

# Venous Thromboembolism in Cosmetic Plastic Surgery: Maximizing Patient Safety

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*To be conscious that you are ignorant is a great step to knowledge.*

—Benjamin Disraeli, 1845

Cosmetic surgery is the epitome of elective surgery. Our patients seek us out to improve their physical appearance, which may, in turn, enhance their quality of life. Despite the exhaustive informed consent process, the safety of the procedures is implicit in the minds of our patients. Is cosmetic plastic surgery as safe as it can be? Deep vein thrombosis and pulmonary embolism are among the most common complications for patients undergoing surgical procedures. Advances in perioperative anesthesia and surgical techniques have allowed plastic surgeons to perform more complex and combined procedures safely. The occurrence of postoperative bleeding in these procedures may lead to poor cosmetic results or the need for further surgical intervention. Despite this, many, if not most, plastic surgeons still do not use any form of deep vein thrombosis or pulmonary embolism prophylaxis during their cosmetic surgery procedures.

What is the incidence of deep vein thrombosis and pulmonary embolism in patients undergoing cosmetic plastic surgery? In the literature, Drs. Reinisch et al.<sup>1</sup> reported an incidence of 0.35 percent deep vein thrombosis and pulmonary embolism in patients undergoing face lifts. In addition, nearly 61 percent of surgeons in their study did not use any form of prophylaxis. The study is limited by its design—a questionnaire sent to a percentage of the American Society for Aesthetic Plastic Surgery membership. The questionnaire asked surgeons to report on their experience in the 12 months prior to the arrival of the survey.

Although it is difficult to forget a patient with postoperative deep vein thrombosis and pulmonary embolism, the study based its conclusions primarily on physician memory. This is an inadequate method on which to base any conclusions on the true incidence of deep vein thrombosis and pulmonary embolism in this patient population.

Van Uchelen et al.<sup>2</sup> reported a 1.4 percent incidence of deep vein thrombosis and pulmonary embolism in 86 patients undergoing abdominoplasty. This was a retrospective study and was not specifically designed to assess deep vein thrombosis and pulmonary embolism in this population. A recent article by Aly et al.<sup>3</sup> reported their experience with belt lipectomy at the University of Iowa. The pulmonary embolism rate was 9.3 percent. Sequential compression stockings, early ambulation, and “sometimes” the use of subcutaneous heparin were cited as the modes of deep vein thrombosis prophylaxis.

The American College of Chest Physicians<sup>4</sup> recommendations on prophylaxis attempted to stratify patients according to their perioperative risks for deep vein thrombosis. They classified patients as moderate risks if they were undergoing “nonmajor” surgery, were between 40 and 60 years of age, and had no other risk factors. These patients were estimated to have a proximal deep vein thrombosis incidence of 2 to 4 percent, with clinical pulmonary embolism in 1 to 2 percent (fatal pulmonary embolus, 0.1 to 0.4 percent). Patients were considered high risk if they were older than 60 years of age and undergoing nonmajor surgery. The proximal deep vein thrombosis risk in that group was estimated at 4 to 8 percent, with the risk for

pulmonary embolism in the 2 to 4 percent range.

According to the American Society of Plastic Surgeons' statistics for 2001,<sup>5</sup> approximately 275,000 liposuction procedures, nearly 59,000 abdominoplasties, and approximately 124,500 face lifts were performed in the United States. Most of these are major procedures, but even at the rate estimated for nonmajor procedures<sup>4</sup> the incidence of deep vein thrombosis could be as high as 18,340 cases per year. This is particularly disturbing given the fact that 60 percent of plastic surgeons in the study by Reinisch et al.<sup>1</sup> did not use deep vein thrombosis prophylaxis.

What should we do? Dr. McDevitt<sup>6</sup> reviewed the available data in 1999. The lack of any prospective studies on plastic surgery patients led him to make several "inferentially based" recommendations. Since there have been no recent investigations of deep vein thrombosis in plastic surgery patients, his recommendations continue to provide a useful guideline. They include:

- flexion of the knees to approximately 5 degrees to maximize blood flow through the popliteal veins on all patients;
- use of intermittent pneumatic compression devices for all patients considered moderate risk;
- consideration of the use of low-molecular-weight heparin in patients in whom dissection will not be extensive; and
- continuation of prophylaxis until the patient is fully ambulatory.

Implementation of these simple maneuvers by plastic surgeons should be universal; however, a more aggressive approach may be necessary. Plastic surgery patients undergoing abdominoplasty, combined procedures, or procedures lasting longer than 4 hours (excluding face) at the University of Texas Southwestern Medical Center, Dallas, Texas, are currently administered low-molecular-weight heparin preoperatively. In addition, all patients are ambulating by the evening of the operation. Despite these measures, venous thromboembolism has been documented in a small number of our patients.

Our first and foremost role in the doctor-

patient relationship is that of patient advocate. It is our obligation to maximize patient safety to the best of our abilities. The optimal method and duration of deep vein thrombosis prophylaxis in cosmetic plastic surgery patients are unknown. We cannot answer these questions when the incidence of deep vein thrombosis in this population is also unknown. The technology to answer these questions is readily available, and a prospective study of the incidence of deep vein thrombosis in this population will soon be underway at the University of Texas Southwestern Medical Center. Data for this important subject are also being gathered nationwide by the Tracking Operations and Outcomes for Plastic Surgeons program sponsored by the American Society of Plastic Surgeons and the Plastic Surgery Educational Foundation. The answers may not be what we want to hear, but necessary if we are to make plastic surgery as safe as it can be.

*The envious nature of men, so prompt to blame and so slow to praise, makes the discovery and introduction of any new principles and systems as dangerous almost as the exploration of the unknown seas.*

—Machiavelli (1517)

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