

TERTIARY BREAST RECONSTRUCTION: A PROSPECTIVE STUDY ON COSEMETIC OUTCOME AND PERIOPERATIVE COMPLICATIONS

Nasser A. Ghazlan,¹ Charles M. Malata,² Hassan M. Kholosy,¹ Dina M Tarek Ghorra^{1,2}

¹Department of Plastic and Reconstructive Surgery, Faculty of Medicine, Alexandria University, Alexandria, Egypt

²Department of Plastic and Reconstructive Surgery, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

Introduction

Implant breast reconstruction has seen an upturn over the last decade leading to a rise in referrals of failed prosthetic cases that require salvage by conversion to autologous reconstruction, the most popular being free tissue transfer. This salvage breast reconstruction is complex because of the older patient population with increased comorbidities, effects of previous treatments and inevitable intraoperative challenges. Notable issues include irradiated and scarred skin, severe capsular contracture (CC) and silicone lymphadenopathy. There is also difficulty and potential vascular injury during internal mammary recipient vessel exposure due to scarring, and increased bleeding risk during and after the required capsulectomies. Breast Cancer Conservation therapy cosmetic results BCCT.core computer software program was initially used to assess objectively cosmetic outcomes for lumpectomies but it's now used for total post mastectomy breast reconstructions. Whilst it is well established that free flap conversion addresses the pain, firmness and cold feel of prosthetic reconstructions (from severe CC) and subjectively improves the cosmetic results, there has hitherto been no objective documentation of the improvement in aesthetic outcomes.

Aim of the work

The aim of the study was to objectively assess the aesthetic outcomes following autologous salvage breast reconstruction after failed breast implant reconstruction.

Subjects and Methods

Data on patient demographics, surgical indications, risk factors, operative details and outcomes were collected prospectively for 10 patients undergoing flap salvage of their previous prosthetic reconstruction by a single operator (2018-2020) at a UK university teaching hospital and Alexandria University Hospital. Standardised professional photographs of the 10 patients both pre-operatively and at a median of 6 months post-operatively were taken. All patients were photographed in frontal, both lateral and both oblique positions with their arms behind their backs using the same source of lighting and distance from camera in order to avoid any differences in skin colour and angle.

For breast symmetry assessments, only frontal view was used. Objective assessment required pre- and post-operative frontal-view photographs to be loaded into the BCCT.core software program with the following landmarks being digitally marked: nipples, suprasternal notch and the most medial and lateral points of the breasts. The software then automatically adjusted the outline of the breast contour and generated the final cosmetic result, classified as 1 of 4 categories, i.e., excellent, good, fair, poor, based on the Harvard Scale introduced by Harris in 1979. The results for both the pre and post-operative photographs were then compared.

Results

Table (1): Distribution of the studied cases according to BCCT core (n=10)

BCCT core	Before		After		MHp
	No.	%	No.	%	
Poor	3	30.0	0	0.0	0.096
Fair	6	60.0	1	10.0	
Good	1	10.0	5	50.0	
Excellent	0	0.0	4	40.0	

MH: Marginal Homogeneity Test

Shows the overall objective results of the BCCT. Core of the patients before and after the salvage reconstruction. The cosmetic outcome before the reconstruction was 30% poor (n=3), 60% fair (n=6) and 10% good (n=1). After the salvage reconstruction there was a total of 4 excellent results (40%), 5 good (50%) and 1 fair (10%).

Table (2): Distribution of the studied cases according to percentage improvement before and after salvage reconstruction according to BCCT core (n=10)

After salvage BCCT core	Before salvage BCCT core					
	Poor (n=3)		Fair (n=6)		Good (n=1)	
	No.	%	No.	%	No.	%
Fair	1	33.3	0	0.0	0	0.0
Good	0	0.0	5	83.3	0	0.0
Excellent	2	66.7	1	16.7	1	100.0

Shows that of the 3 poor results patients, 2 improved to excellent and 1 to fair. The 6 fair results patients, 5 became good and one excellent. One patient with good results improved to excellent.



68 year old lady pre and 11 months post-operative photographs after performing salvage breast reconstruction of her right breast using SIEA flap. She previously had immediate reconstruction with implant and Acellulardermo matrix (ADM) which was infected and removed.

Conclusion

This preliminary study supports the widely held perception that salvage with autologous flaps objectively improves cosmetic outcomes of failed prosthetic reconstructions as well as relieve the symptoms. Although it is thought that salvage autologous breast reconstruction is technically demanding and takes longer, as shown in our study for unilateral cases, its intra and postoperative outcomes are marvellous. Salvage breast reconstructions were all successful with minor and comparable complications and with marvellous aesthetic results. Therefore, tertiary breast reconstruction provides a reliable solution following failed implant-based reconstructions with maximal cosmesis.



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