

Patient safety in dermatologic surgery

Part I. Safety related to surgical procedures

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Learning objectives

After completing this learning activity participants should be able to:

- 1) Critically assess potential safety issues within their specific surgical practice
- 2) Identify knowledge, competence, or performance gaps that may lead to these issues
- 3) Delineate strategies for minimizing complications for patients undergoing dermatologic surgery

Disclosures

Editors

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Surgical procedures involve unique elements related to patient safety. One must be aware of potential complications and safety issues within the practice of dermatologic surgery. Developing a high level of competence in skin surgery will address some safety issues, while implementing protocols and redundancies provides systems-based correction for other safety issues. We provide an in-depth review of patient safety in dermatologic surgery. In particular, we highlight the most common safety issues and methods for reducing error. (J Am Acad Dermatol 2015;73:1-12.)

Key words: dermatologic surgery; electrosurgery; Mohs micrographic surgery; office-based surgery; patient safety; skin cancer; wrong-site surgery.

With the advent of the Patient Protection and Affordable Care Act, the Physician Quality Reporting System, and increasing regulatory oversight, tracking and improving patient safety has been brought to the forefront of health care delivery. In fact, a MEDLINE search using the subject heading “patient safety” yields more than 4000 articles, with 99% of these published after 2010.

Abbreviations used:

ADE:	adverse drug event
EMI:	electromagnetic interference
ICD:	implantable cardioverter defibrillator
JCAHO:	The Joint Commission
MMS:	Mohs micrographic surgery
WSS:	wrong site, wrong person, or wrong procedure surgery

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Table I. Dermatologic surgery—related “most serious” errors listed in decreasing frequency as reported by survey participants*

Wrong-site surgery
Technical error during procedure
Inaccurate quality/quantity of specimen
Incorrect information on sample bottle/request form
Laser procedure

*Data from Watson et al.²

The impetus for much of this discussion was the Institute of Medicine’s publication of *To Err is Human: Building a Safer Health System*.¹ This report brought forward concerning data regarding hospital deaths related to medical error and gave public notoriety to the issue.

Surgical procedures involve unique elements related to patient safety. Multiple steps are often compressed into a time-sensitive window, with added complexities caused by patient comorbidities and anatomic variations. It is imperative to consider the specific challenges to patient safety in a surgical setting and then construct checkpoints to ensure optimal outcomes.

A broad survey of attendees of dermatology meetings classified reported errors into the following categories: assessment, intervention, administrative, and communication.² The 150 respondents were asked to describe their most recent and most serious errors, with the majority of mistakes categorized as assessment, intervention, or administrative problems. Of the 10 most frequently reported serious errors, 5 directly involved dermatologic surgery (Table I), with 4 others conceivably occurring in the perioperative period (ie, an incorrect clinical diagnosis, a delayed response to a test, a prescribing error, or a problem reporting results to a physician). Focusing on improving patient safety and outcomes not only protects patients but also promotes efficient health care delivery and reduced malpractice uncertainty for physicians. Part I of this continuing medical education article will review patient safety in the dermatologic surgical setting. Part II explores safety with respect to cosmetic procedures and devices.

SAFETY IN AN OFFICE-BASED SETTING

Key points

- **Surgical procedures have increasingly shifted toward the outpatient or office-based setting**
- **Most adverse events related to outpatient or office-based surgery occur when general anesthesia is used**

- **Data compiled from mandatory reporting databases and a large multicenter prospective study confirm the safety of dermatologic surgery in the office-based setting**
- **Electrosurgery has been shown to be safe in the office-based setting**

In the 1980s, surgical procedures began shifting from hospital settings to ambulatory surgical centers. By the turn of the century, many of these procedures were commonly performed in outpatient offices. It is estimated that up to 80% of operations are now performed as outpatient procedures,³ with 15% to 20% of these occurring in an office-based setting.⁴ Reports questioning the safety of office-based surgeries led to several state medical boards investigating this practice and enacting new regulations. California became the first state to pass such regulations in 1996. In 1999, a New York State senate committee determined that many physicians performing office-based surgery were practicing outside the scope of their specialty.⁵ These investigations were largely spurred by reports of fatalities during tumescent liposuction, primarily performed using general anesthesia. Data from large studies on office-based surgery were able to quell some of the regulatory uncertainty and fear of widespread harm, noting complication rates of 0.3% to 1.5%.⁶⁻¹⁰

Reported complication rates of ambulatory or office-based surgery often relate to the use of general anesthesia. Dermatologic surgery is generally performed using local or regional anesthesia—sometimes including mild sedation—and therefore the inherent risk is minimized to an even greater degree. Some of the most useful data revealing complications during office-based procedures have been compiled from a mandatory reporting database for office procedures in Florida.¹¹⁻¹⁴ Initial prospective analysis of the first year in that database revealed that most serious complications resulted from office-based liposuction when performed under general anesthesia.¹⁴ At 7 years, 174 incidents were reported, including 31 deaths. No deaths were reported in the dermatology setting, with only 4 incidents requiring hospital transfer.¹³ By 10 years, 263 procedure-related complications and 46 deaths were reported, with the majority of deaths and nearly half of hospital transfers associated with cosmetic procedures—of which most involved general anesthesia. Also, there were no further incidents involving dermatologists, leaving the specialty accounting for 1.3% of all complications at 10 years. A review of Alabama’s mandatory reporting database over 6 years revealed similar findings.¹¹ Of note, there were no reported liposuction-related deaths or

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