Risk Stratification Of Major Complications After Outpatient Abdominoplasty or Panniculectomy

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BACKGROUND:
Ambulatory surgery centers offer the advantages of greater efficiency and overall patient experience. As more procedures are performed in the outpatient setting, reliably identifying patients at higher risk for major complications will be critical. Abdominoplasty and panniculectomy represent a large component of ambulatory plastic surgery procedures. While recent studies have identified risk factors for complications in the outpatient setting, there is no clinically actionable tool available for use currently.[1, 2] This study utilizes the ACS-NSQIP dataset to develop a risk-stratification model for complications requiring secondary clinical intervention after outpatient abdominal surgery.

METHODS:
Patients undergoing abdominoplasty or panniculectomy were identified from the NSQIP databases for 2012-2013. The primary outcome was need for secondary clinical intervention, defined as unplanned readmission or reoperation. Patient comorbidities and operative characteristics were correlated with complication risk. A step-wise multivariate logistic regression of all factors with p value< 0.1 was conducted and resulting significant factors were entered into a bootstrap technique. Adjusted multivariate beta-coefficients were used to generate weighted risk scores for each factor. Each patient was then assigned an aggregate complication risk score, yielding the risk-assessment tool.

RESULTS:
1,429 patients underwent outpatient abdominal surgery and were included for analysis. Unplanned reoperation or readmissions were observed in 4.1% of surgeries (n=59). Independent patient factors predictive of secondary clinical intervention included malnutrition (OR=8.1), male gender (OR=3.4), diabetes (OR=2.8), smoking (OR=2.5), BMI 35 or higher (OR=2.2), and age over 45 (OR=2.2). Regarding operative characteristics, patients undergoing concurrent breast implant insertion were at increased risk (OR=4.4), while those undergoing trunk liposuction were less likely to require secondary clinical intervention (OR=0.48).

Patients were stratified into 4 groups according to complication risk: low risk (complication=1.7%), average risk (complication=2.7%), high risk (complication=8.8%), and extreme risk (complication=21.0%). The model demonstrated high sensitivity and specificity for discriminating need for secondary intervention with a C-statistic=0.76. It was also applicable to secondary outcomes, and accurately predicted surgical complications, overall complications, and prolonged hospital stay during the index procedure.

CONCLUSIONS:
This study builds upon previous work by providing a quantifiable risk stratification system for clinically relevant complications experienced after abdominal surgery in the ambulatory setting. Malnutrition, male gender, and concurrent breast prosthetic implantation were strong independent predictors of risk. This tool may enhance preoperative counseling and improve patient selection in the ambulatory setting.

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