) is a combination of wide local excision to remove the cancer with mastopexy to reshape the remaining breast tissue [8,9]. Data have shown, that therapeutic mammoplasty can facilitate wider resections, i.e. large or multifocal tumors without compromising cosmetic outcomes and therefore can be a safe alternative to mastectomy in this subgroup of patients [10-12].

Breast cancer treatment in COVID-19 era

Surgical management of breast cancer patients could not be exempted from treatment pathway modifications in the covid19 outbreak era. Main goal is to reduce hospital stay and minimizing the risk for complications and consequently hospital visits, facilitating at the same time oncologic efficiency and good cosmesis. Reputable professional bodies such as the American Society of Breast Surgeons have issued recommendations regarding prioritization of breast cancer patients care based on tumour biology and cancer stage [2-4]. Association of Breast Surgery (ABS) issued a statement advising accordingly. One day surgery should be aimed for the majority of patients. In case of limited theatre space, priority should be given to ER-, then HER2+ and then ER+ pre-menopausal patients. Moreover, ER+ post-menopausal patients should be commenced on primary endocrine treatment, in case of insufficient surgical space. For DCIS, high grade patients should be prioritized. Neoadjuvant chemotherapy should be used only for initially inoperable disease and not to downstage from mastectomy to breast conserving surgery. Finally, immediate implant or autologous based reconstruction should be avoided [2]. In terms of Breast Conserving Surgery, any Oncoplastic approach in the COVID-19 era should facilitate apart from oncologic efficacy and good cosmesis, short hospital stay and the least rate of complications to minimize hospital visits.

Materials and Methods

We compared all the breast cases done by a single Oncoplastic Breast Surgeon in high volume Breast Unit in London from March until June in 2020 during COVID-19 outbreak to the cases done during the same period of time in 2019. We evaluated parameters like duration of hospital stay, oncologic efficacy, and cosmetic outcome.

Results and Discussion

As anticipated, all breast cases during COVID-19 outbreak were cancer cases, without any reconstruction or surgery for benign breast diseases in full compliance with local and national recommendations. The number of cases in total was smaller during the outbreak (25), compared to ones in 2019 (31), despite the fact that number of theater sessions was the same (Figure 1). In terms of Breast Conserving Surgery all the patients in both time intervals underwent therapeutic mammoplasties depending on tumor location, breast size and ptosis and patient’s wish (Figures 1-4). Tumor characteristics can be seen in Table 1. In the COVID-19 subgroup 5 patients had Neoadjuvant Chemotherapy (NACT) prior the COVID-19 Outbreak. All the rest TNBC or HER2+ patients in this subgroup had upfront surgery regardless of tumor size as per national recommendations. Of notice is that in 8 patients of the COVID-19 subgroup had tumors >T2, compared to 1 patient to the 2019 subgroup. This can be explained by

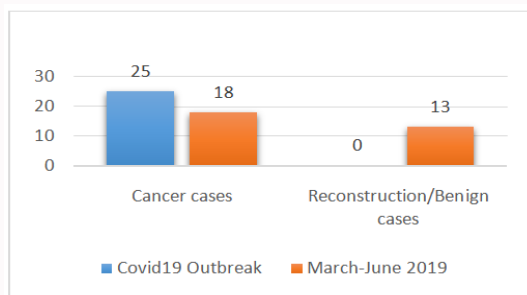


Figure 1: Breast Surgery in Covid19 outbreak vs. March-June 2019.

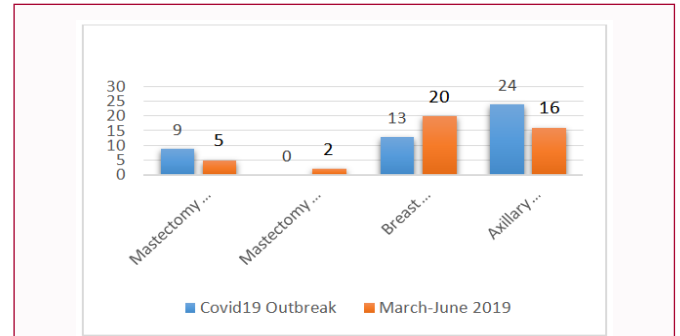


Figure 2: Mastectomy vs. BCS and Axillary Surgery.

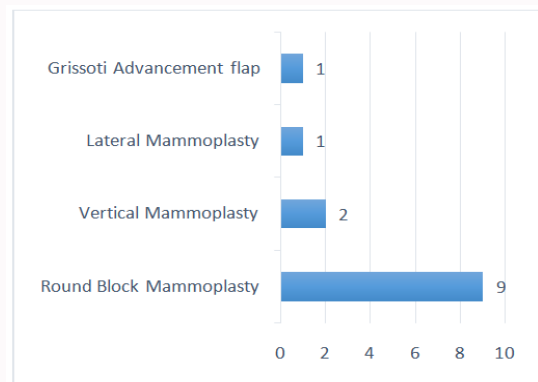


Figure 3: Therapeutic Mammoplasties COVID-19 Outbreak (N=13).

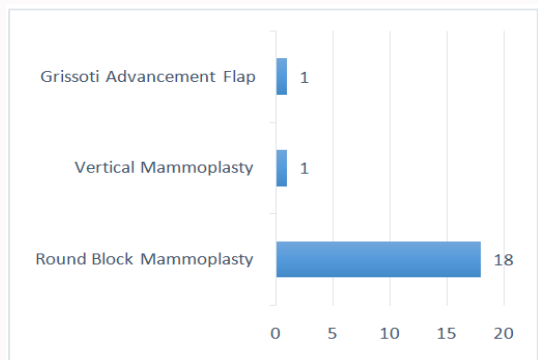


Figure 4: Therapeutic Mammoplasty March-June 2019 (N=20).

the fact that NACT during COVID outbreak had ceased in terms of national recommendations.

Surgical outcomes and oncologic efficacy

As seen in Table 2 vast majority of cases were done as day cases in both time intervals. No drain was used, apart from 2 implant based reconstruction cases in 2019 and one therapeutic mammoplasty case in COVID-19 period, who had haematoma evacuation. Complications rates were low 6% and 8% in 2019 and COVID-19 outbreak accordingly and within national (UK) and international standards in both years. In COVID time interval 1 patient developed post op haematoma after a therapeutic mammoplasty and was treated with re-operation and hematoma evacuation and 1 patient developed seroma after mastectomy which treated conservatively, compared to 2020 cases, where 1 patient had wound infection, treated succesfully with oral antibiotics and another one developed seroma which was drained under ultrasound guidance. Both were therapeutic

Table 1: Tumor characteristics.

	Tumor size (T)	Subtype	Grade	ER/HER2 status	NACT
Covid19 Outbreak	T1: 6 T2: 8 >T2: 8	IDC: 21 ILC: 1 DCIS: 1	G1: 3 G2: 7 G3: 12	ER+/HER2-: 8 ER+/HER2+: 2 ER-/HER2+: 5 ER-/HER2-: 7	5
March-June 2019	T1: 7 T2: 6 >T2: 1	IDC: 12 ILC: 2 DCIS: 4	G1: 3 G2: 7 G3: 4	ER+/HER2-: 11 ER+/HER2+: 1 ER-/HER2+: 0 ER-/HER2-: 2	1

Table 2: Cosmetic outcomes were evaluated in therapeutic mastoplastic and implant reconstruction patients in both years using Harvard scale.

	Day Surgery	Drain	Complications	Margin Re-excision	Cosmetic Outcome (Harvard scale)
March-June 2019	28	2	Seroma: 1 Hematoma: - Wound Infection: 1	-	Excellent: 11 Good: 6 Fair: 3 Poor: -
Covid19 Outbreak	23	1	Seroma: 1 Hematoma: 1 Wound Infection: -	-	Excellent: 7 Good: 4 Fair: 2 Poor: -

mastoplastic patients. All margins were clear, apart from 1 patient in COVID time interval, who underwent superior margin re excision following round block mastoplastic. Cosmetic outcomes were evaluated in therapeutic mastoplastic and implant reconstruction patients in both years using Harvard scale and results can be seen in Table 2. In the era of Oncoplastic approach in the surgical management of breast cancer, evidence have shown, that therapeutic mastoplastic can be safely performed facilitating wider resections and excellent cosmesis and can be oncologically safe alternative to mastectomy for larger and multifocal cancers. The above seems to be of high importance, particularly during COVID-19 Outbreak when reconstruction was deferred. Despite the modifications, that COVID-19 Outbreak has implemented to the treatment of breast cancer, patients' safety, oncologic efficacy and best cosmetic outcome are the main goals of surgical management of breast cancer patients. In the absence of any reconstruction during COVID-19 outbreak in full compliance with national guidance, aim of this study was to evaluate whether therapeutic mastoplastic can safely be performed, minimizing the exposure to hospital environment. As our data from COVID-19 Outbreak demonstrate all of our cases had an Oncoplastic approach rather standard BCS, regardless of patients' performance status. No drain was placed in any of our cases and vast majority of patients went home on the same day. Surgical outcomes are more than encouraging. Complication rates during COVID-19 Outbreak were minimum and within the national and international standards (8% vs. 6% in 2019 time interval) whereas only 1 patient underwent margin re-excision. Finally the majority of our patients who underwent TM declared excellent cosmetic outcome.

Conclusion

In view of COVID-19 outbreak, surgical approach to breast cancer patients should ensure oncologic efficiency and minimize exposure to hospital environment. As our data demonstrate, therapeutic mastoplastic is a safe and oncologically efficient approach for breast cancer patients, with minimum complication rates and high satisfaction rates in terms of cosmesis. Therefore, even in challenging pandemic times we are, it can be safely performed by trained Oncoplastic Surgeons.

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