

Early Expander-to-Implant Exchange after Postmastectomy Reconstruction Reduces Rates of Subsequent Major Infectious Complications

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Background: Major infectious complications after implant-based postmastectomy reconstruction commonly occur late (>30 days postoperative). We set out to determine if early expander-to-implant exchange (3–6 weeks after tissue expander placement) reduced rates of subsequent major infectious complications.

Methods: We retrospectively examined patients after mastectomy and tissue expander reconstruction followed by early expander-to-implant exchange versus exchange at least 6 months after initial tissue expander placement (the control group). Multivariate logistic regression analysis was performed to determine whether the timing of implant exchange independently predicted major infectious complications occurring more than 30 days after initial tissue expander placement after adjusting for differences in patient variables between groups.

Results: In total, 252 consecutive patients (430 breasts) between August 2014 and October 2019 were included. While the rates of major early infectious complications after mastectomy and tissue expander placement were similar between the groups, the control group had more subsequent major infectious complications during the reconstructive process [9.8% (n = 22) versus 1.9% (n = 4), $P < 0.001$].

Conclusions: Early implant exchange results in a reduced subsequent rate of major infectious complications. This protocol reduces the window of time for late infectious complications to develop by proceeding with exchange within 6 weeks of tissue expander placement instead of the standard 6 months, which is common practice. We hypothesize that early exchange allows for washout of the mastectomy cavity, eliminating indolent bacterial contamination that could have subsequently manifested as a late infection. This protocol also obviates the need to operate on patients that undergo post-mastectomy radiotherapy, which also reduces reconstructive failure rates. (*Plast Reconstr Surg Glob Open* 2020;8:e3275; doi: [10.1097/GOX.0000000000003275](https://doi.org/10.1097/GOX.0000000000003275); Published online 18 December 2020.)

INTRODUCTION

Prosthetic reconstructions in the United States represent nearly 80% of the reconstructive approaches after mastectomy, with the majority utilizing a 2-stage approach with tissue expansion.¹ Despite advances that have improved aesthetic outcomes and reduced morbidity, infectious complications persist with a reported range between 1% and 35% after immediate implant-based reconstruction.^{2–6} These infections result in poor aesthetic

outcomes, prolonged hospital admissions, prolonged antibiotic courses, delays in oncological treatment, and often additional surgical procedures that increase healthcare cost and patient distress.^{7,8} Unfortunately, reconstructive failure is commonplace after major infection, and many patients abort the reconstructive process after this physical and psychological trauma.^{8,9}

Significant efforts have been taken by reconstructive surgeons to reduce infectious complications. Khansa et al.¹⁰ published a standardized best practice protocol to reduce infections after tissue expander (TE) placement involving detailed preoperative, intraoperative, and postoperative steps. Despite these measures, implant infections persist, and additional approaches (including the placement of antibiotic beads,¹¹ new irrigation solutions¹² and negative pressure incision wound therapy¹³) have been introduced to further reduce the incidence of these complications.

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Multiple reports have described sophisticated protocols for implant salvage after infection,^{14–16} and recent evidence suggests that simple washout and debridement with concurrent removal and replacement of the implant coupled with tailored antibiotic therapy can salvage many prosthetic infections.^{17,18} This is a shift in our practice paradigm where previously implant infections required removal of the device with a subsequent waiting period of several months to allow for the soft tissues to recover.

There is now significant literature that has clarified the timeline of infectious complications after post-mastectomy reconstruction.^{19–25} While most infections after surgical procedures are adequately assessed within 30 days of surgery, most implant infections after immediate post-mastectomy reconstruction requiring surgical intervention occur well after 30 days and can manifest years later. We reasoned that by expediting expander-to-implant exchange surgery, this would allow for aggressive washout and elimination of any potential indolent infection and or compromised TE and biofilm that might have ultimately presented as a late infection. The present study was designed to evaluate the rate of early (<30 days) and late (>30 days) infectious complications requiring surgery for implant salvage or removal between groups of patients who underwent either early exchange surgery (EEG) 3–6 weeks after TE placement or standard exchange surgery, the control group (CG), at least 6 months after TE placement.

METHODS

After obtaining approval by our institutional review board, we performed a retrospective review of consecutive mastectomy and immediate TE reconstructions, by a single surgeon between August 2014 and October 2019 performed at a single tertiary care hospital. Patients with a history of breast conserving surgery and radiotherapy were not included in this analysis as they are only offered autologous reconstructive options in our practice. Active smokers and diabetics with HgbA1c ≥ 7.0 are not offered immediate (or delayed) reconstruction in our practice and are therefore not represented in this cohort of patients. Diabetics with HgbA1c < 7.0 and smokers who have abstained for 1 month are offered immediate reconstruction and are included in our series. Delayed reconstructions were also excluded from this analysis because these are known to exhibit lower infectious complications. All surgeries had a minimum of 12 months follow-up after subsequent TE-to-implant exchange surgery. Charts were reviewed to obtain demographic data and comorbidities, body mass index (BMI), history of tobacco abuse, intent of surgery (curative versus prophylactic), the extent of axillary surgery, type of mastectomy (skin versus nipple-sparing versus Wise pattern), operative time, unilateral versus bilateral surgery, subpectoral versus prepectoral reconstruction, the use of textured versus smooth TEs, mastectomy weight, neoadjuvant or adjuvant chemotherapy, and adjuvant radiotherapy.

We then categorized our results into 2 groups: those patients who underwent conventional exchange surgery at

least 6 months after initial TE placement (CG) and those that underwent the rapid exchange protocol, 3–6 weeks after initial TE placement, (EEG). The primary outcome of interest was major infectious complication requiring surgery for implant salvage or removal. We characterized this into an early event (≤ 30 days after mastectomy and TE placement) or late event (>30 days after surgery). Breast periprosthetic infection secondary to nonhealing wound, wound dehiscence, or flap necrosis leading to implant exposure or removal were included and characterized as infections. We also examined other major complications, including seroma and hematoma. We defined major complications as the following: seroma or hematoma that required operative drainage, skin flap necrosis as any area of full-thickness necrosis that required operative debridement or delayed expansion, nipple necrosis that required surgical debridement or delayed expansion, and dehiscence as any wound separation that required re-operation. Minor complications were those that could be managed in the outpatient setting. Reconstructive failure was defined as removal of the TE with or without replacement. We then followed all second-stage expander-to-implant exchange surgeries in both the EEG and CG for at least 12 months and monitored for complications as categorized above in addition to implant malposition. Implant malposition required additional surgery to adjust the position of a definitive implant after the TE-to-implant exchange surgery.

All reconstructions utilized any of the 3 different thick acellular dermal matrices (ADM)—Alloderm (LifeCell/Allergan, Madison, N.J.), FlexHD (MTF Biologics, Edison, N.J.), and Cortiva (RTI Surgical, Alachua, Fla.), motivated by cost and availability. TEs used were the Allergan 133 series (Allergan Pl., Bridgewater, N.J.) until 2019 when a transition to smooth Mentor CPX4 TEs (Johnson & Johnson, Santa Barbara, Calif.) was introduced secondary to the Allergan recall.

The mastectomy surgery and reconstruction were performed, as previously described by others.^{26,27} After the mastectomy was completed, the pocket was washed with a Cefazolin, Gentamicin, and Bacitracin solution (TAS) followed by several rinses with a 50% betadine solution. The skin was then prepared with a povidone-iodine solution and redraped before TE and ADM placement in either the subpectoral or prepectoral positions followed by placement of 1 or 2 closed suction 15 round Blake drains. The expanders were filled with air or saline, minimizing tension on the mastectomy flap. Patients were given a dose of preoperative cefazolin, which was continued for 24 hours. Patients continued with cephalixin until all drains were removed.

At exchange, a single dose of preoperative cefazolin was administered. The old mastectomy scar was excised, the expander was removed, and any unincorporated ADM was excised. Capsulotomy and capsulorrhaphy were routinely performed to optimize implant position. Temporary sizers were then removed, and the pocket was typically irrigated with 2L of TAS followed by 0.5L of a 50% betadine solution, which was allowed to sit for 5 minutes. The skin was then prepared with a povidone-iodine solution

and then redraped with sterile towels and an Ioban dressing (3M, St. Paul, Minn.). Implants were bathed in TAS. Gloves were changed, and sterile instruments were used to place the definitive implants into position followed by layered wound closure. Patients were discharged home and seen the following week.

After the TE-to-implant exchange for the EEG (which occurred 3–6 weeks after TE placement), complications were no longer attributed to the initial mastectomy and reconstruction but were followed for at least 12 months after the exchange surgery. Late complications for EEG were therefore limited to a small window of time after postoperative day 30 and up until the day of exchange, which was never later than postoperative day 44. For the CG, late complications continued to be attributed to the initial TE surgery up until the date of the TE-to-implant exchange (6–12 months after the initial mastectomy). Complications for the CG were also tracked for a minimum of 12 months after exchange. The primary outcome of interest was major late infectious complications occurring >30 days after the initial mastectomy and tissue expander surgery regardless of when they occurred during the subsequent reconstructive process in both groups (before or after implant exchange).

STATISTICAL ANALYSIS

Statistical analyses were performed using IBM SPSS, version 23.0 (IBM Corp., Armonk, N.Y.). Univariate analysis was used to compare EEG and CG. Frequencies and proportions were calculated for categorical variables and comparisons were made with a chi-square analysis or a 2-tailed Fisher's exact test. Means and SDs were calculated for continuous variables, and comparisons were made using independent sample *t* tests. All comparisons were unpaired. All percentages were calculated based on the total number of reconstructed breasts.

Univariate analysis was used to determine risk factors of significance and confounding variables to build a model for multivariate logistic regression analysis. A stepwise multivariate logistic regression analysis was performed (controlling for variables deemed significant on univariate analysis in addition to age and mastectomy specimen weight) to determine whether the early exchange protocol was an independent predictor of reduced infectious complications leading to implant salvage or removal more than 30 days after initial tissue expander placement (we would expect the complication rates to be identical within the first 30 days when no patients in either group have undergone exchange yet).

RESULTS

In total, 252 patients underwent mastectomy and immediate prepectoral or subpectoral TE reconstruction by 1 surgeon at a tertiary care hospital between August 2014 and October 2019. An estimated 120 patients (206 breasts) were in the EEG, and 132 patients (224 breasts) waited at least 6 months to undergo implant exchange. Data were compared between the 2 groups (Table 1).

Table 1. Patient Demographics and Oncological Treatment: Early Exchange versus Control Group

Variable	EEG (%)	CG (%)	<i>P</i>
Patients	120	132	
Breasts	206	224	
Mean age ± SD, y	50.2 ± 8.1	51.6 ± 7.5	0.62
Mean BMI ± SD, kg/m ²	28.2 ± 4.2	29.1 ± 5.5	0.47
Diabetes	10 (8.3)	14 (10.6)	0.60
Hypertension	19 (15.8)	28 (21.2)	0.35
Current smoker	12 (10.0)	7 (5.2)	0.24
Former smoker	29 (24.2)	40 (30.2)	0.34
Neoadjuvant chemotherapy	38 (31.7)	26 (19.6)	0.04
Adjuvant chemotherapy	37 (30.1)	45 (34.1)	0.68
Adjuvant radiotherapy*	52 (25.2)	62 (27.6)	0.65

Current smokers were asked to stop smoking for 1 month before and 3 months after surgery. There were therefore, to our knowledge, no active smokers in this series.

* Per breast.

There were no significant differences between the EEG and CG with regard to mean age, BMI, proportion of smokers, or patients with a diagnosis of hypertension or diabetes. While the percentage of patients undergoing neoadjuvant chemotherapy was higher in the EEG group [31.7% (n = 38) versus 19.7% (n = 26), *P* = 0.04], the percentage of patients undergoing adjuvant chemotherapy and radiotherapy was similar between the 2 groups.

The EEG and CG underwent similar rates of bilateral versus unilateral surgery and utilized similar skin patterns (Table 2). The extent of axillary surgery, operative times, mastectomy specimen weights, and the rates of therapeutic versus prophylactic mastectomy was similar between the groups. Textured tissue expanders were more commonly used in the CG compared with the EEG [89.1% (n = 163) versus 61.4% (n = 121), *P* = 0.001] as was the use of the subpectoral plane [61.2% (n = 137) versus 24.3% (n = 50), *P* < 0.00001].

The average time between initial TE placement and implant exchange surgery was significantly shorter in the EEG (30.7 ± 5.6 days versus 225.6 ± 37.3 days, *P* < 0.00001) (Table 3). The average follow-up time after expander-to-implant exchange was higher in the CG (30.2 months ± 6.4 months versus 22.4 ± 9.1 months, *P* < 0.0001). The rates of both early minor and major complications were similar between the 2 groups. There were significantly more major late complications in the CG [7.6% (n = 17) versus 1.5% (n = 3), *P* < 0.01] as the time period for the EEG to develop late complications was abbreviated by the design of the study (implant exchange occurred on average on postoperative day 30 and complications after this date were no longer attributed to the initial TE placement in the EEG). Late major complications included seromas and infections; however, only infectious complications were responsible for the statistical difference between the EEG and CG, most of these resulting in loss of the device (3.6% (n = 8) versus 0% (n = 0), *P* < 0.01). Early minor and major complication rates after expander-to-implant surgery were similar between the 2 groups. The CG had a significantly higher rate of major late infectious complications [3.9% (n = 9) versus 0% (n = 0), *P* < 0.01], of which 8 patients had undergone radiation. Of these 8 patients,

Table 2. Operative Details: Early Exchange Group versus Control Group

Characteristic	EEG (%)	CG (%)	P
Breasts	206	224	
Bilateral surgery	86 (71.7)	92 (69.7)	0.84
Lymph node surgery			0.30
Sentinel node	132 (74.6)	123 (67.2)	
Axillary dissection	31 (17.5)	42 (23.0)	
None	14 (7.9)	18 (9.8)	
Mastectomy type			0.31
Skin-sparing	19 (9.2)	31 (13.8)	
Nipple-sparing	162 (78.6)	165 (73.7)	
Wise pattern	25 (12.1)	28 (12.5)	
Mean operative time ± SD, min*	148.2 ± 22.7	159.7 ± 29.2	0.17
Mastectomy intent			0.72
Curative	116 (56.3)	130 (58.0)	
Prophylactic	90 (43.7)	94 (42.0)	
Mastectomy weight, mean (g)	577.5 ± 199.2	545.3 ± 166.2	0.44
Reconstructive plane			<0.00001
Prepectoral	156 (75.7)	87 (38.8)	
Subpectoral	50 (24.3)	137 (61.2)	
Tissue expander			0.001
Textured	162 (79.4)	202 (90.2)	
Smooth	44 (20.6)	22 (9.8)	

*Includes mastectomy; times are for bilateral procedures.

Table 3. Post-operative Complications and Outcomes

Complications	EEG (%)	CG (%)	P
Breasts	206	224	
Mean time between TE placement and exchange surgery ± SD, d	30.7 ± 5.6	225.6 ± 37.3	<0.000001
Mean follow-up ± SD, mo	22.4 ± 9.1	30.2 ± 6.4	<0.0001
Minor complications (early)	23 (11.1)	17 (7.6)	0.20
Major complications (early)	21 (10.2)	19 (8.5)	0.54
Hematoma	3 (1.4)	1 (0.4)	0.28
Seroma	6 (2.9)	4 (1.8)	0.44
Skin flap necrosis	5 (2.4)	5 (2.2)	0.89
Infection	7 (3.4)	9 (4.0)	0.73
Salvage	5 (2.4)	4 (1.8)	0.28
Failure	2 (1.0)	5 (2.2)	0.28
Major complications (late)	3 (1.5)	17 (7.6)	0.003
Seroma	2 (1.0)	6 (2.7)	0.19
Infection	1 (0.5)	11 (4.9)	0.005
Salvage	1 (0.5)	3 (1.3)	0.36
Failure	0 (0.0)	8 (3.6)	<0.01
Minor complications after TE exchange, early	4 (1.9)	7 (3.1)	0.44
Major infectious complications after TE exchange, early*	3 (1.5)	2 (.9)	0.59
Major infectious complications after TE exchange, late	0 (0.0)	9 (3.9)	<0.01
Implant malposition after definitive implant placement	2 (1.0)	4 (1.8)	0.77
Aborted reconstruction	1 (0.4)	7 (3.1)	0.10
Implant-based reconstruction achieved*	115 (95.8)	121 (91.7)	0.18

* per patient.

4 underwent flap salvage, while the others underwent simple removal with no further reconstruction. There was no significant difference between the EEG and CG with regard to the percentage of patients who aborted the reconstructive process or the proportion of patients who successfully completed implant-based reconstruction.

Multivariate logistic regression analysis was then performed to determine whether the EEG had less major infectious complications 30 days after initial tissue expander placement, taking into consideration any covariates that may have confounded this relationship. Univariate analysis was first performed to identify binary covariables that made a significant contribution to infection rates to be included in the multivariate analysis (Table 4). The univariate analysis identified the timing of tissue expander exchange, BMI, diabetes, post-mastectomy radiotherapy, adjuvant chemotherapy, smoking, the Wise skin pattern, and skin

flap necrosis/wound dehiscence as significant predictors of major infectious complications. We combined these variables with the continuous variables of age and mastectomy specimen weight in a stepwise multivariate regression model. The model identified the timing of exchange, BMI, adjuvant chemotherapy and radiotherapy, diabetes, and flap necrosis as significant predictors of major late infectious complications after immediate tissue expander placement at the time of mastectomy (Table 5). The odds of major late infectious complication were increased by approximately 3.6-fold in patients who underwent conventional timing of their exchange surgery in comparison with the EEG, 3.9-fold in patients with diabetes and 2.1 and 2.9-fold in patients who underwent adjuvant radiotherapy and chemotherapy, respectively. Flap necrosis increased late major infectious complications by 3.3-fold and obesity (BMI ≥ 30.0) increased complications by 2.5-fold.

Table 4. Univariate Logistic Regression Analysis Predicting Major Infectious Complications Requiring Implant Removal or Salvage Occurring >30 days after Initial Tissue Expander Placement*

Characteristic	Major Infectious Complication	Rate (%)	OR (95% CI)	P
Exchange protocol				<0.001
EEG	4	1.9	1 (Reference)	
CG	22	9.8	5.5 (1.9–16.3)	
BMI				0.001
0–30.0	15	4.3	1 (Reference)	
>30.0	11	13.8	3.56 (1.6–8.1)	
Diabetes				0.0001
No	18	4.6	1 (Reference)	
Yes	8	20.0	5.1 (2.1–12.8)	
Adjuvant radiotherapy				0.03
No	15	4.6	1 (Reference)	
Yes	11	10.4	2.4 (1.1–5.4)	
Adjuvant chemotherapy				0.03
No	12	5.6	1 (Reference)	
Yes	14	13.7	2.4 (1.1–5.4)	
Skin flap necrosis/wound dehiscence				0.001
No	23	5.5	1 (Reference)	
Yes	3	30.0	7.4 (1.8–30.4)	
Skin pattern				0.03
NSM or SSM	19	5.1	1 (Reference)	
Wise pattern	7	12.5	2.7 (1.1–6.7)	
Smoking				0.03
Never/former	21	6.2	1 (Reference)	
Current	5	21.1	3.0 (1.1–8.4)	

Only statistically significant associations on univariate analysis with major late infectious complications are shown.

NSM, nipple-sparing mastectomy; SSM, skin-sparing mastectomy.

Table 5. Multivariate Logistic Regression Analysis: Predictors for Major Infectious Complications Requiring Implant Removal or Salvage Occurring >30 days after Initial Tissue Expander Placement*

Variable	OR (95% CI)	P
CG	3.6 (1.4–7.8)	0.009
Diabetes		
Adjuvant XRT	3.9 (1.9–9.9)	0.005
Adjuvant	2.1 (1.1–3.2)	0.04
Chemotherapy	2.9 (1.7–5.6)	0.02
Wise pattern	1.6 (0.85–4.7)	0.22
Smoking	1.9 (0.77–5.4)	0.13
Flap necrosis	3.3 (1.4–12.2)	0.01
Age	1.2 (0.7–2.4)	0.33
Mastectomy weight	1.4 (.89–1.9)	0.37
BMI	2.5 (1.4–3.7)	0.02

*Adjusted for variables determined to be significant on univariate analysis and BMI, mastectomy specimen weight, and age.

XRT, radiotherapy.

DISCUSSION

The most devastating complication after implant-based breast reconstruction is an infection requiring implant removal, and it, therefore, behooves the surgeon to take every possible precaution to avoid this. As such, best practice guidelines that delineate simple steps to prevent infectious complications are useful.¹⁰ The inability to completely prevent infectious complications has resulted in the description of several sophisticated protocols for implant salvage.^{14–16}

Although innovative protocols for implant salvage are useful and may encourage women to complete reconstruction, it is more cost effective and beneficial for our patients to prevent infections altogether. Despite following best practice guidelines, many still document high infection and reconstructive failure rates, suggesting the need for additional interventions to reduce the incidence of this dreaded complication.^{2–6}

In 2016, we initiated a rapid expander-to-implant exchange protocol in patients who required radiotherapy. Our goal was to complete all surgery before radiotherapy to avoid the complications associated with operating on a radiated breast. The increased rate of complications associated with radiating a tissue expander versus the definitive implant has recently been demonstrated.^{28–30} Furthermore, as we performed more prepectoral reconstructions, many felt these would not require the same revision rate for implant malposition and capsular contracture as the subpectoral approach would.^{31,32} The motivation to rapidly exchange a subpectoral expander to a definitive implant before radiotherapy was less compelling in that we expected a significant number to require revision. We were routinely performing prepectoral TE-to-implant exchanges between 3 and 6 weeks after the initial surgery to facilitate timely initiation of adjuvant radiotherapy. During these surgeries, we noticed that the ADM was well incorporated, which allowed for pocket modifications to optimize final implant position. The EEG did not have an increased rate of definitive implant malposition despite having a softer and less well-developed capsule at the time of exchange surgery that theoretically might be less amenable to stable pocket modifications.

We then began to offer early exchange to all patients regardless of their requirement for radiotherapy. As our experience grew with the early exchange protocol, we realized that we had very few infectious complications after early implant exchange. We were therefore, in essence, eliminating the overwhelming majority of all late infectious complications after immediate reconstruction by proceeding with early exchange without increased incidence of subsequent infection. The low rates of infectious complications seen in the CG and EEG after second-stage exchange surgery in comparison with the higher

rates observed after immediate reconstruction have been described by others.^{23,33}

We advocate the early exchange approach for patients who require postmastectomy chemotherapy and radiotherapy because we feel these adjuvant treatments compromise healing and allow for indolent infections to eventually manifest. Radiotherapy and obesity have been demonstrated to be risk factors for late infections,²³ and our findings suggest a strategy that may help reduce this complication in these patients. We perform the exchange surgery 3 weeks after the mastectomy and TE placement and then allow for an additional 3 weeks of healing before chemotherapy or radiotherapy begins, because more significant delays in adjuvant treatment have been shown to decrease survival.^{34,35} This early exchange results in a very low rate of subsequent infectious complications seen in the EEG in comparison with the significant number of late infections seen in the CG here and in multiple other reports when the TE is left in place for several months before exchange.^{19–25}

We hypothesize that early expander-to-implant exchange may eliminate an indolent infection that is not clinically apparent, which, if given sufficient time, would eventually manifest and result as a major late infectious complication. Others have shown bacteria in capsule biopsies at the time of exchange, supporting our hypothesis.^{36,37} This bacterial contamination may result in the formation of an implant biofilm and subacute infection that may take several weeks or months to manifest.^{38,39} This infection may occur secondary to compromised mastectomy flaps during the healing process or from seeding at the initial surgery. Needle sticks during expansion and adjuvant chemotherapy and radiotherapy are additional factors that may serve to initiate or propagate an infectious process.²² We therefore treat these early exchange surgeries as salvage procedures, aggressively debriding any nonincorporated ADM and washing out with several liters of TAS followed by a 50% betadine solution before placing the definitive implant. This protocol is simple, inexpensive, and improves patient satisfaction because many are eager to complete their reconstructive journey sooner. There is additional benefit in preventing late infections because these implants have been previously documented to be significantly more difficult to salvage when compared with those associated with early infections.^{22–24,40,41} Our results support these observations, as our group of patients who had major late infectious complications after TE placement had the lowest rates of implant salvage. Finally, our protocol likely reduces major infectious complications in patients who require radiotherapy by obviating the need for surgery in a radiated field, as others have shown.^{30,31}

Limitations of this study are its retrospective nature and single-surgeon design, increasing potential for surgical bias. Although variability between the two groups was limited as one surgeon performed all the surgeries, there is the possibility that incremental improvements in technique over time led to reduced infections in the EEG compared with those in the CG that may not be simply attributed to performing the exchange surgery in an expedited fashion. We feel this is unlikely because the timeline for infections after implant-based post

mastectomy reconstruction has been well established by others,^{19–25} with late infections comprising the majority of complications requiring implant removal. Our study demonstrates that the early exchange protocol greatly reduces these late infections (by virtually eliminating this time period) and shows no increase in subsequent infectious complications or implant malposition after the definitive implant is placed.

CONCLUSIONS

The majority of infections after postmastectomy implant-based reconstruction occur more than 30 days postoperative. This report demonstrates that by performing an early expander-to-implant exchange, we eliminate most major late infectious complications by virtually eliminating the time window for late infections to occur. We believe early exchange surgery allows for elimination of indolent asymptomatic infections that could have eventually manifested if the exchange had occurred in a more delayed fashion. In addition, in patients who require radiotherapy, this protocol obviates the need for surgery in a radiated field because the exchange is performed before radiotherapy is delivered. We believe that early exchange does not compromise our final aesthetic results and outcomes, and enhances the patient experience by allowing them to complete their reconstructions sooner.

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