

Original Research Article

Incidence of complications in breast reconstruction with autologous tissue in a third level hospital

Grecia C. Martínez-Martínez*, Rene Ramírez-Guerrero, Sergio G. Moreno-Hernández, Alan M. Hernández-Campos, Samaria E. Mejía-Rivera, Raymundo Torres-Piña

Department of Plastic and Reconstructive Surgery, Hospital General de México "Dr. Eduardo Liceaga", México

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*Correspondence:

Dr. Grecia C. Martínez-Martínez,
E-mail: g_cmar@icloud.com

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ABSTRACT

Background: The objective of this study is to analyze the incidence of complications after breast reconstruction with pedicled or free flaps at the hospital general de Mexico "Dr. Eduardo Liceaga".

Methods: A retrospective, single-center study, including 44 female patients, who underwent immediate or delayed breast reconstruction after breast cancer, between 2019 and 2020, and had at least a 2-year follow up, evaluating the association between patient risk factors (age, history of radiotherapy, presence of overweight or obesity and immediate or delayed reconstruction) with the presence of complications such as seroma, hematoma, wound infection or wound dehiscence. We analyzed data with SPSS software, v23.0.

Results: There was no statistically significant difference for the presence of complications associated with risk factors studied.

Conclusions: We need more prospective, multicenter studies, including larger sample and strict follow up of patients.

Keywords: Reconstruction surgeries, Breast cancer, Microsurgery, Free flap, Pedicled flap

INTRODUCTION

In Mexico, breast cancer is the most frequent malignant disease in women over thirty years of age, with death rates from thirty to fifty-nine years of age of 1.52, and in those over sixty years of age, of 4.81 per 10,000 women.¹

Breast reconstruction in patients with breast cancer has been increasing from 8% in 1995 to 54-63% in 2014.² This can be immediate (at the time of performing the mastectomy) or delayed (after the mastectomy), and this depends on certain factors in high-risk patients such as those who need post-mastectomy radiotherapy, which increases the risk of complications, both surgical and aesthetic.³

There are multiple reconstructive options with autologous tissue. At the hospital general de Mexico "Dr. Eduardo Liceaga", the three most frequently performed flaps are the DIEP (deep inferior epigastric perforator), LD (latissimus dorsi) and TRAM (transverse rectus abdominis myocutaneous) flaps.⁴⁻⁶

The possible complications in breast reconstruction should depend on the complexity of the surgical procedure, but factors such as the availability of surgical equipment, infrastructure, experience of the plastic surgeon, and factors specific to patient also play a role.⁷

METHODS

A single-center retrospective study of cases and controls is presented where 150 patients were evaluated, of which

44 met the inclusion criteria, females between 17 and 70 years old (mean 48.1) who attended for immediate and delayed breast reconstruction secondary to breast cancer, during the period between 2019 and 2020. All patients received an assessment consultation by a plastic and reconstructive surgeon, they accepted the performance of pedicled flaps with or without placement of an expander or breast prosthesis, or reconstruction by microsurgery.

Patients had ages between 17-70 years, desire for breast reconstruction with autologous tissue, surgical risk according to American society of anesthesiologist (ASA) II, no presence of active disease/management with chemotherapy/radiotherapy were included in study.⁸

Previously, during the medical consultation, the real goals and objectives of each patient were taken into consideration. In the same way, they were evaluated by an anesthesiologist, implementing the safe surgical measures recommended through anticoagulation protocols, according to the modified Caprini classification (moderate and high risk), intermittent compression equipment for the lower limbs, control of vital signs, antibiotic prophylaxis, among others.⁹

All the data obtained were entered into a database in Microsoft excel v16.47.1. Statistical analysis was performed using SPSS software, v23.0.

We performed postoperative follow-up of complications associated with each type of flap, treating each of them to obtain better results for the patient and the surgeon.

RESULTS

Forty-four female patients were treated, who underwent breast reconstruction using flaps. The mean age of the sample was 48.1 years (± 10.7), with a minimum of 17 years and a maximum of 68 years. The mean BMI (body mass index) was 25.8 (± 3.4). Sixteen immediate flaps (36%) and 28 delayed flaps (64%) were performed (Figure 1). Twenty-seven latissimus dorsi flaps (61%), 13 TRAM flaps (30%), and 4 DIEP flaps (9%) were performed (Figure 2). Drainage was installed in all cases. In 12 cases there was a history of radiotherapy (27%) (Figure 3). The postoperative stay was 3.3 days (± 2.1).

Among the postoperative complications, seromas developed in 11 cases (25%), hematomas in 6 cases (13.6%), infection in 4 cases (9.1%), and wound dehiscence in 6 cases (13.6%).

To evaluate the association between the type of flap and the history, with the development of postoperative complications, we categorized the sample; in the case of BMI, we divided the cases into cases with excess weight (BMI greater than 25) and cases without excess weight (BMI less than 24.9), and for age, we divided the sample into: those over 50 years of age and under 50 years. Subsequently, we built contingency tables to compare the

groups and the presence of complications, and we obtained for the development of seromas, hematomas, infections or dehiscence, no significant differences were found between the study groups (Tables 1-4).

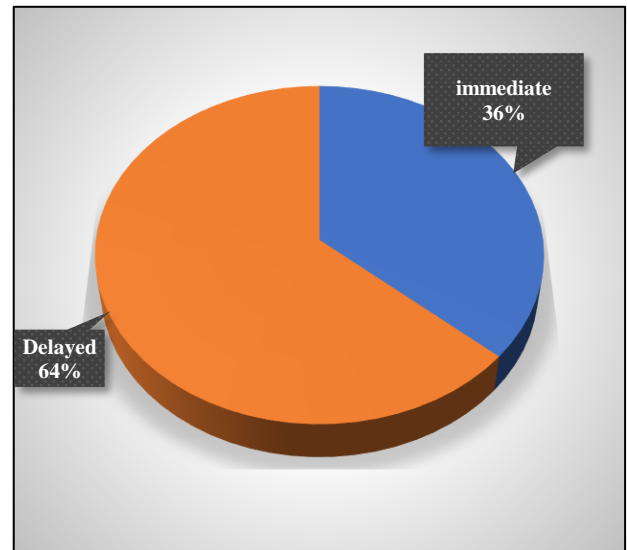


Figure 1: Reconstruction with immediate or delayed flap.

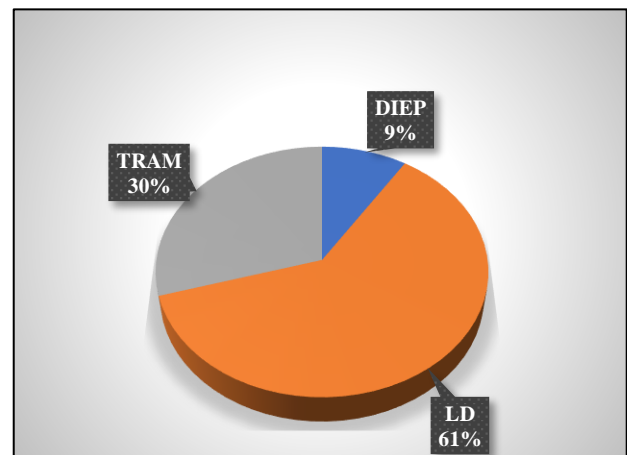


Figure 2: Type of flap used.

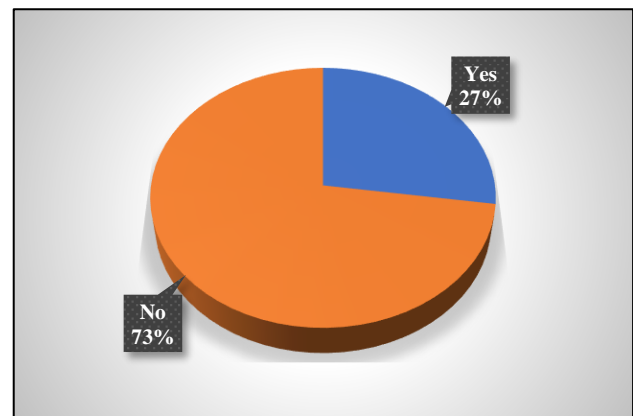


Figure 3: History of radiotherapy.

Table 1: Association of seroma with risk factors and type of flap.

Variables	Yes		No		Significance
	N	%	N	%	
Age > 50 (Years)	4	20	16	80	0.36
Overweight	6	20	24	80	0.22
Immediate reconstruction	3	18	13	81	0.36
History of radiotherapy	4	33	8	66	0.33
Flap					
LD	9	33	18	66	0.22
DIEP	0	0	4	100	
TRAM	2	15	11	85	

Table 2: Association of hematoma with risk factors and type of flap.

Variables	Yes		No		Significance
	N	%	N	%	
Age > 50 (Years)	3	12.5	17	87.5	0.57
Overweight	6	20	24	80	0.84
Immediate reconstruction	2	12.5	14	87.5	0.62
History of radiotherapy	2	17	10	83	0.52
Flap					
LD	1	4	26	96	0.51
DIEP	1	25	3	75	
TRAM	4	31	9	69	

Table 3: Association of infection with risk factors and type of flap.

Variables	Yes		No		Significance
	N	%	N	%	
Age > 50 (Years)	0	0	20	100	0.78
Overweight	3	10	27	90	0.62
Immediate reconstruction	3	19	13	81	0.12
History of radiotherapy	1	8	11	92	0.70
Flap					
LD	3	11	24	89	0.75
DIEP	0	0	4	100	
TRAM	1	8	12	92	

Table 4: Association of wound dehiscence with risk factors and type of flap.

Variables	Yes		No		Significance
	N	%	N	%	
Age > 50 (Years)	2	10	18	90	0.42
Overweight	5	17	25	83	0.36
Immediate reconstruction	1	6	15	94	0.27
History of radiotherapy	2	17	10	83	0.52
Flap					
LD	1	4	26	96	0.51
DIEP	1	25	3	75	
TRAM	4	30	9	70	

DISCUSSION

Breast cancer has shown a significant increase in recent years, as well as breast reconstruction, since both psychological and physical benefits have been obtained.¹⁰ This study was carried out in the tertiary care center, and

the objective was to identify any association between the patient's risk factors such as: excess weight, type of flap, immediate or delayed reconstruction, history of having received radiotherapy, and more or less than 50 years. The overall complication rate was 61% in the total sample included, higher than international data ranging

from 27.6-32.9%, we believe that this is because patients discontinued follow-up before the two years when there are no complications, so they were excluded from the sample.^{11,12}

According to the literature, being obese increases the risk of complications such as flap necrosis and reoperation, which were not analyzed in the present study. Radiotherapy has presented an increased risk of complications in patients reconstructed with direct implant, having better postoperative results in reconstructions with autologous tissue, which was the basis of this study, so no statistically significant risk was evidenced.¹³⁻¹⁶ Older age has been shown to increase the risk of reoperation, although this was not observed in this study.¹² Regarding the type of flap, seroma formation was more frequently observed in reconstructions with LD (33%), hematomas in TRAM flaps (31%), infection in LD (11%) and wound dehiscence in TRAM flaps (30%). The literature describes that being a reconstruction with autologous tissue by itself increases the risk of complications compared to a reconstruction with an expander-implant, the latter not included in the present study.¹²

In cases with seroma formation, puncture and direct drainage were performed, without recurrence; in the cases that presented hematoma, drainage was performed by surgical reintervention in 2 cases, the rest presented spontaneous resolution. Regarding surgical site infection, they were treated by extending the antibiotic scheme with first-generation cephalosporins up to 14 days, without requiring hospitalization or parenteral antibiotic therapy; if they presented wound dehiscence, secondary closure was performed with local anesthesia without the need for surgical reintervention.

CONCLUSION

In conclusion, in the present study no statistically significant differences were found for the development of complications due to the factors evaluated. We believe that prospective studies should be carried out, with a larger and even multicenter sample, where the evaluation of more serious complications such as flap necrosis or surgical reintervention is taken into consideration, and strict follow-up of the total sample for the desired period of time.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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