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The Impact of Marijuana Use on Postoperative Outcomes in Reduction Mammaplasty

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Introduction

•Tetrahydrocannabinol may impact platelet function, inflammation, and wound healing[1-2]

•Associated with impaired healing, increased pain, and infection in other surgical subspecialties[2-4]

•Study aim was to evaluate association between marijuana use and complications in reduction mammaplasty

Methods

•Single institution retrospective cohort study between 2019 – 2024

•Included participants were >18y of age and had >2w follow up

•Excluded participants who underwent oncologic or revision breast reduction

•Bivariate and multivariable analysis on a "per breast" basis

Results

Table 1. Patient Characteristics

	Total breast reductions	Current marijuana use	No marijuana use	p-value
	No. (%)	No. (%)	No. (%)	
Demographics	1243 (100.0)	251 (20.2%)	992 (79.8)	
Age, years (median [IQR])	35.7 [22.5]	28.6 [13.5]	38.3 [22.5]	<0.001*
Race				0.722
Black	906 (72.9)	183 (72.9)	723 (72.9)	
White	246 (19.8)	47 (18.7)	199 (20.1)	
Other or unknown	91 (7.3)	21 (8.4)	70 (7.1)	
BMI, kg/m² (median [IQR])	32.9 [7.9]	33.1 [9.1]	32.8 [7.8]	0.732
Smoking History				0.010*
Never	922 (74.2)	169 (67.3)	753 (75.9)	
Current	143 (11.5)	41 (16.3)	102 (10.3)	
Past	178 (14.3)	41 (16.3)	137 (13.8)	
CCI, (median [IQR])	0 [1]	0 [0]	0 [1]	0.003*
Diabetes	72 (5.8)	17 (6.8)	55 (5.5)	0.457
Steroid use				0.882
None	1175 (94.5)	237 (94.4)	938 (94.6)	
Topical	23 (1.9)	4 (1.6)	19 (1.9)	
Oral	45 (3.6)	10 (4.0)	35 (3.5)	
History of Chemotherapy for Contralateral breast				0.688
None	1217 (97.9)	248 (98.8)	969 (97.7)	
Adjuvant	14 (1.1)	2 (0.8)	12 (1.2)	
Neo-adjuvant	12 (1.0)	1 (0.4)	11 (1.1)	

Abbreviations: CCI, charlson comorbidity index; N-IMF, nipple to inframammary fold distance, cm; SN-N, sternal notch to nipple distance, cm.

Table 2. Postoperative Outcomes

	Total breast reductions	Current marijuana use	No marijuana use	p-value
	No. (%)	No. (%)	No. (%)	
Outcomes	1243 (100.0)	251 (20.2)	992 (79.8)	
Any complication	286 (23.0)	62 (24.7)	224 (22.6)	0.476
Seroma	14 (1.1)	2 (0.8)	12 (1.2)	0.748
Hematoma	18 (1.5)	8 (3.2)	10 (1.0)	0.010*
Dehiscence	98 (7.9)	17 (6.8)	81 (8.2)	0.465
Major Dehiscence	5 (0.4)	0 (0.0)	5 (0.5)	0.689
Minor Dehiscence	93 (7.5)	17 (6.8)	76 (7.7)	0.633
Infection	34 (2.7)	10 (4.0)	24 (2.4)	0.175
Deep infection	8 (0.6)	4 (1.6)	4 (0.4)	0.057
Superficial infection	26 (2.1)	6 (2.4)	20 (2.0)	0.711
Partial nipple necrosis	10 (0.8)	1 (0.4)	9 (0.9)	0.697
Full thickness nipple necrosis	4 (0.3)	2 (0.8)	2 (0.2)	0.184
Delayed healing	114 (9.2)	32 (12.8)	82 (8.3)	0.028*
Fat necrosis	24 (1.9)	1 (0.4)	23 (2.3)	0.067
Keloid formation	26 (2.1)	5 (2.0)	21 (2.1)	1.000
Return to OR (<30days)	12 (1.0)	3 (1.2)	9 (0.9)	0.717
Follow up months, (median [IQR])	2.6 [3.6]	1.8 [2.9]	2.8 [4.2]	0.001*

Table 3. Multivariable Models.

Multivariable Logistic Regression: Hematoma Formation

Co-Variable	O.R. (95% C.I.)	P-value
Marijuana Use Group	2.93 (1.14, 7.57)	0.026*
Smoking		
None	1 [Reference]	-
Current	1.87 (0.56, 6.17)	0.306
Former	2.07 (0.64, 6.75)	0.225
Drain Use	0.31 (0.12, 0.82)	0.018*

Multivariable Logistic Regression: Delayed Healing

Co-Variable	O.R. (95% C.I.)	P-value
Marijuana Use Group	1.99 (1.26, 3.13)	0.003*
Smoking		
None	1 [Reference]	-
Current	0.78 (0.39, 1.54)	0.473
Former	1.14 (0.64, 2.03)	0.662
BMI	1.08 (1.04, 1.11)	<0.001*
Diabetes	0.86 (0.36, 2.07)	0.738
Steroid use		
None	1 [Reference]	-
Topical	1.37 (0.38, 4.91)	0.631
Oral	2.44 (1.1, 5.35)	0.027*
Resection Weight	1.00 (1.00, 1.00)	0.280
Drain Use	1.71 (1.03, 2.86)	0.039*

Discussion

- 2.93 times increased odds of hematoma
  - ➢ THC reduces platelet aggregation[5-7]
  - ➢ Marijuana associated with endothelial dysfunction and vasodilation[8-14]
- 1.99 times increased odds of delayed wound healing
  - ➢ THC impairs collagen synthesis and angiogenesis[15-16]
  - ➢ Cannabis exposure linked to fibroblast dysfunction and altered immune response[17-19]

Conclusion

•Critical to counsel patients on the potentially negative effects of marijuana use in reduction mammaplasty

•Consider marijuana cessation in the perioperative period

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