



Impact Of Combined Gynecologic Procedures On Two Staged Implant-Based Reconstruction In Patients With Genetic Cancer Risks

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Background:

Patients sometimes undergo combined mastectomy, risk-reducing gynecologic procedures, and breast reconstruction during one OR visit. We explored this method's impact on reconstruction outcomes in patients with and without genetic cancer risks (GCR).

Methods:

We retrospectively reviewed 443 tissue expander-based breast reconstructions, performed by two surgeons at one tertiary-care academic hospital from January 2012 to February 2016. Patients were split into groups by GCR status and combined gynecologic procedures (GYN) status: GCR+, GYN+ (Group1,n=39); GCR+, GYN- (Group2,n=73); GCR-, GYN+ (Group3,n=9); GCR-, GYN- (Group4,n=327). GCR included mutations in BRCA, CHEK2, PALB2, and others. Rates of reconstruction loss and percentages of patients choosing flaps were calculated using ANOVA and Tukey-HSD. For patients completing implant-based reconstruction (n=269) ANOVA and Tukey-HSD was used for statistical analysis.

Results:

Among all patients, co-morbidities and age were equivalent, except between Group2 (43.3yrs) and Group4 (50yrs), $p=.00$. Rates of reconstruction loss and percentage of patients choosing flaps-based reconstruction were equivalent. Among implant patients, co-morbidities and age were equivalent except for Group2 (42yrs) and Group4(48.5yrs), $p=.02$. Complication rates were equivalent between groups. There were no significant differences in the mean number of complication-related surgeries before ($p=.95$) or after ($p=.89$) implant, revision surgeries ($p=.27$), or total surgeries ($p=.45$). Percentages of patients undergoing at least one complication-related surgery before implant ($p=.64$), at least one complication-related surgery after implant ($p=.93$), or at least one revision surgery ($p=.23$) were equivalent.

Table 1. Age, BMI, comorbidities, percentage of lost reconstructions, and percentage of patients choosing flaps amongst **all tissue expander patients**

Group	N	Age (yrs)	BMI (kg/m ²)	Patients with History of Smoking (%)	Patients with Hypertension (%)	Patients with Diabetes (%)	Patients Losing Reconstruction after TE Explant (%)	Patients choosing flap reconstruction without implant (%)
1 (GCR+, GYN+)	39	45.7	26.6	21	13	5	0	32
2 (GCR+, GYN-)	73	43.3*	27.7	23	15	5	1	42
3 (GCR-, GYN+)	9	46.2	26.8	25	33	11	0	44
4 (GCR-, GYN-)	327	50.0*	26.5	56	26	6	2	38
F, p (ANOVA) df between groups = 3 df within groups = 444 p (Tukey-HSD) if applicable		7.5, .00 *2&4: p=.00	.72, .54	1.7, .17	2.5, .06	.18, .91	.24, .87	.41, .74

Table 2. Percentages of patients with specific complications amongst patients receiving implants.

Group	N	Infection requiring IV antibiotics	Necrosis requiring surgery	TE Exchange for new TE	Implant Rupture	Seroma	Hematoma	Anatomical Implant Rotation	DVT	PE	Others
1 (GCR+, GYN+)	26	3.9	7.7	0	0	7.7	0	3.9	0	0	3.9
2 (GCR+, GYN-)	41	7.3	7.3	0	0	12.2	2.4	4.9	0	0	2.4
3 (GCR-, GYN+)	5	0	0	0	0	0	0	0	0	0	0
4 (GCR-, GYN-)	197	6.6	7.1	3.1	1.5	9.6	5.6	5.6	0	0	10.2
F, p (ANOVA) df between groups = 3 df within groups = 265 p (Tukey-HSD) if applicable		.2, .88	.9, .95	.7, .53	.4, .78	.3, .82	.8, .49	.1, .93	N/A	N/A	.1, .94

Table 3. Age, BMI, and percentages of patients with comorbidities **amongst patients receiving implants.**

Group	N	Age (yrs)	BMI (kg/m ²)	Patients with History of Smoking (%)	Patients with Hypertension (%)	Patients with Diabetes (%)
1 (GCR+, GYN+)	26	47.0	23.6	15.4	19.2	7.7
2 (GCR+, GYN-)	41	42.0*	25.0	24.4	9.8	0
3 (GCR-, GYN+)	5	44.6	23.8	40.0	20.0	0
4 (GCR-, GYN-)	197	48.5*	24.3	22.8	22.8	2.5
F, p (ANOVA) df between groups = 3 df within groups = 265 p (Tukey-HSD) if applicable		3.2, .02 *2&4: p=.01	.4, .75	.6, .64	1.2, .31	1.3, .28

Table 4. Mean numbers of surgeries per patient and percentages of patients undergoing different surgeries **amongst patients receiving implants.**

Group	N	Number of Complication-related surgeries before implant	Number of Complication-related surgeries after implant	Number of Revision surgeries	Total Number of surgeries	Percentage of patients with at least one revision surgery	Percentage of patients with at least one complication-related surgery before implant placement	Percentage of patients with at least one complication-related surgery after implant placement
1 (GCR+, GYN+)	26	.3	.08	.6	2.9	34.6	23.1	3.9
2 (GCR+, GYN-)	41	.2	.02	.4	2.7	26.8	24.4	2.4
3 (GCR-, GYN+)	5	.2	0	.2	2.6	20.0	20.0	0
4 (GCR-, GYN-)	197	.2	.06	.6	2.9	42.1	16.84	4.1
F, p (ANOVA) df between groups = 3 df within groups = 265 p (Tukey-HSD) if applicable		.1, .95	.2, .89	1.3, .27	.9, .45	1.4, .23	.6, .64	.1, .93

Conclusions:

When comparing patients that completed implant-based reconstruction, combining risk-reducing gynecologic procedures with mastectomy and reconstruction into one OR visit does not appear to negatively impact reconstructive outcomes.