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ORIGINAL ARTICLE

Breast reconstruction modality and outcomes after mastectomy

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Abstract *Background:* Choosing a breast reconstructive modality after mastectomy is a critical step involving complex decisions. Postoperative complications can be a significant setback for patients undergoing breast reconstruction. In this study, the results of different reconstructive modalities are recorded and their complications are discussed for further preoperative counseling.
Materials and Methods: Ninety patients who had undergone breast reconstruction at our institution in the past 5 years were reviewed. Clinical encounters for all reconstruction modalities, namely implant-based, autologous tissue, and combined reconstructions, were assessed. We evaluated several clinical variables, such as type of operation, timing of reconstruction, and early and late complications.
Results: Patients were aged 28—61 years, with a mean age of 44.8 years. The body mass index (BMI) ranged from 16.9 to 31.1 kg/m^2, with an average of 22.87 kg/m^2. The follow-up duration ranged from 5.6 to 85.9 months, with a mean of 38.3. Thirty-eight, 46, and 6 patients received implant-based reconstruction, autologous reconstruction, and combined reconstruction, respectively. The most common complication recorded in the implant-based group was hematoma (7.9%), whereas re-exploration (6.5%) and abdominal hernia (6.5%) were the most common complications in the autologous tissue reconstruction group. The average age and BMI of the patients who experienced complications were 46.4 years and 22.5 kg/m^2, respectively, whereas the average age and BMI for the patients without complications were 44 years and 23 kg/m^2, respectively. Complications were most common in patients who underwent adjuvant irradiation and pedicle flap reconstruction (100%).

Conflicts of interest: None of the authors have a financial interest in any of the products, devices, or drugs mentioned in this article.

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Conclusion: In this small-scale study, we found that an implant-based reconstruction was more frequently performed on older patients. Because of the relatively small average body size and low BMIs of Asian people, obesity is not considered to affect the postoperative complication rate. In addition, postreconstructive irradiation is unlikely to produce additional complications because the patients underwent pedicle flap reconstruction.

1. Introduction

Breast cancer is one of the most common cancers among women worldwide.[1] Postmastectomy breast reconstruction is currently widely used for oncological safety[2–4] and because of its higher psychosocial satisfaction.[5] Breast cancer is generally treated using multimodalities, including surgical resection, hormone therapy, chemotherapy, and radiation. In addition, various postmastectomy reconstructive methods, such as implant-based, autologous tissue, or combined reconstructions, are available.[6] Each of these reconstructive methods has its own benefits and drawbacks.[7] An implant-based reconstruction may provide short surgical and hospitalization time but generates relatively long periods of postoperative complications. By contrast, an autologous tissue reconstruction results in a more durable appearance and a relatively short complication phase; however, it requires long surgical and hospitalization time. By contrast, a combination of the autologous tissue and implant-based reconstructions is an effective compromise because one method can complement the other.

For patients, one of the key satisfaction predictors is the postoperative complication rate.[8] Furthermore, postoperative complications are a considerable setback for patients undergoing breast reconstruction. Therefore, choosing an appropriate reconstructive modality for each individual is a critical step that involves complex considerations. Within the limited scale of this study, the complications arising after the three most common reconstructive modalities are compared to aid preoperative counseling and discussion.

2. Materials and methods

All 90 patients who underwent breast reconstruction at our institution during the past 5 years were reviewed. The clinical encounters of all reconstruction modalities were assessed, which included 38, 46, and 6 patients who underwent implant-based, autologous tissue, and combined reconstructions, respectively. Implant-based reconstruction involved prosthesis and tissue expander placement. The flaps of the autologous reconstruction group included a free deep inferior epigastric perforator (DIEP), free superior gluteal artery (SGA), free transverse rectus abdominis myocutaneous (TRAM), and pedicled-TRAM flaps. The combined reconstruction group solely used the latissimus dorsi (LD) flap with an implant placement (Table 1). Several clinical variables, including patients' type of surgery, time required for the reconstruction, and early and late complications, were reviewed in this study. We defined early and late complications as those that occurred within and after 3 weeks of the surgery, respectively.

The Chi-square test was used for comparing the statistical differences among the different groups. A value of $p < 0.05$ was considered statistically significant, and all confidence intervals were reported within the range of 95%. All calculations were performed using SPSS for Windows, Version 21.0 (Chicago, IL, USA).

3. Results

All patients were aged 28—61 years (mean, 44.8 years). The mean ages of the implant-based, autologous tissue (38 free

Table 1 Age, body mass index types, and timing of breast reconstructions in our study patients.

	Implant-based ($n = 38$)	Autologous ($n = 46$)	Combination ($n = 6$)
Average age	47.8	42.5	42.2
Average BMI	22.35	23.45	20.62
Immediate ($n = 66$)	30	33	3
Delay ($n = 24$)	8	13	3
Types of reconstruction	TE (13) Implant (25)	LD flap (3) Pedicled TRAM flap (8) Free TRAM flap (16) Free DIEP flap (17) Superior gluteal artery flap (2)	LD flap + implant (6)

BMI = body mass index; DIEP = deep inferior epigastric perforator; LD = latissimus dorsi; TE = tissue expander; TRAM = transverse rectus abdominis myocutaneous.