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Assessment of Anthropometric Measurements, Time Lag between Diagnosis and Surgery, Post-operative Recovery Time, and Outcome of Oncoplastic Surgery of Treated Breast Cancer Patients.

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Abstract

Introduction*: Breast cancer patients are predominantly obese. Treatment of breast cancer needs the punctuality of the patients for the best outcome. Breast cancer surgery should be without complications so that patient is ready for timely adjuvant therapy. Volume displacement component (VDC) of oncoplastic surgery (OPS) of the indicated breast with ipsilateral axillary lymph node dissection could lead to breast enlargement.* ***Materials and Methods****: This cohort study was conducted on 51 breast cancer patients with objectives to observe (1) height and body mass index status of breast cancer patients, (2) whether patients had timely surgical treatment after diagnosis, (3) post-surgical events helping timely adjuvant therapy and (4) tumor size for the feasibility of adapting VDC of OPS. Patients were divided into (a) pre-and post-menopausal age and (b) Surgery-first and neoadjuvant chemotherapy (NAC)-Surgery groups.* ***Results****: The median weights of the pre-and post-menopausal age group were 55 and 63 kg respectively ($p < 0.001$). In the premenopausal age group number of overweight and obese is less than those of the postmenopausal age group ($p < 0.01$). In the NAC-Surgery group, the mean surgical treatment delay time was 305 days and the majority had positive axillary nodes with moderate/extensive pathological residual cancer burden. Skin flap necrosis was observed in 15.69% of modified radical mastectomy cases. All breast cancer Surgery patients had axillary lymph node dissection. The median duration of wound drainage was 5.14 weeks. The drain tubes of the wound remain functioning significantly long (>9 weeks) in obese patients than in other BMI categories ($p < 0.001$). The median pathological tumor diameter was 3 cm.* ***Conclusions****: Obesity might exert a prophylactic effect on breast cancer development in premenopausal women. A long surgical treatment delay time was observed in locally advanced breast cancer. Optimum flap thickness and spans, meticulous wound closure, and immediate debridement and closure of flap heal wounds before 30th postoperative day. Continuing wound drainage might cause a delay in starting adjuvant therapy. It is possible to accommodate the volume displacement component of oncoplastic surgery in the majority of breast cancers. Volume displacement component of oncoplastic surgery with ipsilateral axillary lymph node dissection and without immediate surgical correction of asymmetry might lead to progressive enlargement of operated breast and breasts symmetry.*

Keywords*: breast cancer anthropometry; breast cancer surgical treatment delay time; breast cancer surgical treatment recovery time; combined oncoplastic surgery axillary lymph node dissection.*

Abbreviations

BC: Breast Cancer.

m: meter.

Kg: Kilogram.

BMI: Body mass index.

NAC: Neoadjuvant chemotherapy.

STDT: Surgical treatment delay time.

MRM: Modified radical mastectomy.

ALND: Axillary lymph node dissection.

ALN: Axillary lymph node.

VDC: Volume displacement Component.

OPS: Oncoplastic Surgery.

MSFN: Mastectomy skin flap necrosis.

POD: Postoperative day.

RCB: Residual cancer burden.

SLNB: Sentinel lymph node biopsy.

OT: Operation Theater.

OS: Overall survival.

Introduction

Possibly BC risk is more among taller women. The Belgian women had the highest incidence of BC (113.2/100,000 women/year) and their average height was 165.49 cm ranked 7th of the tallest (Bostock, Bill). Bangladeshi women ranked 9th of the shortest with an average height of 150.78 cm (Bostock, Bill) and a low incidence of BC (21.7/100,000 women/year) (Steiness, Heather S.). BC is positively associated with anthropometric measurements like height and BMI (Pacholezak, Renata, et al, 1). A cohort study indicated a positive association of BMI and BC in both pre-and post-menopausal women (Van den Brandt, Piet, et al, 514). It might be possible that the majority of BC patients of this series were (1) taller than average Bangladeshi height and (2) overweight or obese.

It is essential to be realized by the native patients that the complexity of management and therapeutic complications for resolution of BC requires a long time and to wait with punctuality and patience to complete expensive modalities of treatment. BC patients frequently unaware timing of treatment and should understand that timely surgery, chemotherapy, radiotherapy, and targeted therapy have had a substantial impact on OS. The optimum interval from diagnosis to surgery is <90 days, to chemotherapy <120 days, and to radiotherapy <365 days respectively (Bleichar, Richard J, 1). NAC is a standard approach for locally advanced BC causing reduction of cancer burden and optimizing surgical resection but needs long STDT. Longer STDT after NAC affects outcome in a patient who did not achieve pathological complete response (All-Hilli, Zahraa, and Judy C Boughey, 4). It might be possible that BC patients treated in this institution were punctual for timely surgical intervention after diagnosis.

MRM was a routine surgical procedure of BC in this institution but has known early complications such as (1) MSFN and (2) a long-continued drain from surgical wounds (>7 postoperative weeks) might prolonged time interval between surgery and adjuvant therapy. VDC of OPS with ipsilateral ALND was introduced in selected patients with the expectation that it would lead to a better cosmetic outcome than MRM.

The aim of the study was to observe (1) the association of some anthropometric measurements and BC, (2) time lag between diagnosis, surgery, and adjuvant therapy, and (3) aesthetic outcome of VDC of OPS. The objectives of the study were to observe (1) the status of the breast cancer patients in relation to height and BMI, (2) patients ability to start timely surgical treatment after diagnosis of BC, (3) recovery time of surgical treatment for adjuvant therapy, and (4) outcome of VDC of OPS.

Materials and Methods

The part of this study was prospective and another retrospective cohort study was conducted on 51 consecutive BC patients admitted to the Surgical Oncology Department of Ahsania Mission Cancer and General Hospital, Dhaka. The patient's information was collected using a research instrument after obtaining approval from the institutional ethical board and informed consent of the patient. The study period was from August 2016 through December 2019. All patients who underwent BC surgery with regular follow-up from the date of enrolment were included and those who had BC with distant metastasis at the time of diagnosis or dropped out from follow-up were excluded. Particulars of the patients were recorded including name, age, sex, body weight (kg), height (m). Considering 44 years as the age of menopause, patients were divided into premenopausal (≤ 44 years) and postmenopausal (> 44 years) groups (Ringa, Virgine). Anthropometric measurement includes height, weight, and BMI (kg/m2). Patients were also divided into Surgery-first (patients who underwent direct surgical treatment after diagnosis) and NAC-Surgery (patients who underwent NAC then surgery) groups. The

average height of Bangladeshi women is considered 1.51 meters (World, Disabled). BMI was calculated and categorized as underweight (< 18.5), healthy (18.6-24.9), overweight (25-29.9) and obese (≥ 30). The date of diagnosis was counted from the date of cytology or histological confirmation of BC and the date of operation was recorded to calculate STDT (i.e. days between the date of diagnosis of breast cancer and date of surgery). Treated patients were considered punctual if they started surgical treatment from 30 to 60 days of diagnosis in the Surgery-first group and 170 days in the NAC-Surgery group. Class-II (moderate burden) and –III (severe burden) RCB were estimated from routine histological examination of primary breast tumor and axillary lymph nodes of the surgical specimen of breast and axillary soft tissue. Type of surgery was (1) MRM i.e. mastectomy including skin, nipple-areolar complex and pectoral fascia plus ipsilateral level I and II, and sometimes level III ALNs, (2) MRM plus ipsilateral pedicle latissimus dorsi myocuteneous flap reconstruction, and (3) OPS (up to 35% breast tissue excision along with tumor having safe tumor-free margin plus reconstruction of indicated breast by VDC of OPS) with ipsilateral ALND. During the closure of the wound one drain tube was placed in the axillary wound and another in the chest wound. Immediate and early postoperative complications, along with preventive and emergency surgical measures taken were noted. Functioning drain tube was defined as the volume of drain from wounds >20 ml/24 hours. The drain was removed when the volume of drain is <20 ml/24 hours for 3 consecutive days and after examination of operated areas for no fluid collection. The duration of keeping the drain tube at operation fields was recorded in weeks. After receiving the histology report number of tumors, the maximum diameter of the tumor, the total number of ALNs removed and involved resection type, and results of immunohistochemistry were recorded. Pathological staging of BC was done according to the AJCC cancer staging manual (7th edition). Follow-up examinations were conducted 6 months for late complications, loco-regional recurrences and metastasis and state of breasts of OPS.

Statistical analysis was performed using IBM SPSS version 24. Mean was expressed as mean ± SD (minimum-maximum). Median values are also recorded to provide an accurate picture of distributions. Chi-square, T-test, and ANOVA and nonparametric tests were used to assess significance; p values <0.05 with 95% confidence interval considered statistically significant.

Result

Table 1: Summary statistics of sex, age, weight and height of patients.

Variable Name	Number of Subject (%)	Median	Mean ± SD (minimum-maximum)	p value
Sex				
Female	50 (98.03)			
Male	1 (1.96)			
Age in years	51 (100)	48 y	47.29±9.84 (28-76) y	
21-30	3 (7.84)			
31-40	14 (27.45)			
41-50	18 (35.29)			
51-60	12 (23.52)			
61-70	2 (3.92)			
71-80 y	2 (3.92)			
Premenopausal age group	17 (33.33)		36.29±4.25 (28-40) y	
Postmenopausal age group	34 (66.67)		52.79±6.66 (45-75) y	
Height	51 (100)	1.51 m	1.52±0.07 (1.4-1.78) m	
Below average ht	25 (49)	1.47 m	1.47±0.03 (1.4-1.5) m	<0.001
Average/Above average ht	26 (51)	1.56 m	1.57±0.06 (1.51-1.78) m	
Premenopausal below average ht	8 (15.69)	1.45 m	1.47±0.03 (1.43-1.5) m	<0.01
Postmenopausal below average ht	17 (33.33)	1.48 m	1.47±0.04 (1.4-1.5) m	
Premenopausal average /above average ht	9 (17.65)	1.54 m	1.56±0.04 (1.51-1.6) m	<0.01
Postmenopausal average /above average ht	17 (33.33)	1.56 m	1.57±0.07 (1.51-1.78) m	
Weight	51 (100)	59 kg	59.16±10 (35-103) kg	
Premenopausal group wt	17 (33.33)	55 kg	53.82±7.55 (35-66) kg	<0.001
Postmenopausal group wt	34 (66.67)	63 kg	61.82±11.0 (43-103) kg	

(kg = kilogram, ht = height, m = meter, wt = weight, y = year,)

Table 2: Summary statistics of BMI categories of the patients.

Variable Name	Premenopausal Age group (%)	Postmenopausal Age Group (%)	p value
BMI			
Underweight	2 (3.92)	1 (1.96)	
Healthy weight	10 (19.62)	7 (13.7)	< 0.01
Overweight	4 (7.84)	19 (37.25)	
Obese	1 (1.96)	7 (13.7)	

(BMI = Body mass index).

Table 3: Summary statistics of surgical treatment delay time (STDT)

Variable Name	Number (%)	Median (Days)	Mean ± SD (minimum-maximum) days	p value
Overall	5 1(100)	43	99.22±172.84 (3-1178)	
Premenopausal age	17 (33.33)	35	128.29±277.37 (7-1178)	< 0.001
Postmenopausal age	34 (66.67)	51.5	84.68±85.5 (3-378)	
Surgery-first group	41 (80.39)	38	49.05±37.68 (3-168)	<0.001
NAC-Surgery group	10 (19.6)	204	305±318.05 (116-1178)	
Premenopausal Surgery-first	14 (27.45)	33	44.5 ±38.32 (7-120)	<0.003
Postmenopausal Surgery-first	27 (52.94)	38	51.41±37.85 (3-168)	
Premenopausal NAC-Surgery	3 (5.88)	235	519.3±572.2 (145-1178)	> 0.12
Postmenopausal NAC-Surgery	7 (13.73)	173	213.14±98.9 (116-378)	

(NAC = Neoadjuvant chemotherapy)

The total number of patients was 51 of which 50 (98.03%) were female and 1 (1.96%) was male. The overall mean age of the patients was 47.29 ± 9.84 (28 - 75) years. The mean age of the pre-and post-menopausal age group was 36.29 ± 4.25 (28 - 40) and 52.79 ± 6.66 (45 - 75) years respectively. Three (7.84%) cases were observed between 21- 30 years of age, 14 (27.45%) cases between 31- 40 years old, 18 (35.29%) cases between 41 - 50 years old, 12 (23.52%) cases between 51- 60 years old, 2 (3.92%) cases each among 61 – 70 and 71 - 80 years old. The number of patients in the pre-and post-menopausal age group was 17 (33.33%) and 34 (66.67%) respectively (Table 1).

The mean height was 1.52 ± 0.07 (1.4 - 1.78) meters. The height of 25 (49%) patients was below average and 26 (51%) patients were average/above average. The mean height of the below and average/above average group were 1.466 ± 0.03 (1.4 - 1.5) and 1.57 ± 0.06 (1.51 – 1.78) meters respectively. The number of premenopausal patients with below-average and average/above average height was 8 (15.69%) and 9 (17.65%) and those of the postmenopausal group were 17 (33.33%) each respectively (Table 1). The difference was significant (Chi-square test, $p > 0.01$).

Overall median and mean weight of patients was 59 and 59.16 ± 10.59 (35 - 103) kg respectively. The mean weight of pre-and post-menopausal age group was 53.82 ± 7.55 (35 - 66) and 61.82 ± 10.97 (43 - 103) kg respectively (Table 1). The difference was significant (T-test, $p < 0.001$).

The mean BMI was 25.71 ± 4.47 (14.20 - 40.23) kg/m2. The mean BMI of underweight (n = 3), healthy (n = 17), overweight (n = 23), and obese (n = 8) group was 15.54 ± 1.35 (14.20 - 16.87), 22.77 ± 1.05 (20.82 - 24.44), 26.86 ± 1.44 (25 - 29.42) and 32.49 ± 3.31 (30.02 - 40.23) kg/m2 respectively. In premenopausal age group number of underweight, healthy weight, overweight and obese was 2 (3.92%), 10 (19.61%), 4 (7.84%) and 1 (1.96%) and those of postmenopausal age group was 1 (1.96%), 7 (13.73%), 19 (37.25%) and 7 (13.73%) respectively (Table 2). The difference was significant (Chi-square test, $p < 0.01$).

The median and mean STDT was 43 and 99.22 ± 172.84 (3 - 1178) days respectively. In pre- and post-menopausal groups the median STDT was 35 and 51.5 days and mean STDT was 128.29 ± 277.37 (7 - 1178) and 84.68 ± 85.5 (3 - 378) days respectively (Table 3). The difference was significant (t-test, $p < 0.001$). Total number of patients of Surgery-first group was 41 (80.39%) and of NAC-Surgery group was 10 (19.6%). In Surgery-first group median and mean STDT was 38 days and 49.05 ± 37.68 (3 - 168) days respectively, and of NAC-Surgery group was 204 days and 305 ± 318.05 (116 - 1178) days respectively (Table 3). The difference was significant (t-test, $p< 0.001$). The median and mean STDT of premenopausal surgery-first group (n = 14) was 33 and 44.5 ± 38.32 (7 - 120) days respectively and those of postmenopausal patients (n = 27) was 38 and 51.41 ± 37.85 (3 - 168) days respectively (Table 3). The difference was significant (t-test, $p < 0.003$). The median and mean STDT of premenopausal patients of NAC-Surgery group (n = 3) was 235 and 519.33 ± 572.19 (145 - 1178) days respectively and those of postmenopausal group (n = 7) was 173 and 213.14 ± 98.90 (116 - 378) days respectively (Table 3). The difference was not significant (One sample t-test, $p = 0.125$). Mean STDT of patients of stage IA (n = 6), stage IIA (n = 10), Stage IIB (n = 16), stage IIIA (n = 15), stage IIIC (n = 3), and stage IV (n = 1) were 78.67 ± 83.47 (7 - 235), 160.4 ± 358.73 (13 - 1178), 93.56 ± 101.77 (8 - 378), 83.53 ± 77.2 (3 - 303), 29.67 ± 23.69 (15-57), and 45 days respectively and median STDT of stage IA, IIA, IIB, IIIA, IIIC, and IV was 43, 41, 38, 68, 17, and 145 days respectively (Table 3). The differences were not significant (ANOVA, $p = 0.859$).

MRM was performed in 46 (90.19%) cases, VDC of OPS with ALND in 4 (7.84%) cases, and MRM with ipsilateral latissimus dorsi myocuteneous pedicle flap reconstruction in 1 (1.96%) case. Positive ALND was observed in 38 (74.5%) and negative in 13 (25.5%) cases. The median and mean tumor diameter were 3 and 3.121 ± 1.58 (1.16 -10) cm respectively. The most common immediate postoperative complication was MSFN. Full-thickness MSFN occurred in 8 (15.69%) cases of MRM. Surgical wounds of all cases were healed before the 30th POD. The median and mean duration of the functioning drain tube were 5.14 and 5.62 ± 2.26 (3.14 – 11.14) weeks respectively. In underweight, healthy, overweight, and obese mean duration of keeping drain tubes was 4.38 ± 1.54 (3.3 – 6.14), 3.66 ± 0.45 (3.14 – 4.7), 6.06 ± 1.78 (3.14 – 8.57), and 9.01 ± 1.29 (7.85 – 11.14) weeks respectively. Duration of keeping drain tubes in the operation fields was significantly longer in obese than other BMI groups (ANOVA, $p < 0.001$). All OPS patients indicated enlargement of the operated breasts.

Discussion

BC occurs mostly in females, it is rare in males. The incidence of male BC rate is 0.5-1% (Sundrial, Deepak, et al, 1). A higher percentage (1.96%) of male BC is observed in this series. The sample size was too small to draw any conclusion. Among BC patients pre-and post-menopausal cases were 33.33% and 66.67% respectively. A similar result was observed in another study (Leong, P. L. Stanlay, et al, 2310).

This study indicated 3 peaks of BC at the age 41 - 50, 31 - 40, and 51 - 60 years ranges respectively. A similar result is observed in another study (Chopra, Brinder, et al, 528).

The mean height of the patients was 1.517 meters which is similar to another regional study (Pathak, Puja, and Anup Adhikari, 111). This study observed the association of height and BC in the post-menopausal group. One study indicated height has a significant positive association for postmenopausal BC and is less clear in premenopausal height ≥ 1.75 meters (Van den Brandt, Piet, et al, 517). It is clearly evident that the average height of Bangladeshi women is much less than that of American and European women and the sample size of this study was too small to draw any conclusion. Relative risk assessment of BC in relation to the height of Bangladeshi women is indicated.

This study observed overall median and mean weight was around 59 kg, the mean weight of premenopausal women was 53.82 kg, and of postmenopausal women was 61.82 kg. A similar result was observed in another study (Pathak, Puja, and Anup Adhikari, 111). Relative risk assessment for bodyweight to BC incidence is yet to be determined for Bangladeshi women.

The overweight and obese of the pre-menopausal age group were 7.84% and 1.96%, and those of the post-menopausal age group were 37.25% and 13.73% respectively. The difference was significant ($p <$

0.01). Inverse association of BC and overweight-obese category BMI had also been observed in premenopausal women in other studies and that higher BMI could be a protective factor in the premenopausal age group (Liu, Kang, et al, 147). This study observed a positive association of overweight and obese with BC in postmenopausal women which were similar to another study (Van den Brandt, Piet, et al, 519).

This study observed that the majority of patients were punctual and the median STDT of the surgery-first group was 38 days which were shorter than that of Brazilians (Formigheri, Alessandra, et al, 206) and similar to UK STDT (Ho, Peh Joo, et al, 2436). The mean STDT of the NAC-Surgery group was 305 days indicating an unusually long delay and the majority of patients neglected punctuality of treatment. One study indicated that mean treatment delay time from diagnosis to 1st cycle NAC should be 36 days (Melchior, Nicoli M, et al, 2744), NAC commonly continued for 90 days to achieve tumor volume reduction response (Selli, Cigdem, and Andrew H Sims, 2), the median time between NAC and surgery should be 28 days, time for preoperative assessment should be 7 days, and chemotherapy side effect may delay surgery for 8 days (Müller, Carolin, et al, 1058). Thus ideal STDT of NAC-Surgery patients should be 170 days. The exact causes of unusual long STDT should be identified and addressed in cases of locally advanced BC patients because it was observed that if the interval between NAC and surgery is >8 weeks OS might worsen (All-Hilli Zahraa, and Judy C Boughey, 4). The observed delay might be due to patients economic constrain from the spending of chemotherapy and failure to mobilize resources for surgery, failure to understand the complexity of treatment, compromised punctuality and patience, neglect including indifference of family members towards women, women's lack of power to utilize resources, and reduced support from the family (Steiness, Heather Story, et al).

The overall mean and median STDT according to the clinical stage I, II, III, and IV of this study did not indicate any significant difference. Similar results had also been observed in another study (Formigheri, Alessandra, et al, 209).

Ninety percent patients of the NAC-Surgery group had multiple ipsilateral positive axillary lymph nodes and all were class II or III RCB. The mean number of positive ALNs of Surgery-first and NAC-Surgery was 3.61 and 5.8 respectively with significant differences ($p < 0.001$). Another study observed decreased number of positive ALNs in BC patients receiving NAC (Neuman, Heather, et al, 1). The increased number of positive LNs in the NAC-Surgery group of this study might be due to longer STDT causing regain of loco-regional tumor progression.

In this study all were symptomatic BC patients; the majority (90%) operations were MRM and 8% of cases were OPS. MRM is performed on approximately 50% of the women with symptomatic BC in the UK (Robertson, Stuart A, et al, 141). Another study indicated mastectomy rate was 29% of BC patients (Clough, Krishna B, et al, 3504) and the OPS rate was 92% (Clough, Krishna B, et al, 165). All cases of

BC surgery of this series had ALND. Routine ALND was also observed in another study (Abass, Mohamed O, et al, 1). The median and mean pathological tumor size of this series was 3 cm and 3.121 ± 1.58 (1.16-10) cm respectively and 88.2% of patients had single tumors indicating that majority of BC patients were potential candidates for OPS. Thus OPS should be a potential and sustainable procedure from a local perspective. A similar result was observed in another study (Moustafa, Ahmed, and Ibrahim Fakhr, 205). An Italian study indicated that tumors up to 3 cm diameter could be safely removed by OPS (Bertozzi, Nicolo, et al, 2579). MSFN occurred in 15.69% of cases of this series. Incidence of MSFN ranging from 5% to 30% was observed in other studies (Robertson, Stuart A, et al, 141). MSFN and wound breakdown could cause delayed wound healing and adjuvant therapy although it is imperative to start adjuvant chemotherapy or radiation therapy as soon as possible. Some guidelines indicated that chemotherapy should ideally be started within 2 - 6 weeks of surgery (Robertson, Stuart A, et al, 143). Incidences of MSFN were observed at the beginning of this study. All MSFN was detected within the 4th POD, subsequently managed by immediate wound debridement and skin closure. As a result, the wound was healed within 30th POD and patients were ready for timely adjuvant therapy. In earlier MRMs of this study, there had been a tendency to preserve more breast skin, which may be another factor behind increased incidences of MSFN. In later cases, optimization of mastectomy skin flap thickness to 5 - 10 mm with minimum spars and adapting transverse elliptical incision and skin closure without tension using 3-0 polyglactin-910 interrupted subcutaneous sutures and intradermal continuous 4-0 poliglecaprone-25 sutures, and placing an additional low-pressure continuous suction drain below the flaps decreased incidence of MSFN. This study observed that removal of drain tube required >60 days in obese which could be an unavoidable delay of starting adjuvant therapy.

This study observed node-negative axillae in 25.49% of cases. SLNB is the standard care in such cases and clinically node-negative BC has similar progression-free survival compared to ALND. The recommendation is not to perform ALND on patients with clinically node-negative stage I and II breast cancer but SLNB. If SLNB indicated node negativity there is no need for ALND, thus avoiding lymphedema of the upper limb and shoulder pain (Yen, Tina W. F et al, 79). Availability of resources like the establishment of frozen section histology laboratory within the vicinity of OT complex, automated rapid transport system from OT to the histology laboratory is indicated. OT should be equipped with either a hand-held gamma camera system or an Indigo Cyanine Green high-resolution infrared fluorescence camera system for preoperative localization of the sentinel lymph node. Patent blue-violet or methylene blue injection can be used in low-resource OT settings.

Incidence of postoperative late complication of the ipsilateral upper limb is observed in 77% of cases of this study. Similar incidence (82%) of postoperative late complications in the form of limb swelling, pain and restricted shoulder movement was also observed in cases of MRM in another study (Brar, Preetinder, et al, 126). OPS with ALND patients are under evaluation and it is evident that

enlargement of the indicated breast occurred regularly. Follow-up of OPS with ALND patients after completion of adjuvant therapy indicated operated breasts were enlarged which was a routine phenomenon of ALND (Figure 1 and 2).

Figure 1: Patient 50 years old with invasive ductal carcinoma left breast (pT1N0Mx) at 11 and 12 O'clock position 12 months after OPS with ALND. Operated breast is larger than the normal right breast.

Figure 2: 38 years old patient with previous R1 resection of invasive ductal carcinoma of left breast (pT1N1Mx stage) at 1-2 O'clock position 2 months after OPS with ALND. Left breast was enlarged due to lymphedema. Patient's left hand and fingers also swollen.

On the other hand breast asymmetry resulting from VDC of OPS producing smaller operated cancer bearing breast is a routine phenomenon (Figure 3), explaining the reason of introduction of routine reduction mammoplasty component to contralateral normal breast (Kaufman, Cary S, 6).

Figure 3: Appearance of the operated left breast on 35th POD of OPS of a 55 years old patient. The tumor was at 11-12 O'clock position with pT2N1Mx stage. Operated breast is smaller than the normal counterpart.

Thus ipsilateral ALND might be an alternative to routine reduction mammoplasty of the contralateral normal breast for symmetrization because it was the cause of enlargement of the operated cancer bearing breast.

Conclusions

Majority of premenopausal breast cancer patients belonged to the healthy weight category and those of postmenopausal patients to the overweight and obese category. Maybe premenopausal women should remain overweight and obese to prevent the development of breast cancer and postmenopausal women should change to a healthy weight. Timely surgical treatment (punctuality) was observed among the majority of breast cancer patients except those who were receiving neoadjuvant chemotherapy. The cause of unusual delay of neoadjuvant chemotherapy patients might be financial constraints because the patient has to purchase costly drugs and other causes should be identified to improve surgical treatment delay time in locally advanced cases. Modified radical mastectomy was appropriate for the majority of symptomatic breast cancer patients through the majority were potential candidates for oncoplastic surgery. There was the possibility to avoid axillary lymph node dissection of a good number of lymph node-negative patients and SLNB positive patients could undergo axillary lymph node dissection if sentinel lymph node biopsy is introduced with the establishment of routine frozen section histology laboratory within the vicinity of the operation theater complex. Operation theaters

should be equipped with instruments for the detection of the sentinel lymph node. The majority of BC patients were possible candidates for oncoplastic surgery which could be a major surgical option for Bangladeshi breast cancer patients if they uplifted aesthetic aspect. When ipsilateral axillary lymph node dissection is indicated along with oncoplastic surgery immediate correction of asymmetry should be withheld.

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References

1.Abass, Mohamed O, et al. "Axillary Lymph Node Dissection for Breast Cancer: Efficacy and Complications in Developing Countries." Journal of Global Oncology, vol. 4, 2018, pp. 1-8. htpps://doi.org/10.1200/JGO.18.00080.

2.All-Hilli, Zahraa, and Judy C. Boughey. "The Timing of Breast and Axillary Surgery After Neoadjuvant Chemotherapy for Breast Cancer. " Chinese Clinical Oncology, vol. 5, no. 3, 2016, pp. 11. https://doi.org/10.21037/cco.2016.03.26.

3.Bertozzi, Nicolo, et al. "Oncoplastic Breast Surgery: Comprehensive Review. " European Review for Medical and Pharmacological Sciences, vol. 21, no. 11, 2017, pp. 2572-2585. PMID: 28673828.

4.Bleicher, Richard J. "Timing and Delays in Breast Cancer Evaluation and Treatment. " Annals of Surgical Oncology, vol. 25, no. 10, 2018, pp. 2829-2838. https://doi.org/10.1245/s10434-018-6615-2.

5.Bostock, Bill. "Ranked: The Countries with the Tallest People in the World. " Insider, 2019. https://www.insider.com/tallest-people-world-countries-ranked-2019-6. ---, "Ranked: The Countries with the Shortest People in the World." Insider, 2019. https://insider.com/shortest-people-in-world-by-country-2019-6.

6.Brar, Preetinder, et al. "Complications of Axillary Lymph Node Dissection in Treatment of Early Breast Cancer: A Comparison of MRM and BCS." Indian Journal of Surgical Oncology, vol. 2, no. 2, 2011, pp. 126-132. https://doi.org/10.1007/s13193-011-0078-2.

7.Chopra, Brinder, et al. “Age shift: Breast Cancer is Occurring in Young Age Group – Is It True?” Clinical Cancer Investigation Journal, vol. 3, no. 6, 2014, pp. 526-529. htpps://doi.org/10.4103/2278-0513.142652.

8.Clough, Krishna B, et al. “Rates of Neoadjuvant Chemotherapy and Oncoplastic Surgery for Breast Cancer Surgery: A French National Survey. ”Annals of Surgical Oncology, vol. 22, no. 11, 2015, pp. 3504-3511. https://doi.org/10.1245/s10434-015-4373-6.

9.Clough, Krishna B, et al. Long-term Results after Oncoplastic Surgery for Breast Cancer: A 10 Years Follow-up. ”Annals of Surgery, vol. 268, no. 1, 2018, pp. 165-171. https://doi.org/10.1097/SLA.0000000000002255.

10.Formigheri, Alessandra, et al. “Analysis of Time Interval between Breast Cancer Diagnosis and Treatment. ” Mastology, vol. 28, no. 4, 2018, pp. 206-211. https://doi.org/10.29289/2594539420180000403.

11.Ho, Peh Joo, et al. “Impact of Delayed Treatment in Women Diagnosed with Breast Cancer: A Population-based Study” Cancer Medicine, vol. 9, no. 7, 2020, pp. 2435-2444. https:/doi.org/10.1002/cam4.2830.

12.Kaufman, Cary S. Increasing Role of Oncoplastic Surgery for Breast Cancer. ” Current Oncology Report, vol. 21, no. 111, p. 10. https://doi.org/10.1007/s11912-019-0860-9.

13.Leong, P. L. Stanlay, et al. “Is Breast Cancer the Same Disease in Asian and Western Countries?” World Journal of Surgery, vol. 34, no. 10, 2010, pp. 2308-2324. https://doi.org/10.1007/s00268-010-0683-1.

14.Liu, Kang, et al. “Association between Body Mass Index and Breast Cancer Risk: Evidence Based on a Dose-Response Meta-analysis. ” Cancer Management and Research, vol. 10, 2018, pp. 143-151. htpps://doi.org/10.2147/CMAR.S144619.

15.Melchior, Nicole M, et al. “Treatment Times in Breast Cancer Patients Receiving Neoadjuvant vs Adjuvant Chemotherapy: Is Efficiency a Benefit of Preoperative Chemotherapy?” Cancer Medicine, vol. 9, no. 8, 2020, pp. 2742-2751. https://doi.org/10.1002/cam4.2912.

16.Moustafa, Ahmed and Ibrahim Fakhr. “Outcome of Different Oncoplastic Surgical (OPS) Techniques for Centrally Located Breast Cancer (CLBC). ” Journal of Egyptian National Cancer Institute, vol. 26, no. 4, 2014, pp. 203-209. https://doi.org/10.1016/j.jnci.20144.10.003.

17.Mùller, Carolin, et al. “Factor Influencing the Time to Surgery after Neoadjuvant Chemotherapy in Breast Cancer Patients. ” Archives of Gynecology and Obstetrics, vol. 301, no. 4, 2020, pp. 1055-1059. https://doi.org/10.1007/s00404-020-05494-6.

18.Neuman, Heather, et al. “Axillary Lymph Node Count is Lower after Neoadjuvant Chemotherapy. ” American Journal Surgery, vol. 191, no. 6, 2006, pp. 827-829. https://doi.org/10.1016/j.amjsurg.2005.08.041.

19.Pacholezak, Renata, et al. “Association of Anthropometric Measures on Breast Cancer Risk in Pre- and Post-menopausal Women – A Case Control Study. ” Journal of Physiological Anthropology, vol. 35, no. 7, 2016, pp. 10. https://doi.org/10.1186/s40101-016-0090-x.

20.Pathak, Puja, and Anup Adhikari. “Body Composition and Nutritional Status of Bengali Women Migrated from Bangladesh and Living in the Slums Built Near Railway Tracks in West Bengal, India. ” International Journal of Science and Research Methodology, vol. 10, no. 3, 2018, pp. 107-114.

21.Ringa, Virginie. “Menopause and Treatments. ” Quality of Life Research, vol. 9, no. 1, 2000, pp. 695-707. htpps://doi.org/10.1023/A:1008913605129.

22.Robertson, Stuart A, et al. “Mastectomy Skin Flap Necrosis: Challenges and Solutions. ” Breast cancer – Targets and Therapy, vol. 7, no. 9, 2017, pp. 141-152. https://doi.org/10.2147/BCTT.S81712.

23.Selli, Cigdem, and Andrew H. Sims. “Neoadjuvant Chemotherapy for Breast Cancer as a Model for Translational Research.” Breast Cancer: Basic and Clinical Research, vol. 13, 2019, pp. 1-7. https://doi.org/10.1177/1178223419829072.

24.Steiness, Heather Story, et al. “Barriers to Care for Women with Breast Cancer Symptoms in Rural Bangladesh. ” Health Care for Women International, vol. 39, no. 5, 2018, pp. 536-554. https://doi.org/10.1080/07399332.2018.1446958.

25.Sundriyal, Deepak, et al. “Male Breast Cancer in India: Series From a Cancer Research Centre. ” Indian Journal of Surgical Oncology, vol. 6, no. 4, 2015, pp. 384-386. https://doi.org/10.1007/s13193-015-0473-1.

26.Van den Brandt, Piet A, et al. “Pooled Analysis of Prospective Cohort Studies on Height, Weight, and Breast Cancer Risk.” American Journal of Epidemiology, vol. 152, no. 6, 2000, pp. 514-527. https://doi.org/10.1093/aje/152.

27.World, Disabled. “Height Chart of Men and Women in Different Countries. ” Disabled World, 2017, Retrieved December 8, 2021. https://www.disabled-world.com/calculators-charts/height-chart.php.

28.Yen, Tina W. F, et al. “Prevalence and Consequences of Axillary Node Dissection in the Era of Sentinel Lymph Node Biopsy for Breast Cancer. ” Cancer Medical Care, vol. 56, no. 1, 2018, pp. 78-84. https://doi.org/10.1097/MLR.0000000000000832.