

The Impact of Metabolic Syndrome on Post-Operative Outcomes in Abdominal Body Contouring: A Propensity Score-Matched Nationwide Analysis

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Introduction

- Metabolic syndrome (MetS) is defined by a constellation of cardiometabolic abnormalities, including hypertension, obesity, insulin resistance, and dyslipidemia.¹
- The increasing prevalence has substantial implications for **postoperative outcomes**, with mounting evidence revealing elevated risks of postoperative **myocardial infarction, pulmonary complications, renal dysfunctions, and prolonged hospital stays** in patients with MetS.²⁻⁴

Objectives

- To evaluate the impact of Metabolic Syndrome on the postoperative outcomes of abdominal body contouring by concurrent abdominoplasty and panniculectomy.

Methods

- Retrospective study on patients who underwent concurrent abdominoplasty and panniculectomy from 2012 to 2022 using the ACS-NSQIP database.

- Patients were categorized by MetS:

Medically treated for **diabetes mellitus**.
Medically treated for **hypertension**.
Body mass index ≥ 30 kg/m².

- Propensity score-matching was used to generate balance cohorts. Logistic and linear regression models evaluated outcomes.

Demographics

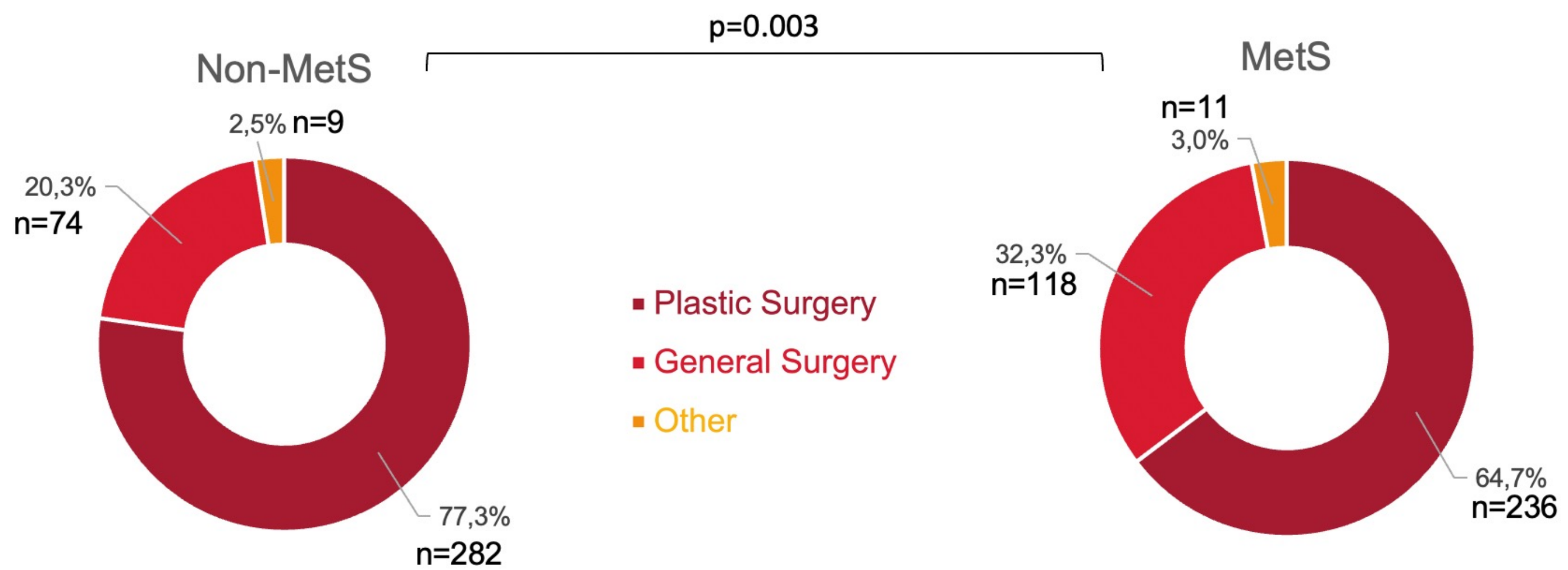
Characteristic	Non-MetS	MetS	p-value
Total n (%)	365 (50.0)	365 (50.0)	
Age mean (SD)	56.9 (11.2)	55.9 (10.6)	0.178
Gender n (%)			
Female	302 (82.7)	296 (81.1)	0.631
Male	63 (17.3)	69 (18.9)	
Race n (%)			0.599
White	277 (75.9)	284 (77.8)	
Non-White	88 (24.1)	81 (22.2)	
Ethnicity n (%)			0.172
Non-Hispanic	335 (91.8)	323 (88.5)	
Hispanic	30 (8.2)	42 (11.5)	
Weight Loss* n (%)	1 (0.3)	0 (0.0)	1.000
Smoking History n (%)	28 (7.7)	27 (7.4)	1.000
Steroid Use n (%)	3 (0.8)	3 (0.8)	1.000
Comorbidities n (%)			
Congestive heart failure	0 (0.0)	4 (1.1)	0.124
Disseminated Cancer	1 (0.3)	1 (0.3)	1.000
History of COPD	11 (3.0)	11 (3.0)	1.000
Bleeding Disorders	6 (1.6)	8 (2.2)	0.788
Dialysis	2 (0.5)	2 (0.5)	1.000
Sepsis	5 (1.4)	5 (1.4)	1.000
Functional Status n (%)			1.000
Independent	362 (99.2)	361 (98.9)	
Partially / Totally Dependent	3 (0.8)	4 (1.1)	
ASA Classification			0.812
1 - No disturb/ 2 - Mild disturb	119 (32.6)	115 (31.5)	
3 - Severe disturb/ 4 - Life Threat/ 5 - Moribund	246 (67.4)	250 (68.5)	

Post-Operative Complications

- Length of stay:
 - Non-MetS:** 1.6 (SD 3.6)
 - No Tumescant:** 2.3 (SD 2.7); **p=0.007**

Univariate analyses revealed significant shorter length of stay in the non-MetS group. No significant differences in other postoperative complications were found between groups.

Surgical Characteristics



Logistic Regression Models

	Mild Systemic Complications		Severe Systemic Complications		Wound Complications		Readmissions	
	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
Non-MetS	Reference		Reference		Reference		Reference	
MetS	1.281 (0.113, 14.586)	0.842	-	-	0.950 (0.252, 3.588)	0.940	0.839 (0.178, 3.950)	0.824

- Logistic regression models comparing complication rates between MetS and non-MetS categories demonstrated no significant differences in wound complications, mild and severe systemic complications, and readmission rates.

Linear Regression Models

	Operation Time (Min)		Length of stay (days)	
	Coefficient (95% CI)	p-value	Coefficient (95% CI)	p-value
Non-MetS	Reference		Reference	
MetS	4.641 (-8.5, 17.8)	0.487	0.630 (0.17, 1.01)	0.007

Patients diagnosed with MetS had an average **length of stay of 0.6 days longer** than non-MetS patients (95% CI, [0.17,1.01]; **p=0.007**). No significant difference in operation time was observed between cohorts.

Conclusions

- The presence of MetS does not appear to increase postoperative wound and systemic complications after abdominal body contouring procedures.
- Abdominal body contouring may be a safe option for patients with MetS. Nonetheless, the longer hospital length stays observed in patients with MetS may potentially translate to increased overall costs.
- Future directions:** Continued research is warranted to comprehensively assess the economic implications of MetS in the context of abdominal body contouring and the long-term impact of these cardiometabolic derangements.

References

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