Lasers and Losers in the Eyes of the Law

Liability for Head and Neck Procedures

Peter F. Svider, MD; Michael A. Carron, MD; Giancarlo F. Zuliani, MD; Jean Anderson Eloy, MD; Michael Setzen, MD; Adam J. Folbe, MD

**IMPORTANCE** Although some have noted that malpractice litigation may be “plateauing,” defensive medical practices are pervasive and make up a considerable proportion of the “indirect” costs medicolegal issues contribute toward our health care system. Accordingly, these trends have spurred considerable interest in characterizing factors that play a role in alleged medical negligence, along with outcomes and awards.

**OBJECTIVES** To conduct a focused examination of malpractice litigation regarding laser procedures in the head and neck and to determine the reasons for initiating litigation as well as outcomes and awards.

**DESIGN AND SETTING** Retrospective analysis of the WestlawNext legal database, encompassing publicly available federal and state court records, to identify malpractice cases involving laser procedures in the head and neck.

**MAIN OUTCOMES AND MEASURES** Outcomes, awards, defendant specialty, and other allegations.

**RESULTS** Most cases (28 [82%]) included in this analysis involved female plaintiffs. Of 34 cases, 19 (56%) were resolved with a defendant verdict. The median indemnity was $150 000, and dermatologists, otolaryngologists, and plastic surgeons were the most commonly named defendants. The most common procedures were performed for age-related changes, acne scarring, hair removal, and vascular lesions, although there were also several rhinologic and airway cases. Of all cases, 25 (74%) involved cutaneous procedures, and common allegations noted included permanent injury (24 cases [71%]), disfigurement/scarring (23 [68%]), inadequate informed consent (17 [50%]), unnecessary/inappropriate procedure (15 [44%]), and burns (11 [32%]). Noncutaneous procedures had higher trending median payments ($600 000 vs $103 000), although this comparison did not reach statistical significance (P = .09).

**CONCLUSIONS AND RELEVANCE** Procedures using lasers represent a potential target for malpractice litigation should an adverse event occur. Although cutaneous/cosmetic procedures were noted among cases included in this analysis, as well as other head and neck interventions, otolaryngologists were more likely to be named as defendants in the latter category. Although cases had modest indemnities compared with prior analyses, the potential for significant amounts was present. Inclusion into the informed consent process of specific factors detailed in this analysis may potentially decrease liability. In addition, physicians and patients should undergo comprehensive discussion regarding expectations as well as contingencies should adverse events occur.

**LEVEL OF EVIDENCE** 4.
An increasingly litigious environment has characterized health care delivery in the United States during the past 3 decades. Although some have noted malpractice litigation may be “plateauing,” defensive medical practices are pervasive and make up a considerable proportion of the “indirect” costs medicolegal issues contribute toward our health care system. Accordingly, these trends have spurred considerable interest in characterizing factors that play a role in alleged medical negligence, along with outcomes and awards. Jalian et al recently examined common causes of injury in cutaneous laser surgery, noting that “hair removal” was the most commonly litigated procedure and that “lack of informed consent” was present in nearly one-third of cases. No analysis, was noted, however, regarding anatomic sites of injury. In our current analysis, we were interested in conducting a focused examination of litigation regarding cases in the head and neck, as close proximity of critical structures harbor the potential for significant functional sequelae that may adversely affect quality of life. Consequently, we hypothesized that laser-related negligence in the procedures in the head and neck, including the face, is probably associated with higher payments in cases resolved with a jury awarding damages or an out-of-court settlement.

The use of lasers increasingly encompasses procedures beyond those related to cosmetic and cutaneous considerations, particularly in otolaryngology. As such, as part of a focused examination on negligence in the head and neck, we...
Methods

We used the advanced search function of the WestlawNext database (Thomson Reuters) to identify jury verdict and settlement records spanning from 1992 to October 2013, using the search terms illustrated in Figure 1. This database draws from court proceedings progressing to the point of inclusion in publicly available federal and state court records. Although some jurisdictions include attorney-reported cases, nonvoluntary (ie, confidential) reports are available from most jurisdictions and are labeled with such terms as confidential, anonymous, or Jane Doe/John Doe. Along with the comprehensive detail available in most court reports, WestlawNext’s ease of use (for the layperson without legal expertise) makes it a widely used resource within and beyond the legal community, and it has consequently been valuable in a multitude of medicolegal analyses. We comprehensively examined each court record, recording plaintiff age and sex, specific issues put forward in litigation, and case outcomes. All data were collected in October 2013.

Because monetary values did not follow a symmetric distribution, jury awards and out-of-court settlements were compared as appropriate using nonparametric statistical analysis with Mann-Whitney tests. The threshold for significance was set at P < .05, and SPSS software (version 20; IBM) was used for statistical analysis.

Results

Most cases included in this analysis involved female plaintiffs (82%). The median plaintiff age was 46 years (range, infancy to 83 years). Of 34 cases (Figure 2), 19 (56%) were resolved with a defendant verdict (Figure 2A). Aggregate payments (including verdict awards and settlements) totaled $6.55 million. Median jury-awarded damages were greater than out-of-court settlements ($200 000 vs $102 750), although this difference was not statistically significant (P = .30). Dermatologists were the most frequently named physician defendants (11 cases [32%]), and otolaryngologists and plastic surgeons were equally represented (6 cases each [18%]) (Figure 2B). In addition, 3 cases had litigation involving non-physician defendants. The most frequent procedures included laser treatment for age-related changes, followed by revision of acne marks and hair removal (Figure 2C). Nearly three-quarters of procedures were for cutaneous conditions, and the other most frequent allegations raised in litigation included sustaining permanent injury, disfigurement or scarring, inadequate informed consent, and undergoing unnecessary or inappropriate procedures (Figure 3). Procedures for noncutaneous conditions and cases with informed consent
allegations had higher median payments (Table 1), although these differences did not reach statistical significance, possibly because there were too few overall cases.

Among cases with otolaryngologists as defendants, all but 1 were exclusively for noncutaneous conditions, and 1 was a combined rhinologic procedure along with laser resurfacing for rosacea; other factors in cases with defendants confirmed to be otolaryngologists are illustrated in Table 2. Cases resolved with a plaintiff verdict are detailed in Table 3, and informed consent allegations and sustaining allegedly permanent injuries were present in a significant proportion of these cases. In addition, Table 4 and Table 5 list factors in cutaneous cases performed for vascular lesions or other aesthetic reasons, respectively.

Discussion

Our examination reinforces findings comprehensively detailed by Jalian et al,11 because both analyses noted the presence of similar issues raised in malpractice litigation, including burns, scars and disfigurement, and pigmentation abnormalities. As otolaryngologists, we were interested in further focusing analysis on the use of lasers in the head and neck. The 15 cases in the current analysis resolved with an out-of-court settlement or a plaintiff verdict with a median award of $150 000, less than the median indemnity ($350 000) reported by Jalian et al.11 This refutes our hypothesis that malpractice involving the head and neck would result in definitely higher payments owing to the close proximity of critical structures and a consequently smaller “margin for error.” The reasons for this discrepancy are unclear; some of the main differences between these analyses were that the prior analysis included more hair removal cases (63 cases) and numerous cases involving tattoo removal. Another important consideration was that we were most interested in medical malpractice and thus restricted our study to cases of medical negligence; in other words, we did not include cases dealing exclusively with product liability or deficient medical device design. Prior analyses of facial aesthetic procedures have noted that product liability claims against manufacturers occur with regularity.14,49

Only 3 cases involved nonphysician operators being named as codefendants, a smaller proportion than reported by Jalian et al.11 Despite the unclear effect of nonphysician operators on our findings, there is a real potential for physicians to be named as codefendants for acts committed by nonphysician operators under their supervision, as noted in our analysis and in prior studies. In a focused examination of laser litigation associated with nonphysician operators, Jalian et al50 estimated that nearly one-third of litigation analyzed included this scenario. This reinforces the importance of close supervision, knowledge of state laws with regard to this practice, and maximal caution in the employment of these operators.

During the past 2 decades, the use of lasers has increased in a variety of otolaryngologic procedures and conditions. Advocates of lasers in rhinologic procedures, particularly for turbinate reduction, note a decreased bleeding risk,51 and the use of lasers has notably increased for management of laryngeal lesions.52 Moreover, success in several otologic procedures, including revision stapedectomy, has increased when lasers are used.20

Physicians in multiple specialties, including otolaryngology and facial plastic and reconstructive surgery, have also increasingly used lasers for cutaneous conditions, because a multitude of conditions that previously necessitated more invasive operative intervention can now be managed with lasers.52,53 Laser resurfacing has traditionally encompassed the use of carbon dioxide and erbium:YAG lasers, and recent developments have greatly expanded the timing available to treat unsightly scarring or other lesions, ranging from as early as an initial injury to many years later.54

Table 2. Cases With Alleged Intraoperative Negligence Involving Otolaryngologists

<table>
<thead>
<tr>
<th>Patient Age, y/ Sex</th>
<th>Award (S/P), $</th>
<th>Procedure/Underlying Condition</th>
<th>Postoperative</th>
<th>Unnecessary</th>
<th>Consent</th>
<th>Additional</th>
<th>Cosmesis</th>
<th>Perm</th>
<th>Alleged Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>1 665 000 (P)</td>
<td>Septoplasty/turbinate reduction (laser) for nasal obstruction and rosacea</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Loss of skin/cartilage around nose; disfigurement/scarring</td>
</tr>
<tr>
<td>M</td>
<td>850 000 (P)</td>
<td>Laser UPPP and tonsil (OSA)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Nasopharyngeal stenosis; failure to address nasal septum</td>
</tr>
<tr>
<td>45/F</td>
<td>... b</td>
<td>Septoplasty/turbinate reduction (laser) for OSA</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No improvement in symptoms; sinus symptoms developed; OSA not correct diagnosis</td>
</tr>
<tr>
<td>45/M</td>
<td>... b</td>
<td>Laser stapedectomy (otosclerosis)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Cranial nerve VII paralysis; diminished visual acuity and depth perception in left eye; hearing loss</td>
</tr>
<tr>
<td>64/F</td>
<td>... b</td>
<td>Septoplasty/turbinate reduction (laser) for deviated septum nasal symptoms</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>KTP laser; postoperative urinary retention/leaks; did not consent to general anesthesia</td>
</tr>
<tr>
<td>83/M</td>
<td>200 000 (P)</td>
<td>Cancerous VC lesion</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Airway fire; inhalation injury; death due to ARDS</td>
</tr>
</tbody>
</table>

Abbreviations: Additional, required additional surgery; ARDS, acute respiratory distress syndrome; consent, alleged deficits in informed consent; cosmesis, poor cosmesis (from disfigurement or scarring); KTP, potassium titanyl phosphate; OSA, obstructive sleep apnea; P, plaintiff decision; perm, permanent injury; postoperative, postoperative negligence; S/P, settlement or plaintiff decision; unnecessary, unnecessary or inappropriate procedure; UPPP, uvulopalatopharyngoplasty; VC, vocal cord.

* Ages were not available for some patients.

b Defendant decision.
Despite the myriad benefits accompanying these trends, there is certainly the potential for complications, including thermal injury and skin discoloration, as noted in our analysis. Allegations of inadequate informed consent were raised in 50% of cases included (17 cases) (Figure 3). Nearly 60% of these cases (10 cases) were resolved with a payment, compared with the 29% payment rate in cases without this issue, and median payments trended higher with the presence of this factor ($246 000 vs $150 000), although this trend did not reach statistical significance ($P = .17$) (Table 2). Alleged deficits in informed consent have been consistently found in a variety of medicolegal analyses.\textsuperscript{21-45,55-57} This is particularly important for cosmetic procedures, in which informed consent allegations can stem from a patient’s expectations not being met rather than a physician’s simply not mentioning a potential risk.\textsuperscript{44} Consequently, in a comprehensive discussion of risks, benefits, and alternatives, physicians and patients should explore specific goals of a procedure, as well as what plan to follow if expectations are not met. Although including the specific injuries detailed in this analysis (Figure 3) is certainly

---

Table 3. Cases Resolved With a Plaintiff Verdict

<table>
<thead>
<tr>
<th>Patient Age, y/ Sexa</th>
<th>Award, $</th>
<th>Defendant</th>
<th>Indication</th>
<th>Laser</th>
<th>Qualification</th>
<th>Burn</th>
<th>Pigment</th>
<th>Postoperative</th>
<th>Unnecessary</th>
<th>Consent</th>
<th>Additional</th>
<th>Work</th>
<th>Perm</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>52/F</td>
<td>977 000</td>
<td>Derm</td>
<td>Aging CO₂</td>
<td>Yes</td>
<td>Third degree</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Perioral scarring</td>
</tr>
<tr>
<td>F</td>
<td>150 000</td>
<td>Unspecified</td>
<td>Hair</td>
<td>Unspecified</td>
<td>No</td>
<td>First degree</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>F</td>
<td>2300</td>
<td>OB</td>
<td>Aging CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Involvement of forehead</td>
</tr>
<tr>
<td>35/F</td>
<td>20 000</td>
<td>GS</td>
<td>Vascular CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>“Should have” used argon laser</td>
</tr>
<tr>
<td>F</td>
<td>391 000</td>
<td>Plastic</td>
<td>Scar CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Lost tip of nose</td>
</tr>
<tr>
<td>71/F</td>
<td>1 265 000</td>
<td>Oculoplastic</td>
<td>Aging CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Skin breakdown needing HBO</td>
</tr>
<tr>
<td>F</td>
<td>80 000</td>
<td>Derm</td>
<td>Vascular CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Ulcers that scarred</td>
</tr>
<tr>
<td>83/M</td>
<td>200 000</td>
<td>O/A</td>
<td>VC</td>
<td>Unspecified</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>M</td>
<td>1 665 000</td>
<td>Oto</td>
<td>Rhinologic CO₂</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>See Table 2</td>
</tr>
<tr>
<td>M</td>
<td>850 000</td>
<td>Oto</td>
<td>OSA</td>
<td>Unspecified</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>38/F</td>
<td>100 000</td>
<td>Dentist</td>
<td>Dental CO₂</td>
<td>Unspecified</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Loss of bone; death of 7 teeth</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: Additional, required additional surgery; CO₂, carbon dioxide; consent, alleged deficits in informed consent; defendant, defendant specialty; Derm, dermatologist; GS, general surgeon; hair, hair removal; HBO, hyperbaric oxygen therapy; indication, indication for procedure; O/A, otolaryngologist and anesthesiologist codefendants; OB, obstetrician-gynecologist; oculoplastic surgery; OSA, obstructive sleep apnea surgery; Oto, otolaryngologist; perm, permanent injury; pigment, dyspigmentation; plastic, plastic surgeon; postoperative, postoperative negligence; qualification, defendant allegedly not qualified to perform procedure; rhinologic, rhinologic procedure; unnecessary, unnecessary or inappropriate procedure; vascular, removal of vascular anomaly; VC, vocal cord procedure; work, employment/income affected.

---

Table 4. Allegations in Cases Involving Removal of Vascular Lesions

<table>
<thead>
<tr>
<th>Patient Age, y/ Sexa</th>
<th>Defendant</th>
<th>Award (S/P), $</th>
<th>Postoperative</th>
<th>Unnecessary</th>
<th>Consent</th>
<th>Additional</th>
<th>Perm</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>35/F</td>
<td>Not specified</td>
<td>20 000 (P)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>CO₂ laser to remove PWS on neck/jaw; scarring; plaintiff claimed defendant should have used argon laser</td>
</tr>
<tr>
<td>8/M</td>
<td>Derm</td>
<td>...</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Candella laser for PWS on face, neck, and arm; hyperpigmentation; “inappropriate” candidate because patient was African American</td>
</tr>
<tr>
<td>F</td>
<td>Derm</td>
<td>80 000 (P)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Telangiectasias on face removed; resulting nonhealing ulcer</td>
</tr>
<tr>
<td>F</td>
<td>General surgeon</td>
<td>...</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Postoperative application of aloe, to which patient was allergic during procedure; procedure for veins on cheeks</td>
</tr>
</tbody>
</table>

Abbreviations: Additional, required additional surgery; CO₂, carbon dioxide; consent, alleged deficits in informed consent; Derm, dermatologist; P, plaintiff decision; perm, permanent injury; postoperative, postoperative negligence; PWS, port-wine stain; S/P, settlement or plaintiff decision; unnecessary, or inappropriate procedure. 

---

a Ages were not available for some patients.

b Laser gingivectomy.
valuable, further discussion of more general considerations (such as the potential requirement for additional surgery [Figure 3]) is also important.

The use of a carbon dioxide laser was noted in 9 cases (26%), and potassium titanyl phosphate and erbium:YAG lasers were noted in 1 case each. The other cases did not specify which types of lasers were used by the defendant. This finding illustrates a weakness inherent to the use of WestlawNext in this analysis, in that certain medical components of the case may not be detailed in numerous instances. WestlawNext is compiled to educate litigators about issues brought up in malpractice litigation,22,23 and, consequently, many of the jury verdict and settlement reports are written to disseminate information to the layperson without medical expertise.

Another limitation of WestlawNext is that it includes only cases progressing far enough for possible inclusion into publicly available federal and state court records. Only 34 cases met inclusion criteria using our search terms. During a 22-year span, this represents 1 or 2 cases per year, a relatively low number compared with other medicolegal topics of interest. This may mean that litigation concerning head and neck laser injuries is less frequent than litigation concerning injuries elsewhere, or it may represent a higher likelihood of reaching out-of-court settlements, many of which may not progress far enough to be included in publicly available federal and state court records. Confirming which of these scenarios may be responsible for the number of cases included is beyond the scope of this resource. This limitation emphasizes the fact that WestlawNext’s value lies not in estimating the prevalence of litigation specific to an injury but rather in its utility in analyzing allegations in cases to which we had access. Despite these drawbacks, WestlawNext is still one of the most detailed sources describing medicolegal proceedings and as such has been of value in many analyses.11,21-30,32-48

Conclusions

Procedures using lasers represent a potential target for malpractice litigation should an adverse event occur. Physicians in numerous specialties, including dermatology, plastic surgery, and otolaryngology, were named as defendants. Whereas cases in this analysis included cutaneous/cosmetic procedures as well as other head and neck interventions, otolaryngologists were more likely to be named as physician defendants in the latter category. Although cases resolved with out-of-court settlement or plaintiff verdicts had relatively modest payments (median, $150 000) compared with prior analyses, the potential for significant amounts was present; numerous plaintiff verdicts exceeded $800 000. Inclusion in the informed consent process of specific factors detailed in this analysis, such as scarring/disfigurement and pigmentation abnormalities, as well as attention to more general considerations, such as the potential need for additional surgery, may decrease liability. In addition, physicians and patients should have comprehensive discussions regarding expectations as well as contingency plans to be followed should adverse events occur.
Lasers and Malpractice


6. Hertz BT, Arthurs J. Malpractice rates plateauing: the only thing to fear may be fear itself. Med Econ. 2011;88(22):24-25, 28-29, 32.


