Quality of Surgical Outcomes Reporting in Plastic & Reconstructive Surgery: A 15 Year Analysis of Complication Data

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Abstract

Background: Postoperative complication data are integral to assessing patient outcomes and identifying areas to improve the quality and safety of surgical care. Accurate appraisal of surgical techniques requires consistency and reliability in complication data reporting. The purpose of this study was to analyze the quality of complication reporting in the plastic surgery literature.

Methods: The authors systematically reviewed the plastic surgery literature from January 1999 to January 2014 to identify all articles reporting surgical outcomes after 3 index procedures (autologous breast reconstruction, prosthetic breast reconstruction and reduction mammaplasty). Two authors independently analyzed and extracted data from each article using a modification of established criteria for complication reporting that incorporates 10 critical elements (Table 1). All published reports with more than 75 patients were included.

Criteria	Requirement
Method of accruing data defined	Prospective or retrospective accrual of data are indicated
Duration of follow-up indicated	Report clarifies time period of postoperative accrual of complications
Outpatient information included	Study indicates that complications first identified following discharge are included in analysis
Definitions of complications provided	Article defines at least one half of complications listed with specific inclusion criteria
Patient-reported outcomes or aesthetic result	Article includes any data for patient reported outcomes or aesthetic result (subjective or objective)
Morbidity rate and total complications indicated	The number or patients with any complication and the total number of complications are recorded
Procedure-specific complications included	Includes at least one half of the following complications for each procedure: Breast Reduction: infection, skin necrosis, nipple necrosis/loss, hematoma, seroma, and dehiscence Breast Reconstruction (Autologous): infection, fat necrosis, skin necrosis, dehiscence, flap loss, anastomotic complication, hematoma, seroma, and donor-site complications Breast Reconstruction (Prosthetic): infection, contracture, necrosis, dehiscence, implant exposure, implant loss, implant deflation/rupture, hematoma and seroma
Severity grade utilized	Any grading system designed to clarify severity of complications is reported
Length-of-stay data	Median or mean length of stay indicated in the study
Risk-factors included in analysis	Evidence of risk stratification and method used indicated in study

Results: A total of 281 articles reporting outcomes for 234,323 procedures in 185,723 patients were analyzed. This included 1 randomized control trial, 238 retrospective, 38 prospective, and 4 cross-sectional studies, with an average level of evidence of 3.1. Of the 10 critical reporting criteria, no articles met all criteria, < 1% met 9 criteria, 15% met 7 to 8, 45% met 5 to 6, 35% met 3 to 4, and 5% met 1 to 2; with a mean 5 criteria met. The most commonly underreported criteria were: complication definitions (38% of articles), outpatient data (22% of articles), length of stay (19% of articles) and complication severity/grade (14% of articles). When defined (36% of articles), there were 33 distinct definitions for infection. Risk factors for complication occurrence were absent in 38% of reports. Cost-analysis of complications and the impact of complications on patient-reported outcomes were included in only 2% and 21% of articles, respectively. In the 40 studies reporting complication severity, the most common categorization (78%) was “major vs. minor” but there were 15 different definitions of what constituted a major complication.

Conclusions: Inconsistency in the reporting of surgical complications in the plastic surgery literature confounds the comparison of surgical outcomes. Postoperative complications are increasingly used as the primary endpoint to compare surgical techniques, competency and quality of care. The creation and widespread use of standard guidelines to accurately, efficiently and reproducibly report complication data is essential for quality assurance and improvement.

Disclosure
The authors have no financial interest or commercial associations to declare in relation to the content of this abstract