Pathology Examination of Breast Reduction Specimens - Dispelling the Myth

Presenter:	Mark Fisher, MD
Co-Authors:	Aaron Burshtein, BA, Joshua Burshtein, BA, Panagiotis Manolas, MD, Scot Bradley Glasberg, MD, FACS
Affiliation:	Hofstra/Northwell School of Medicine, New Hyde Park, NY

Introduction

Reduction mammaplasty is performed for more than 100,000 patients per year in the United States to treat symptomatic macromastia. Excised breast tissue is routinely sent for pathologic review due to the relative risk of breast cancer. There is a large variance in the reported incidence of cancerous or high-risk lesions in these specimens, ranging from 0.06 – 4.6%. Recently, there has been debate whether histological review of breast reduction specimen is necessary. This study aims to determine the incidence of cancerous or high-risk lesions and to evaluate risk factors for their occurrence.

Methods

A retrospective review was conducted for all patients who underwent reduction mammaplasty in 2018 by the senior author. All patients 35 years of age and older underwent preoperative mammogram and further ultrasound evaluation if indicated. Variables collected included patient demographics, comorbidities, history of prior breast surgery, family history of breast cancer, weight of breast specimen, and pathologic findings. All patient underwent pathologic evaluation of their specimens. The pathologic evaluation was either categorized as benign, proliferative, or malignant. Those with positive findings underwent more detailed microscopic and histologic examination

Results

A total of 155 patients underwent 310 reduction mammaplasties (Table 1). Pathologic evaluations found eleven patients (7.1%) had positive pathological findings, with nine patients (5.16 %) having proliferative lesions and 2 patients (1.29 %) having cancerous lesions (Table 2). Similarly, 13 breasts (4.19 %) had positive pathology, with 11 breasts (3.55 %) having proliferative lesions and 2 breasts (0.65 %) having cancerous lesions. Patients with positive pathology were older ($p = 0.038$), had a family history of breast cancer ($p = 0.026$), and had a greater weight of resected breast tissue ($p = 0.005$) than patients with benign pathologic findings. Multivariable analysis found that those with a family history of breast cancer ($p = 0.001$), prior

breast surgery (*p*=0.026), and a greater weight of resected breast tissue (*p*=0.008) had higher likelihood of positive pathology (Table 3).

Conclusion

These findings demonstrate an incidence of positive pathology higher than that previously reported and illustrate the importance of histologic review of breast reduction specimens. Family history of breast cancer, prior breast surgery, and a greater weight of resected breast tissue increase risk for proliferative or cancerous lesions on pathologic evaluation. These findings reinforce the need to submit breast reduction specimens for pathology and may suggest that more detailed histologic evaluation of these specimens is necessary.

Table 1. Demographics

	Benign	Proliferative Lesions/Precancerous/Cancer	*p*
No. of patients	144	11	N/A
No. of breasts	297	13	N/A
Mean Age ± SD, yr	37.47 ± 13.52	46.27 ± 12.75	0.038
Mean BMI ± SD, kg/m²	30.35 ± 4.56	32.36 ± 5.48	0.168
Diabetes	7 (4.86 %)	2 (18.18 %)	0.125
Hypertension	24 (16.67 %)	3 (27.27 %)	0.407
Smoking	8 (5.56 %)	0	1
History of Breast Cancer	0	0	1
Family History of Breast Cancer	2 (1.39 %)	2 (18.18 %)	0.026
Prior Breast Surgery	3 (2.08 %)	1 (9.09 %)	0.257
Mean Weight of Resected Breast Specimen ± SD, g	681.20 ± 389.36	1050.72 ± 652.62	0.005

All statistical analysis was performed for number of
patients, not number of breasts;
N/A, not applicable; BMI, body mass index

Table 2. Rate of Lesions on Pathologic Evaluation

	No. of Patients (%)	No. of Breasts (%)
Total Rate of Pathological Findings	11 (7.09 %)	13 (4.19 %)
Proliferative Lesions	9 (5.16 %)	11 (3.55 %)
Atypical Ductal Hyperplasia	3 (1.94 %)	3 (0.96 %)
Atypical Lobular Hyperplasia	1 (0.65 %)	1 (0.32 %)
Lobular Carcinoma in Situ	5 (3.23 %)	7 (2.26 %)
Cancer Lesions		
Ductal Carcinoma in Situ	2 (1.29 %)	2 (0.65 %)

Table 3. Multivariable Logistic Regression Analysis for Proliferative/Cancerous Lesions

Predictor Value	B (SE)	Wald	OR (95% CI)	p-value
Age	0.05 (0.03)	2.182	1.048 (0.985-1.114)	0.14
BMI	-0.13 (0.12)	1.211	0.878 (0.697-1.107)	0.271
Diabetes	2.23 (1.38)	2.592	9.176 (0.618-136.314)	0.107
Hypertension	-0.81 (1.03)	0.615	0.447 (0.06-3.342)	0.433
Smoking	-18.05 (14336.22)	0	0 (0)	0.999
Family History of Breast Cancer	4.56 (1.44)	10.089	95.349 (5.728-1587.224)	0.001
Prior Breast Surgery	3.48 (1.56)	4.963	32.384 (1.519-690.354)	0.026
Mean Weight of Resected Breast Specimen (g)	0.003 (0.001)	7.104	1.003 (1.001-1.005)	0.008

Nagelkerke R^2= 0.390. Model $\chi 2$ (8) = 25.86, p < 0.001
BMI, body mass index