

Original Research Article

Feasibility of axillary nodal staging through same incision of round block technique in breast cancer cases

Mahmoud A. Alhussini*

Department of Surgery, Department of Surgery, Surgical Oncology Unit, Faculty of Medicine, University of Alexandria, Azarita, Alexandria, Egypt

Received: 15 March 2019

Revised: 04 May 2019

Accepted: 10 May 2019

***Correspondence:**

Dr. Mahmoud A. Alhussini,

E-mail: mahmoud.elhussini@alexmed.edu.eg

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Round block technique was originally described as a mastopexy technique that is currently widely used as an oncoplastic technique for managing breast cancer. The aim of the study is to assess the feasibility of axillary dissection via same circumareolar incision of lumpectomy.

Methods: A prospective randomized controlled study including 100 patients distributed among 2 equal groups. In which group A had axillary dissection performed via same lumpectomy incision by the aid of lighted retractors; while on the other hand group B had axillary dissection performed via separate axillary incision.

Results: The technique was feasible in all cases without the need for extra incisions. However, the time of surgery was longer and rate of complications was higher.

Conclusions: Axillary staging can be accomplished via same incision of round block. The surgery is demanding especially in large breast cup size and fatty breasts.

Keywords: Breast carcinoma, Oncoplasti, Round block

INTRODUCTION

Oncoplastic surgical techniques for managing breast cancer evolved much in the last 2 decades.¹ The aim is to achieve oncological safety with the least disfigurement in the breast.²

Round block is one of the techniques widely used for plastic and oncoplastic surgeries. In this technique, the circumareolar incision provides a nearly scarless surgery.³

However, in most cases of breast cancer, axillary staging is needed for accurate disease staging. This staging necessitates another incision at the axilla in most of the cases.⁴ This study aimed at assessing the feasibility of

performing axillary staging via same incision of round block oncoplastic technique.

METHODS

The study was approved by the ethical committee of Alexandria Faculty of Medicine. All patients signed an informed written consent before enrollment in the study.

The study included 100 female patients with breast cancer candidates for breast conserving surgery via the round block oncoplastic technique admitted to the Surgical Oncology Unit, Alexandria Faculty of Medicine and Qabbary Hospital from June 2014 till September 2018. Patients were randomly distributed among 2 equal groups by the closed envelope technique.

Inclusion criteria

Patients with unifocal or multifocal breast cancer candidates for BCS by the round block technique.

Exclusion criteria

Multicentric carcinoma, contraindications for radiotherapy and refusal of the procedure by the patients.

In group A, after performing lumpectomy with safety margin, nodal dissection was performed via the same incision. Lateral dissection of the glandular tissue was done till the lateral border of pectoralis major muscle was reached. Lighted retractors and bipolar diathermy were essential to successfully finish the operation through this single incision.

Patients in group B were subjected to the separate axillary incision at the lowest hair line. There was no need to use the lighted retractors.

Timing of the procedure was recorded after doing the lumpectomy till the end of surgery (to eliminate any variations in the length of the procedure related to the lumpectomy procedure).

Breast densities (according to Breast Imaging Reporting and Data System (BIRADS) and the breast cup sizes were reported as well as incidence of complications.

Statistical analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp). Comparisons between groups for categorical variables were assessed using Chi-square test (Fisher or Monte Carlo). Student - t test was used to compare two groups for normally distributed quantitative variables. while ANOVA was used for comparing the four studied groups and followed by Post Hoc test (LSD) for pairwise comparison. Significance of the obtained results was judged at the 5% level.

RESULTS

Both groups were compared in terms of patients' age, breast cup size, and density of the breast. Patients were also compared regarding presence of diabetes or steroid therapy for their role in delaying wound healing. All previous features showed no statistical difference among both groups (Table 1).

Table 1: Comparison between the two studied groups according to different parameters.

	Group A (n=50) N (%)	Group B (n=50) N (%)	Test of sig.	P value
Age (years)				
Median (min.–max.)	49 (38–57)	48 (38–59)	T=0.633	0.528
Mean±SD	48.4±5.4	47.7±5.3		
Diabetes/steroids	6 (12)	2 (4)	X ² =2.174	0.269
Cup size				
A	6 (12)	8 (16)	X ² =1.586	0.663
B	10 (20)	14 (28)		
C	16 (32)	14 (28)		
D	18 (36)	14 (28)		
Density of the breast				
A	12 (24)	4 (8)	X ² =5.382	0.146
B	12 (24)	18 (36)		
C	16 (32)	16 (32)		
D	10 (20)	12 (24)		

X²: Chi square test, t: Student t-test, P: p value for comparing between the two studied groups.

Table 2: Comparison between the two studied groups according to operative time and number of nodes dissected.

Operative details	Group A (n=50)	Group B (n=50)	t	P value
Number of node				
Median (min.–max.)	13 (10–21)	13 (10–23)	0.776	0.440
Mean±SD	13.4±2.6	13.8±3.04		
Timing in minutes				
Median (min.–max.)	95 (70–110)	65 (50–75)	15.288*	<0.001*
Mean±SD	91.8±11.8	61.6±7.5		

t: Student t-test, P: p value for comparing between the two studied groups, *statistically significant at p≤0.05.

To assess the feasibility and reliability of this technique, we compared both groups' numbers of axillary nodes dissected, operative time (after removal of the tumor and attaining safety margin), and the incidences of complications. The number of nodes dissected was nearly the same among both groups with no statistical difference. However, the operative time in the study group was longer than the control group with noticeable

statistical significance (Table 2). In group A, we analyzed this increase in time in relation to breast cup size. As expected, this increase in time was statistically significantly longer among breast cup sizes C and D when compared to the smaller breast cup sizes A and B. However, this difference was not noted when cup D was compared with cup C nor when cup B was compared with cup A (Table 3).

Table 3: Relation between cup size and timing in minutes in group A (n=50).

	Cup size				F	P value
	A (n=6)	B (n=10)	C (n=16)	D (n=18)		
Timing in minutes						
Median (min.–max.)	85 (70–85)	85 (75–90)	95 (75–105)	105 (85– 110)	12.394*	<0.001*
Mean±SD	80 ^b ±7.8	82 ^b ±6.3	93.1 ^a ±11.5	100 ^a ±8		

F: F for ANOVA test, Pairwise comparison bet. Each 2 groups was done using Post Hoc Test (Tukey), p: p value for comparing between the different categories, *: Statistically significant at p ≤ 0.05., Means with Common letters are not significant (i.e. Means with Different letters are significant).

Table 4: Comparison between the two studied groups according to complications.

	Group A (n=50)	Group B (n=50)	χ ²	P value
	N (%)	N (%)		
Overall complications	8 (16)	2 (4)	4.00*	0.046*
Fat necrosis ± infection	6 (12)	0 (0)	6.383*	0.027*
Seroma	2 (4)	2 (4)	0.000	^{FE} p=1.000

X²: Chi square test, FE: Fisher Exact test, p: p value for comparing between the two studied groups, *: Statistically significant at p≤0.05.

The incidence of complications in group A (16%) was significantly higher than in group B (4%).

State of diabetes/steroid intake, breast cup size, and breast density were studied as their possible contribution in the occurrence of complications among group A.

This was specially noted with complications related to fat necrosis with or without infection and not in occurrence of seroma which occurred in 2 cases in each group (Table 4).

Among these factors, only breast density showed statistically significant relationship to occurrence of complications (Table 5).

Table 5: Relation between complications and different parameters in group A (n=50).

	Complications		Test of significance	P value
	No (n=42)	With (n=8)		
	N (%)	N (%)		
Diabetes/steroids	4 (9.5)	2 (25)	χ ² = 1.524	^{FE} p=0.242
Cup size			χ ² = 4.097	0.220
A	6 (14.3)	0 (0)		
B	10 (23.8)	0 (0)		
C	13 (31)	3 (37.5)		
D	13 (31)	5 (62.5)		
Density of the breast			χ ² = 10.404*	0.005*
A	6 (14.3)	6 (75)		
B	11 (26.2)	1 (12.5)		
C	15 (35.7)	1 (12.5)		
D	10 (23.8)	0 (0)		

X²: Chi square test, t: Student t-test, P: p value for comparing between the two categories, *statistically significant at p≤0.05.

The three previously mentioned factors were also assessed in a multivariate analysis; the following observations were noted: being diabetic or on steroid therapy did not show as an independent factor to affect

incidence of complications, the density of the breast was the most independent factor affecting the incidence of complications, and the more dense the breast tissue is, the

less complications occur with odd's ratio 0.094 (confidence interval 0.014–0.645).

The breast cup size was noted also to be an independent factor that affects the incidence of complications but with a lesser extent than that of the breast density. The larger the breast cup size gets, the more is the chance for complications with odd's ratio 4.40 (confidence interval 1.13–17.05).

DISCUSSION

Round block technique, which is described originally as a breast lift operation, was also used for tumor excision in different quadrants of the breasts.^{6,7}

Both benign and malignant tumors were removed with great success.⁸ The technique was described in some literature as a scarless technique. The periareolar incision heals quiescently and the scar fades out within few months.⁹

In our study, we included different breast cup sizes though the technique was originally described for small breast cup sizes; 10 it proved its success in larger cup sizes as well.^{10,11} The question to be asked in this case is: was the single incision procedure feasible?

In all cases, the procedure was completed without the need of adding axillary incision in any case whatever the breast cup size was. The number of axillary nodes dissected was equal among both groups. Moreover, in all cases it exceeded the minimum number of nodes (10 nodes) suggested by many studies to assure an adequate axillary staging.¹²⁻¹⁴

To answer the question whether the single incision procedure was associated with drawbacks, the technique of avoiding extra axillary incision was associated with longer operative time than the ordinary method of separate axillary dissection, obviously noted that the larger breast cup sizes were associated with longer operative time than smaller cup sizes. We believe that with increase in the learning curve, this difference in timing would decrease.

Also, it is noted that the rate of complications-namely fat necrosis-was higher among the studied group than the control group.

This higher rate of fat necrosis was related to breast density rather than the breast cup size.

Fatty breasts were more liable to fat necrosis with excessive dissection than dense breasts. As mentioned in the literature, fatty breasts should not be subjected to excessive dissection during breast conserving surgeries.^{1,10}

CONCLUSION

Axillary dissection through the round block periareolar incision is feasible. The surgery is demanding and requires long bladed illuminated retractors. Patients with large breast cup size and/or fatty breasts should be aware of the higher incidence of complications expected.

Funding: No funding sources

Conflict of interest: None declared

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

REFERENCES

1. Clough KB, Lewis JS, Couturaud B. Oncoplastic techniques allow extensive resections for breast conserving therapy of breast carcinomas. *Ann Surg.* 2003;237:26–34.
2. Rainsbury RM. Oncoplastic breast-conserving reconstruction: indications, benefits, choices and outcomes. *Nat Clin Pract Oncol.* 2007;4:657–64.
3. Masetti R, Pirulli PG, Magno S, Franceschini G, Chiesa F, Antinori A, “Oncoplastic techniques in the conservative surgical treatment of breast cancer,” *Breast Cancer.* 2000-7(4)-276–80.
4. Nathanson SD, Shah R, Chitale DA, Mahan M. Intraoperative clinical assessment and pressure measurements of sentinel lymph nodes in breast cancer. *Ann Surg Oncol.* 2014;21:81-5.
5. American College of Radiology. Breast imaging reporting and data systems (BI-RADS), American College of Radiology, Reston, VA; 2003.
6. *Aesthetic Plast Surg.* Spring; A new periareolar mammaplasty: the "round block" technique. Benelli L. 1990-14(2):93-100.
7. Akram SM, El Kased AF, Kader El Fol HAE, Hagag MG. Evaluation of the round block technique in early breast cancer. *Egypt J Surg.* 2018;37(2):256-9.
8. Lai H-W, Kuo Y-L, Su C-C, Chen C-J, Kuo S-J, Chen S-T, Chen D-R. Round block technique is a useful oncoplastic procedure for multicentric fibroadenomas. *Surgeon.* 2016;14(1):33-7.
9. Zaha H, Onomura M, Unesoko M. A new scarless oncoplastic breast-conserving surgery: modified round block technique. *Breast.* 2013;22(6):1184-8.
10. Clough KB, Kaufman GJ, Nos C, Buccimazza I, Sarfati IM. Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. *Ann Surg Oncol.* 2010;17(5):1375-91.
11. Ogawa T. Usefulness of breast-conserving surgery using the round block technique or modified round block technique in Japanese females. *Asian J Surg.* 2014;37(1):8-14.
12. Tausch C, Taucher S, Dubsy P, Seifert M, Reitsamer R, Kwasny W, et al. Prognostic value of number of removed lymph nodes, number of involved lymph nodes, and lymph node ratio in

7502 breast cancer patients enrolled onto trials of the Austrian Breast and Colorectal Cancer Study Group (ABCSCG). *Ann Surg Oncol.* 2012;19(6):1808-17.

13. Axelsson CK, Mouridsen HT, Zedeler K. Axillary dissection of level I and II lymph nodes is important in breast cancer classification. The Danish Breast Cancer Cooperative Group (DBCG). *Eur J Cancer.* 1992;28A(8-9):1415-8.
14. Wang F, He W, Qiu H, Wang X, Guo G, Chen X, et al. Lymph node ratio and pN staging show different

superiority as prognostic predictors depending on the number of lymph nodes dissected in Chinese patients with luminal A breast cancer. *Clin Breast Cancer.* 2012;12:404-11.

Cite this article as: Mahmoud A. Alhussini. Feasibility of axillary nodal staging through same incision of round block technique in breast cancer cases. *Int Surg J* 2019;6:2011-5.