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Complications after Oncoplastic Breast Reduction and Impact on Time to Adjuvant Therapy

Micaela Moen, MD
Tripp Holton, MD
Angelina Phung
Shivani Badve, MD
Charles Mylander, PhD
Thomas Sanders, PhD
Margaret Pauliukonis, MD
Rubie Sue Jackson, MD, MPH

Background: Although lumpectomy with oncoplastic breast reduction (OBR) improves cosmetic results and ameliorates symptomatic macromastia, associated complications may delay adjuvant therapy.
Methods: This was a single-institution, retrospective study of OBRs (2015–2021). A major complication was defined as need for IV antibiotics, and/or operation under general anesthesia. Association of complications with delay to adjuvant therapy (chemotherapy, radiation) was assessed.
Results: In total, 282 patients were included. The major complication rate was 3.9%, and overall complication rate was 31.2%. The most common complication was incisional dehiscence (23.4%). Body mass index [BMI >35 ($P < 0.0001$)], diabetes ($P = 0.02$), and HgbA1c [>6.5 ($P = 0.0002$)] were significantly associated with having a major complication. The occurrence of any complication was associated with a delay in time to radiation (median 7 versus 8 weeks, $P < 0.001$). The occurrence of a major complication was associated with a more meaningful delay to radiation (median 7 versus 15 weeks, $P = 0.002$). Occurrence of any complication, or a major complication, was not associated with delay to chemotherapy.
Conclusions: The overall complication rate observed after OBR falls within the range reported in the literature. Patients with a BMI more than 35, diabetes, and/or HgbA1c more than 6.5 were at increased risk for a major complication, which was associated with a meaningful delay to radiation. Consideration may be given to partial mastectomy alone without oncoplastic reduction in patients with small tumors when the priority to avoid radiation delay is high (eg, high-risk tumors), or the risk of delay is high (eg, diabetic or BMI >35). *(Plast Reconstr Surg Glob Open 2024; 12:e6010; doi: 10.1097/GOX.0000000000006010; Published online 30 July 2024.)*

INTRODUCTION

Breast conserving therapy has significantly improved breast cancer management.[1] For patients with concomitant macromastia, lumpectomy with oncoplastic breast reduction (OBR) is a safe and effective means of providing appropriate cancer therapy and relief from macromastia symptoms.[2–4] OBR allows for resection of larger tumors that might otherwise have been managed with mastectomy. In addition, women with macromastia who undergo lumpectomy without oncoplastic reduction often have worse cosmetic results due to less homogeneous dose distribution of radiotherapy in larger breasts.[5] Losken et al showed that OBR has improved patient-reported outcomes.[6] Oncoplastic surgery has improved BCS by allowing for better cosmetic outcomes, reducing re-excision rates, and allowing for larger resections.[7–9]

More complex procedures such as OBR might increase the risk of complications and delay subsequent treatment. Radiation is critical to the efficacy of breast conservation, and delay in radiation therapy can adversely affect local recurrence.[10–13] Although there is no clear consensus on the definition of a delay, a commonly accepted cut-off after which recurrence can increase is a delay greater than 12 weeks.[10–13]

There have been concerns that complications from oncoplastic reduction may cause delays to adjuvant radiation regimens or chemotherapy.[10,14] Although studies show that complication rates are similar between conventional BCS and oncoplastic surgery, these studies included a wide range of oncoplastic procedures.[8,15] Studies focusing solely on concurrent bilateral Wise-pattern reductions found that there can be significant incisional dehiscence

From Rebecca Fortney Breast Center, Anne Arundel Medical Center, Luminis Health, Annapolis, Md.

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requiring prolonged wound management that could cause delays.[14,16]

Our study aimed to determine the complication rate of the Wise-pattern OBR procedure and identify to what extent complications delay adjuvant treatment, such as chemotherapy or radiation. A secondary goal was to identify patient-specific risk factors for complications.

METHODS

This is an institutional review board–approved, single-institution, retrospective analysis of patients with breast cancer who underwent OBR from 2015 to 2021. All oncoplastic reductions were done with Wise-pattern incisions and were performed concurrent to partial mastectomy. Complications were ascertained by review of electronic medical records. Nearly all patients (276 of 282) had a contralateral symmetry procedure. The complications from both breasts were included, and analyses were performed on a per-patient basis. Subset analysis was performed on each group of patients based on whether they underwent adjuvant radiation or chemotherapy as their next stage of treatment. The time to the next stage of treatment was counted as weeks from surgery to initiation of radiation or chemotherapy.

We looked at risk factors such as age, hypertension, body mass index (BMI), diabetes, HgbA1c level within 90 days of surgery, smoking status, patient-reported cup size, breast specimen total weight (in grams), sternal notch to nipple distance (average of two breasts), number of lymph nodes removed, and if the patient received neoadjuvant chemotherapy. The specimen total weight from each breast was calculated and included the partial mastectomy specimen and reduction specimens. The heaviest total specimen weight of the two breast sides was used for analysis. Exclusion criteria included patients who had previous breast surgery, including lumpectomies, prior reduction or augmentation, and prior radiation.

The outcomes assessed included major and minor complications as well as time to adjuvant therapies. A major complication was defined as the need for IV antibiotics, and/or return to the operating room. Minor complications included breast seroma, wound infection (including erythema or abscess formation treated with antibiotics or incision and drainage without general anesthesia), incisional dehiscence (superficial wound dehiscence requiring serial in-office debridement or dressing changes), skin flap necrosis, and nipple necrosis. We assessed the relationship of risk factors to the occurrence of these complications. The Mann-Whitney test was used to compare median weeks to radiation and chemotherapy for those with and without various complications. We also looked at the number of patients with a delay to radiation of more than 12 weeks. The Fisher exact test was used to identify significant associations between major complications and incisional dehiscence, and the various patient characteristics. Specimen weight and notch-to-nipple length were categorized into quartiles for this analysis. To assess for independent risk factors for major complication, multivariate logistic regression was used, incorporating potential risk factors with a P value of less than 0.4 from the univariate analysis. Potential risk factors with more than 10% of patients' missing data were not included in the logistic regression because this would affect statistical significance.

Takeaways

Question: Do complications after oncoplastic breast reduction impact time to adjuvant therapy?

Findings: Patients who experienced a major complication led to a significant delay to adjuvant radiation; however, there was no delay to adjuvant chemotherapy. Risk factors for a major complication are body mass index of more than 35, diabetes, and Hgb A1c more than 6.5.

Meaning: Careful patient selection, preoperative optimization, and involvement of a multidisciplinary team should be considered to decrease the risk of a major complication following oncoplastic breast reduction and ensure better oncologic outcomes.

RESULTS

Patient Characteristics

From 2015 to 2021, 290 patients underwent lumpectomy with OBR. Eight patients were excluded due to loss to follow-up of less than 90 days. Full demographic and clinical characteristics for each patient are seen in Table 1. Most of the patients were between 51 and 65 years old and had a BMI of 35 or less. Thirty three percent of patients had a BMI of more than 35, 11% had diabetes, 2.8% of patients had a reported HgbA1c of more than 6.5, 20% had hypertension, 7% were current cigarette smokers, 17% received neoadjuvant chemotherapy, and 62% had a sternal notch-to-nipple distance of more than 28.5 cm.

Overall Complications

The overall complication rate was 31.2% ($n = 88/282$). Of the 88 patients who had complications, 77 were on the breast with malignancy (Table 2). The most common complication was incisional dehiscence (23.4%, $n = 66/282$). Hypertension ($P = 0.013$), BMI >35 ($P = 0.011$) and a longer notch-to-nipple distance ($P = 0.006$) were associated with incisional dehiscence (Table 3). Seventy-seven patients (27.3%) experienced a minor complication. Only a small number of patients experienced skin flap or nipple necrosis (2.8% and 3.2% respectively, $n = 8/282$ and $n = 9/282$). This included partial and full thickness necrosis. Thirty-one patients (11%) were noted to have a wound infection.

Major Complications

The major complication rate was 3.9% ($n = 11/282$). The risk factors for major complications from univariate analysis are displayed in Table 4. A BMI greater than 35 ($P < 0.0001$) and diabetes ($P = 0.02$) were significantly associated with having a major complication. HgbA1c more than 6.5 within 90 days of surgery was associated with having a major complication with four out of eight having a major complication. The chi-square test identified

Table 1. Prevalence of Risk Factors for All Patients (282)

Patient Characteristics	
Age (y)	
≤50	75 (26.6%)
51–65	138 (48.9%)
66–75	61 (21.6%)
>75	8 (2.8%)
BMI	
≤35	188 (66.7%)
>35	94 (33.3%)
Breast cup size	
Unknown	47 (16.7%)
B	14 (4.96%)
C	59 (20.9%)
D	69 (24.5%)
E	59 (20.9%)
F	17 (6.03%)
G	17 (6.03%)
Weight of the heaviest of the two breast specimens (g)	
≤224.375	70 (24.8%)
224.376–373	71 (25.2%)
373.1–645.6	71 (25.2%)
>645.6	70 (24.8%)
Notch to nipple length (cm)	
≤24.5	13 (4.6%)
24.6–28.5	73 (25.9%)
28.6–32.0	74 (26.2%)
> 32.0	67 (23.7%)
Unknown	55 (19.5%)
Diabetes	
Yes	30 (10.6%)
No	252 (89.4%)
Recent HgbA1C	
≤6.5	10 (3.5%)
>6.5	8 (2.8%)
Unknown	264 (96.6%)
Hypertension	
Yes	57 (20.2%)
No	225 (79.8%)
Smoker	
Yes	20 (7.09%)
No	259 (91.8%)
Unknown	3 (1.1%)
Neoadjuvant chemotherapy	
Yes	49 (17.4%)
No	233 (82.6%)
No. lymph nodes removed	
0	37 (13.1%)
1	45 (16.3%)
2	76 (26.9%)
3	53 (18.8%)
4	31 (11.0%)
5	14 (5.0%)
>5	26 (9.2%)

the same characteristics as significant as the Fisher exact test. In the multivariate logistic regression analysis, BMI of more than 35 (0.01) and diabetes (0.03) remained independently associated with experiencing a major complication. HbA1c was not included in the logistic regression model because these data were missing for most patients.

Table 2. Complication by Type for All 282 Patients

Complication	n (%)
Any complication	88 (31.2%)
Major complication	11(3.9%)
Readmission/IV antibiotics	(1.4%)
Operative with general anesthesia	7 (2.5%)
Minor complication	77 (27.3%)
Breast seroma	5 (1.8%)
Wound infection	31 (11.0%)
Incisional dehiscence	66 (23.4%)
Skin flap necrosis	8 (2.8%)
Nipple necrosis	9 (3.2%)
Ipsilateral complication	77 (27.3%)
Contralateral complication	11 (3.9%)

Ten of the 11 patients with a major complication (91%) had BMI of more than 35 (11.9% of patients with BMI >35 had a major complication). Seven of the patients who had a major complication required return to the operating room for debridement, and four required readmissions for IV antibiotics. One patient required a full-thickness skin graft to their breast wound. Another patient required incision and drainage of an abscess with removal of an implantable bioabsorbable marker (BioZorb™) which had begun to erode through the skin. Of note, BioZorb was placed in 11 patients in this study as a means of marking the lumpectomy site; the same breast surgeon performed all of these procedures.

Delays to Adjuvant Therapy

Of the 282 patients, the next treatment step was radiation for 173 (61.3%) and chemotherapy for 77 (27.3%). Ten of the 11 patients who had a major complication received adjuvant radiation and/or chemotherapy. Six of these patients had radiation as their next form of therapy with a median time to radiation of 14.5 weeks (Table 5). Four of these patients had chemotherapy as their next form of therapy with a median time to chemotherapy of 6.5 weeks (Table 6).

The occurrence of a minor complication was associated with a small delay in time to radiation (median 7 versus 8 weeks, $P < 0.001$; Fig. 1). The occurrence of a major complication was associated with a more substantial delay to radiation (median 7 versus 15 weeks, $P = 0.002$; Fig. 1). The patients with skin flap or nipple necrosis experienced a median of 11-week interval from surgery to radiation ($n = 6$). Of the 173 patients who had adjuvant radiation, 13 had a delay to radiation > 12 weeks. Eight of these 13 patients had wound complications (62%), three of which were noted to have a major complication (23%). All of these wound complications were on the ipsilateral breast cancer side. One patient with a delay to radiation had no documented complications but had a delay due to obtaining radiation at an outside facility. One patient experienced delay due to a shoulder injury, not related to surgery, disrupting range of motion required to undergo radiation. Three patients did not have a clear reason for delay. Upon chart review, none of the 13 patients with a delay of more than 12 weeks

Table 3. Risk Factors for Incisional Dehiscence

Variables	Incisional Dehiscence? No		Incisional Dehiscence? Yes		*P*
Age (≤50 versus >50)	216	76.6%	66	23.4%	0.875
≤ 50	57	76.0%	18	24.0%	
> 50	159	76.8%	48	23.2%	
BMI (≤35, >35)	216	76.6%	66	23.4%	**0.011**
≤ 35	153	81.4%	35	18.6%	
> 35	63	67.0%	31	33.0%	
Breast cup size (B, C, D; E, F, G)	179	76.2%	56	23.8%	0.534
B, C, D	106	74.6%	36	25.4%	
E, F, G	73	78.5%	20	21.5%	
Weight of the heaviest of the two breast specimens	216	76.6%	66	23.4%	0.417
≤ 645.6 g	165	77.8%	47	22.2%	
>645.6 g	51	72.9%	19	27.1%	
Notch to nipple average length ≤28.5 versus >28.5	163	71.8%	64	28.2%	**0.006**
≤28.5	71	82.6%	15	17.4%	
>28.5	92	65.2%	49	34.8%	
Diabetes	216	76.6%	66	23.4%	0.494
No	191	75.8%	61	24.2	
Yes	25	83.3%	5	16.7%	
Recent HgbA1C (≤6.5, >6.5, unknown)	216	76.6%	66	23.4%	0.082
≤6.5	10	100%	0	0%	
>6.5	5	62.5%	3	37.5%	
Unknown	201	76.1%	63	23.9%	
Hypertension	225	79.8%	57	20.1%	**0.013**
No	180	83.3%	36	16.7%	
Yes	45	68.2%	21	31.8%	
Smoker	215	77.1%	64	22.9%	0.786
No	200	77.2%	59	22.8%	
Yes	15	75.0%	5	25.0%	
Neoadjuvant chemotherapy	216	76.6%	66	23.4%	0.357
No	181	77.7%	52	22.3%	
Yes	35	76.4%	14	28.6%	
No. lymph nodes removed (≤2, >2)	216	76.6%	66	23.4%	0.479
≤2	118	74.7%	40	25.3%	
>2	98	79.0%	26	21.0%	

P < 0.05 is considered significant and appears in boldface.

to starting radiation have had a locoregional or distant recurrence over a median follow-up of 48 months (range 36–84 months). The occurrence of neither a minor nor a major complication was associated with delay to initiating chemotherapy (Table 6).

DISCUSSION

Complications and Risk Factors

The oncologic safety of oncoplastic breast surgery is well established.[17–19] As this becomes the standard practice and a very desirable option for many patients, it is important to weigh the risks of potential adjuvant treatment delay against the benefits of cosmesis, and to identify patients who are at high risk for complications.

At our institution, the overall complication rate for OBR from 2015 to 2021 was 31.2%. Review of the literature indicates an overall complication rate ranging from 11% to 43.7%.[4,14,20–22] Obesity and hypertension were previously found to be risk factors for complications after breast surgery.[20,23] In our study, hypertension was found to be associated with incisional dehiscence. This may reflect a vascular pathology and not a direct effect of hypertension. More importantly, we identified a BMI of more than 35, diabetes, and HbA1c more than 6.5 as significant risk factors for major complications (Table 3).

In contrast to our findings, two smaller studies reported no association between diabetes or BMI and postoperative complications after OBR.[22] The discrepancy with the present findings may result from a larger population in our study, giving greater power to analyze risk factors for complications. In addition, both studies reported that most of their patients had an abnormal BMI, so there was not a good control. Both diabetes and obesity are established risk factors for surgical site complications across a variety of general surgery procedures.[24–27]

Although many studies support a link between cigarette smoking and complications after breast surgery, we did not find active cigarette smoking status to be associated with an increased risk of complications or delay to adjuvant therapy.[28] This is likely due to the small number of smokers in this cohort.

A pathway for optimizing glycemic control perioperatively might improve outcomes for diabetic patients

Table 4. Risk Factors for Major Complications

Variables	No Major Complication		A Major Complication		*P*
	n	%	*n*	%	
Age (≤ 50 versus >50)	271	96.1%	11	3.9%	1.00
≤ 50	72	96.0%	3	4.0%	
> 50	199	96.1%	8	3.9%	
BMI (≤ 35 versus > 35)	271	96.1%	11	3.9%	**<0.0001**
≤ 35	187	99.5%	1	0.5%	
> 35	84	89.4%	10	10.6%	
Breast cup size (B, C, D; E, F, G)	271	96.1%	11	3.9%	0.136
B, C, D	139	97.9%	3	2.1%	
E, F, G	132	94.3%	8	5.7%	
Weight of the heaviest of the two breast specimens	271	96.1%	11	3.9%	0.148
≤ 645.6 g	206	97.2%	6	2.8%	
>645.6 g	65	92.9%	5	7.1%	
Notch to nipple average length ≤28.5 versus >28.5	216	95.2%	11	4.8%	0.540
≤28.5 cm	83	96.5%	3	3.5%	
>28.5 cm	133	94.3%	8	5.7%	
Diabetes	271	96.1%	11	3.9%	**0.020**
No	245	97.2%	7	2.8%	
Yes	26	86.7%	4	13.3%	
Recent HgbA1C (≤6.5, >6.5, unknown)	271	96.1%	11	3.9%	**0.0002**
≤6.5	10	100%	0	0%	
>6.5	4	50%	4	50%	
Unknown	257	97.4%	7	2.6%	
Hypertension	271	96.1%	11	3.9%	1.00
No	216	96.0%	9	4.0%	
Yes	55	96.5%	2	3.5%	
Smoker	268	96.1%	11	3.9%	1.00
No	248	95.8%	11	4.2%	
Yes	20	100%	0	0%	
Neoadjuvant chemo	271	96.1%	11	3.9%	1.00
No	224	96.1%	9	3.9	
Yes	47	95.9%	2	4.1%	
No. lymph nodes removed (0,1,2,3,4, >4)	271	96.1%	11	3.9%	0.519
0, 1	80	97.6%	2	2.4%	
2, 3, 4	191	95.5%	9	4.5%	

$P < 0.05$ is considered significant and appears in boldface.

undergoing OBR. Of the 30 diabetic patients, only 11 had a documented HgbA1c within 90 days of surgery. Optimization of diabetes and correction of HgbA1c can take about 3 months,[29] which could impact timeliness of breast cancer care. Neoadjuvant endocrine therapy may be a consideration to allow for time to achieve improved glycemic control. For patients undergoing neoadjuvant chemotherapy, attention should be given to optimizing glycemic control during the neoadjuvant period. Other considerations include omission of intraoperative steroids for diabetic patients and engaging a multidisciplinary team to assist the patient in improving their HgbA1c before surgery.[28] Laboratory screening for diabetes might be considered in at-risk patients.[29]

Several studies have failed to demonstrate increased complications of breast surgery after neoadjuvant chemotherapy.[30,31] Adamson et al went further, reporting no increased risk of complications or delay to adjuvant radiation therapy for patients undergoing oncoplastic breast conserving surgery after neoadjuvant chemotherapy.[32] Our study was consistent with these findings. Perhaps this reflects the role of neoadjuvant chemotherapy, downstaging the tumors and allowing a more modest resection.

Most complications were ipsilateral to the tumor. It is possible that maneuvers required to achieve clear margins around the tumor compromised skin flaps or the pedicle to the nipple. Complications on the contralateral breast should not delay adjuvant radiation. Deigni et al reported that immediate OBR for symmetry could be safely offered with careful patient selection without increased complications.[3] However, in this study, they did note a delay to radiation more than 8 weeks in 4.2% of patients due to complications from oncoplastic surgery in the index breast.[3]

In our study, the number of infections identified may be falsely elevated. Because of the retrospective nature of the study, infection was defined as patients receiving postoperative antibiotics for erythema, cellulitis, or abscess. In our center, we find that antibiotics are often prescribed for any breast erythema; therefore, our wound infection rate may reflect suboptimal antibiotic stewardship.

Table 5. Delays to Radiation: Weeks to Adjuvant Radiation for 173 Patients by Complication Type

	n (%)	Median Time to Adjuvant Radiation (wk)	Interquartile Range
All adjuvant radiation	173 (100%)	7	6–9
No complication	120 (69.4%)	7	6–8
Any complication	52 (30.1%)	8	7–11
Major complication	6 (3.5%)	14.5	9.3–22.3
Readmission/IV antibiotics	3 (1.7%)	17	
Operative with general anesthesia	4 (2.3%)	14.5	
Minor complication	46 (26.6%)	8	6.8–10
Breast seroma	4 (2.3%)	6.5	
Wound infection	20 (11.6%)	7	6.3–10
Incisional dehiscence	41 (23.7%)	9	7–11.5
Skin flap necrosis	3 (1.7%)	12	
Nipple necrosis	3 (1.7%)	11	
Ipsilateral complication	45 (26.0%)	8	7–11
Contralateral complication	7 (4.0%)	7	

Table 6. Delays to Chemotherapy: Weeks to Adjuvant Chemotherapy for 77 Patients by Complication Type

	n (%)	Median Time to Adjuvant Chemotherapy (wk)	Interquartile Range
All chemotherapy patients	77 (100%)	5	4–6
No complication	50 (64.9%)	5	4–6
Any complication	27 (35.1%)	5	4–7
Major complication	4 (5.2%)	6.5	
Readmission/IV antibiotics	2 (2.6%)	4.5	
Operative with general anesthesia	2 (2.6%)	8.5	
Minor complication	23 (29.9%)	5	4–7
Breast seroma	0	—	
Wound infection	9 (11.7%)	5	4–5.5
Incisional dehiscence	20 (26.0%)	5	5–7.8
Skin flap necrosis	3 (3.9%)	7	
Nipple necrosis	4 (5.2%)	6	
Ipsilateral complication	24 (31.2%)	5	4–7
Contralateral complication	3 (3.9%)	5	

Timing to Adjuvant Therapy: Radiation

There is not a strict consensus on what constitutes a true delay to adjuvant therapy. However, there are studies showing that initiation of radiation therapy greater than 9–12 weeks after BCS led to higher local recurrence rates.[12,13] Protocols vary between institutions. In general, the preferred time to start radiation is 4–8 weeks after surgery.[12] We chose to report our data in median weeks to radiation rather than a specific cut-off because targeted time from surgery to radiation may vary from institution to institution. We found that those patients with a major complication had a median delay to radiation of 15 weeks, which is beyond the commonly used target of 12 weeks. None of the 12 patients who had a delay to radiation of more than 12 weeks experienced a locoregional or distant recurrence at a median follow-up of 48 months. Although

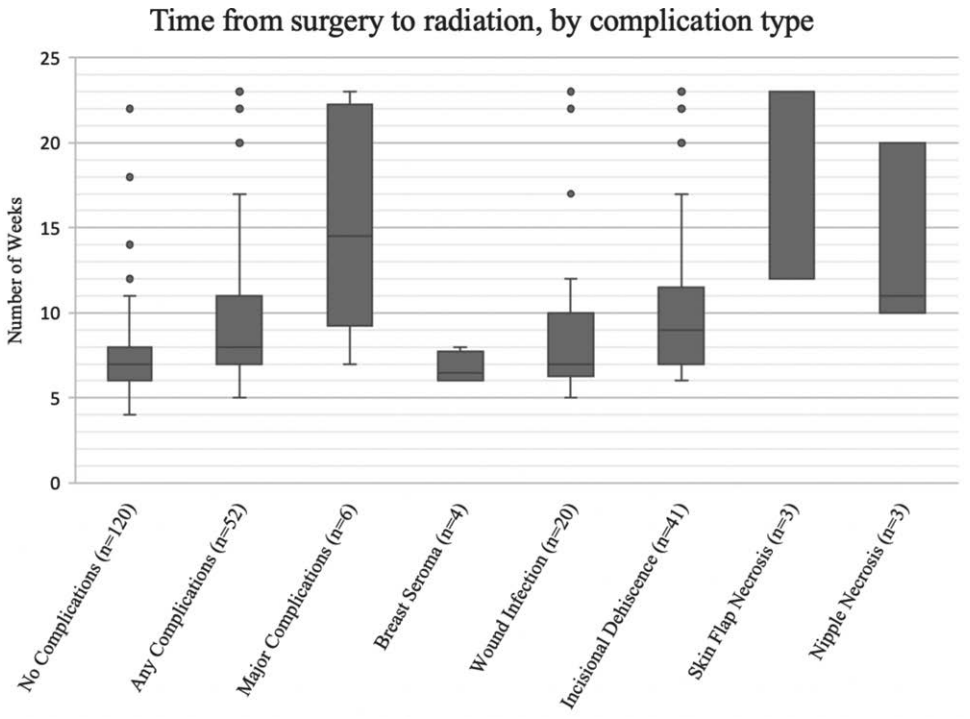

Fig. 1. Time to radiation from surgery, by complication type.

the length of follow-up (4 years) is probably adequate (studies report that 50%–70% of in-breast tumor recurrences occurred within the first 3 years after BCS),[33,34] nonetheless, the small number of patients with a delay to radiation limits the analysis of the impact of these delays on recurrence rates.

Previous studies have also analyzed delay to radiation after oncoplastic surgery, but there is a variation in the level of oncoplastics and in the time used to define a delay to adjuvant therapy. For example, Kapadia et al reported on 118 patients undergoing oncoplastic reduction with a delay to radiation of 74 days (10 weeks) in patients with a complication versus 54 days (7 weeks) in those without a complication.[10] In another study, Hillberg et al assessed 150 patients who underwent oncoplastic surgery (52% of which were reduction pattern, 35% lateral intercostal artery perforator flap, and 10% anterior intercostal artery perforator flap) and reported a delay to radiation of more than 8 weeks due to complications in 3.6% of patients.[14] Additionally, some studies have not shown a delay to radiation after oncoplastic breast surgery compared with conventional BCS. In a single center retrospective study, Kelemen et al reported a time to adjuvant therapy of 4.2 weeks versus 4.1 weeks for oncoplastic breast surgery versus conventional BCS respectively.[15] However, this study included patients who had Wise-pattern reductions as well as patients who had dermoglandular rotation or periareolar oncoplastic surgery, which tend to be smaller resections with less at-risk incisions. Another study by Dogan et al reported no delay to adjuvant therapy after reduction mammoplasty in 280 patients.[35] However, this study used more than 16 weeks to define delay to radiation with a mean time between surgery and radiation therapy of 3.9 months. It is difficult to compare these study results to the present study given the substantial difference in definition of radiation delay. By limiting our patient population to those that underwent Wise-pattern oncoplastic reductions and reporting median number of weeks from surgery to radiation, our study contributes to our understanding of treatment delay in patients undergoing this specific procedure.

Despite a potential delay to adjuvant radiation in patients undergoing oncoplastic reduction, particularly in patients with a BMI of more than 35 and diabetes, OBR should still be considered as a reasonable option for these patients. Tong et al demonstrated that oncoplastic reconstruction may be a safer option than immediate total breast reconstruction following mastectomy for obese patients.[36] They also noted fewer complications that delayed adjuvant therapy in the oncoplastic reduction group.[36] Therefore, for patients with larger tumors, who, without the option of oncoplastics, would require a mastectomy, breast conservation with OBR may be a safer alternative compared with mastectomy with reconstruction. Another potential advantage to OBR is the ability to resect larger areas, thus achieving wider margins and reducing re-operation rates.[37]

Timing to Adjuvant Therapy: Chemotherapy

In our study, we did not find a delay to initiation of chemotherapy with any complications. In general, medical oncologists may be more willing to start a patient on adjuvant chemotherapy despite an open wound, especially because timing may impact survival.[38]

Patient selection for oncoplastic reduction should be carefully considered with respect to the patient's tumor biology. A patient with a small area of low-grade ductal carcinoma in situ with a high risk of surgical complications may still be considered a reasonable candidate for reduction as a delay to radiation may be less clinically concerning. In contrast, a patient at high risk for complications, and with a small tumor with more aggressive tumor biology, may be advised to undergo lumpectomy alone to ensure timely adjuvant radiation administration. These patients may still be a candidate for a smaller oncoplastic procedure with adjacent tissue rearrangement to improve cosmesis. Patients should be counseled on the potential postlumpectomy deformity if an oncoplastic procedure is omitted, and how radiation may impact their options for revision in the future. Oncoplasty may still be the preferred approach for a patient who has a high risk for complications if the surgeon judges that the cosmetic result of breast conservation without oncoplasty will be unacceptable.

Identifying patients at high risk for surgical complications after OBR may allow for selective addition of closed incision negative pressure dressing,[39] use of low energy dissection devices, or leaving a dart at the triple point of the reduction pattern—all strategies to try to reduce complication rates.

Limitations

This study was limited by its retrospective and single center nature. The data were collected over a long period of time and technology, and patient selection changed over this period. There were also numerous plastic and breast surgeons during this time with varying levels of experience with OBR.

CONCLUSIONS

A major complication after OBR may lead to a clinically significant delay to adjuvant radiation therapy. Therefore, careful consideration should be given when offering OBR to patients who are at high risk for complications or in those who are progressing to adjuvant therapy due to unfavorable tumor biology.

Rubie Sue Jackson, MD, MPH
2000 Medical Parkway, Ste 200
Annapolis, MD 21401
E-mail: rjackson1@luminishealth.org

DISCLOSURES

Dr. Holton is a consultant for RTI Surgical, 3M/Acelity, Stryker Endoscopy, and Mentor. All the other authors have no financial interest to declare in relation to the content of this article.

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