

PP-09

구형구축은 실제로 동심성으로 발생하는가? 전흉근 즉시 유방재건 후 보형물 형태 변화에 대한 CT 기반 분석

(Does capsular contracture truly occur concentrically? – CT-based Implant Shape Change Analysis After Prepectoral Immediate Breast Reconstruction)



연세대학교

이중언, 김지민, 윤인식, 김영석, 노태석, 민경현*

Introduction:

Capsular contracture remains a relevant complication after prepectoral implant-based breast reconstruction, with reported rates around 6.8% in ADM-assisted series.^[1] Although usually regarded as a concentric process, objective longitudinal data on actual implant shape change are limited.

Methods:

We retrospectively reviewed 29 patients (32 reconstructed breasts) who underwent immediate prepectoral reconstruction with smooth round implants between March 2023 and February 2024 and received chest computed tomography for regular follow up at around postoperative one year and two year. Baseline characteristics were compared between breasts with and without capsular contracture. Maximal implant width, height, and projection were measured on CT, and interval changes were analyzed.

Results:

Seven of 32 breasts have diagnosed the capsular contracture. In the contracture group, height (10.9 mm) decreased more than width (6.1 mm) from postoperative two year (p = 0.016). The non-contracture group also showed greater height reduction (3.0 mm) than width reduction (1.9 mm, p=0.048). Height reduction was greater in the contracture group than in the non-contracture group (10.9 vs 3.0 mm, p=0.004), whereas width reduction was not significantly different. (6.1 vs 1.9 mm, p=0.102)

Conclusion:

Implant height decreased more than width over time regardless of capsular contracture, and this vertical dimensional loss was amplified by contracture. Postoperative

implant shape change may therefore be non-concentric, with gravity and gel cohesivity potentially influencing long-term breast contour.

References

[1] Nolan IT, Farajzadeh MM, Boyd CJ, Bekisz JM, Gibson EG, Salibian AA. Do we need acellular dermal matrix in prepectoral breast reconstruction? A systematic review and meta-analysis. *J Plast Reconstr Aesthet Surg.* 2023;86:251-260. doi:10.1016/j.bjps.2023.09.042.

Table 1. Patient demographics

Variable	No CC (n=25) mean(±SD)	CC (n=7) mean(±SD)	P-value
Age	32.17 ± 13.14	32.86 ± 7.55	0.8256
BMI	22.85 ± 3.85	22.85 ± 3.32	0.9297
Macrotexture	349.42 ± 345.52	388.08 ± 164.24	0.8171
Implant(cc)	286.68 ± 121.50	240.71 ± 47.45	0.0823
Implant width(mm)	125.92 ± 16.69	119.69 ± 8.58	0.1889
Implant projection(mm)	30.35 ± 3.55	28.80 ± 1.85	0.1858
Neoadjuvant therapy			
no	17 (68.0%)	2 (28.6%)	0.0906
yes	8 (32.0%)	5 (71.4%)	0.0806
Pre op post radiotherapy			
no	21 (84.0%)	4 (57.1%)	0.1574
yes	4 (16.0%)	3 (42.9%)	0.1374
Adjuvant chemotherapy			
no	23 (92.0%)	5 (71.4%)	0.1864
yes	2 (8.0%)	2 (28.6%)	0.2864
Macrotexture type			
Nipple-sparing mastectomy	26 (100.0%)	5 (71.4%)	0.1858
Skin-sparing mastectomy	3 (12.0%)	1 (14.3%)	0.1538
Total mastectomy	0 (0.0%)	1 (14.3%)	0.1858
Inertion			
Tubercular mastectomy fill	14 (56.0%)	4 (57.1%)	0.7598
Radial	9 (36.0%)	3 (42.9%)	0.7598
Internal	2 (8.0%)	0 (0.0%)	0.7206
Reconstruction			
Direct to implant	26 (100.0%)	6 (85.7%)	1.0000
2-stage	3 (12.0%)	1 (14.3%)	1.0000

Abbreviations: CC, capsular contracture

Table 2. Comparison of height decrease and width decrease

CC group: height decrease (1y-2y) > width decrease						
Group	N	Mean width decrease	Mean height decrease	Mean height decrease - width decrease	Wilcoxon p-value (one-sided)	
CC	7	6.06	10.91	4.85	0.0156	
No CC group: height decrease > width decrease; both their small decrease						
Group	N	Mean width decrease	Mean height decrease	p-value (height decrease - width decrease)	p-value (width decrease=0)	p-value (height decrease=0)
No CC	25	1.94	3.05	0.0479	0.0026	0.0011

Fig 1. CT image of 40-year-old female patient taken on post operative one year. The image showed the 11.36cm of height



Fig 2. CT image on postoperative 915 days, she has diagnosed grade 3 capsular contracture. In the image, the height of the implant was 9.45cm.

