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ORIGINAL ARTICLE**Retrospective Study**

- 1 Medical malpractice litigation involving otolaryngology residents and fellows: A case-based 30-year review

Suresh NV, Shah VN, Fritz CG, Griff JR, Shah S, Watane A, Parikh RS, Nicolli EA

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Retrospective Study

Medical malpractice litigation involving otolaryngology residents and fellows: A case-based 30-year review

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Abstract**BACKGROUND**

Errors, misdiagnoses, and complications can occur while trainees are involved in patient care. Analysis of such events could reveal areas for improvement by residency and fellowship programs.

AIM

To examine lawsuits tried at the state and federal level involving otolaryngology trainees.

METHODS

The LexisNexis database, an online legal research database containing state and federal case records from across the United States, was retrospectively reviewed for malpractice cases involving otolaryngology residents or fellows from January 1, 1990 to December 31, 2020. Case data collected: Plaintiff/trainee/defendant characteristics, allegations, medical outcomes, and legal outcomes.

RESULTS

Over the study period, 20 malpractice lawsuits involving otolaryngology trainees

were identified. Plaintiffs raised numerous allegations including procedural error ($n = 12$, 25.5%), incorrect diagnosis and/or treatment ($n = 8$, 17.0%), and lack of knowledge of trainee involvement ($n = 6$, 12.8%). Nine cases (45%) had verdicts in favor of the plaintiff, whereas 5 cases (25%) had verdicts in favor of the defense. Six cases (30%) ended in a settlement. Awards to plaintiffs were heterogeneous, with a median of \$617,500 (range \$32K-17M) for settled cases and verdicts favoring plaintiffs.

CONCLUSION

The findings enclosed herein represent the first published analysis of trainee involvement in otolaryngology malpractice cases held at the state/federal level. Otolaryngology trainees can be involved in lawsuits for both procedural and nonprocedural events. This study highlights the importance of education specifically in the domains of procedural errors, informed consent, proper diagnosis/management, and clear communication within patient care teams. Training programs should incorporate these study findings into effective simulation courses and didactic sessions. Educating trainees about common pitfalls holds the promise of decreasing healthcare systems costs, reducing trainee burnout, and, most importantly, benefiting patients.

Key Words: Malpractice; Otolaryngology; Education; Trainees; Litigation; Quality improvement

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Core Tip: Prior reports indicate that surgeons will face at least one malpractice lawsuit during their career. Malpractice suits and the threat thereof may pose a significant psychological burden on young otolaryngologists. Preparation for such a situation should be embedded into residency curricula, yet no prior study has reported on the topic of otolaryngology trainee litigation on a state/federal level. The reported cases highlight the importance of thorough informed consent, proper diagnosis/management, and clear communication between attending physicians and trainees. Incorporating these seminal cases into the existing literature would support preemptive educational efforts and provide evidence-based insight for trainees in a legal predicament.

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INTRODUCTION

Otolaryngologists operate in anatomically challenging territory composed of delicate structures. Even with adequate experience and expertise, complications can and, unfortunately, do occur. The most concerning of such adverse events include anoxic brain injury, vision loss, hearing loss, vocal cord paralysis, facial paralysis, suffocation, and even death. As a result, otolaryngology is a specialty that is especially prone malpractice litigation[1]. Prior reports indicate that physicians in high-risk specialties will face at least one medical malpractice lawsuit during their career[2]. Malpractice laws were initially instituted to create physician accountability and uphold patient safety. Consequences of such lawsuits can culminate in burnout and the adoption of defensive medicine, defined as the administration of additional procedures or refusal to treat due to a threat of litigation[3-8].

Residents and fellows (trainees) are considered physicians but operate under the supervision and responsibility of attending physicians. By law, under the doctrine of *respondeat superior*, translated as “let the master answer,” the employer, the attending physician, is liable for the acts of their agents, the trainees[9]. Despite this legal doctrine, trainees are not fully protected from their mistakes. Previous analyses of medical malpractice claims identified residents as defendants in 30% of claims and in 18% of surgery-related litigation trials[10-13]. Although prior literature has examined malpractice cases in all subspecialties within the field of otolaryngology, no prior report has specifically investigated litigation against trainees[14-19].

The current study investigates lawsuits that include otolaryngology trainees as defendants. A thorough understanding of these cases serves to offer useful insight into areas of improvement in otolaryngology residency and fellowship programs. Learning from these common allegations can help minimize adverse outcomes and future lawsuits, as well as alleviate physician anxiety, decrease

potential burnout, and ultimately cultivate a safer environment for the benefit of patients.

MATERIALS AND METHODS

An institutional subscription was used to log into the LexisNexis legal database. This collection stores every appellate federal and state case spanning from January 1790 to present day[20,21]. LexisNexis was specifically used because it is one of the most heavily cited databases in the literature investigating medical malpractice litigation. Additionally, many hospitals and health systems employ the LexisNexis database to inform hiring and risk management decisions[20,22-25]. This study does not constitute human subject research and was deemed exempt from review by the University of Pennsylvania Institutional Review Board.

The LexisNexis database was queried for litigation involving otolaryngology trainees between January 1st, 1990 and December 31st 2020. Keywords used to search the database included ("residency" or "resident" or "fellow" or "trainee" or "post graduate" or "first year" or "1st year" or "second year" or "2nd year" or "third year" or "3rd year" or "fourth year" or "4th year" or "fifth year" or "5th year" or fellow or fellowship) and (otolarynx* or "ear" or "nose" or "throat") and malpractice. Our search query yielded a total of 247 cases, each of which was reviewed by 3 authors (NVS, VNS, EN). There was 100% consensus among all authors.

To be included, cases must have cited involvement of an otolaryngology trainee (residents or fellows) in the allegation by the plaintiff. The otolaryngology trainee however did not need to be listed as a defendant in the case.

Case data collected included: plaintiff/trainee/defendant characteristics, case characteristics, allegations, medical outcomes, and legal outcomes. Allegations were designated as follows: delay in evaluation, incorrect diagnosis/treatment, procedural error, lack of informed consent of procedure/complication, lack of informed consent of resident being involved, failure to supervise resident, inexperienced trainee(s), prolonged operative time, and lack of or incorrect communication between trainee and attending. Descriptive statistical analysis was performed using SPSS Statistics software (IBM, Armonk, NY). Data were expressed as mean \pm standard deviation (SD) or median (interquartile range [IQR])[26].

RESULTS

Of the 247 search results of malpractice cases within the field of otolaryngology during the study period, 20 cases involved otolaryngology residents or fellows and were included in the study (Table 1). In total, the malpractice lawsuits included 20 plaintiffs, 48 defendants, and spanned 11 different states. The most common geographic location was New York ($n = 5$). These cases involved 14 (70%) female patients and 6 (30%) male patients. Post graduate year (PGY) of residents was available for 7 of the 20 cases, of which 3 cases involved junior trainees (PGY 1-3) and 4 cases involved senior trainees (PGY 4-5 or fellow). On average, these cases had 2.4 ± 2.1 (mean \pm SD) defendants. An otolaryngology trainee was directly involved in each of the 20 cases and 5 cases initially named the trainee as one of the defendants. No case listed the trainee as the only defendant. The frequency of reports demonstrated a downward trend in recent decades: 1990-2000, 9 cases; 2001-2010, 7 cases; and 2011-2020, 4 cases.

Allegations

The allegations made by the plaintiffs were reviewed and categorized (Table 2). A total of 47 allegations were made. Of the 20 cases, 17 (85%) reported multiple adverse events, and the most frequent allegation claimed by the plaintiffs was procedural error ($n = 12$, 25%). With regard to procedural error, those most commonly cited were damage to the stapes and oval window during removal of middle ear cholesteatoma, recurrent laryngeal and long thoracic nerve injury, and damage to the lamina papyracea during functional endoscopic sinus surgery (FESS). Ten of the 12 procedural errors resulted in complications manifesting postoperatively. Interestingly, concurrent allegations occurring within these 12 cases that alleged procedural errors included: (1) Lack of informed consent for residents being involved in the operation ($n = 5$); and (2) Trainee inexperience ($n = 5$), and 3) a failure to supervise the resident during the operation ($n = 4$).

The second most frequently cited allegation was incorrect diagnosis or treatment of the patient's medical condition ($n = 8$, 17%). Three of these allegations occurred during the initial otolaryngology clinic visit where the patient was seen by a resident physician and 5 occurred in the perioperative period. Of the 8 cases alleging incorrect diagnosis or treatment, 3 cases also concurrently alleged that the resident physician failed to communicate and inform the attending physician of any issue.

Less commonly, the topic of informed consent arose without concurrent allegation of procedural error. Out of the 20 cases included in the study, there were 4 allegations referencing lack of informed consent for procedural complications and 6 allegations referencing lack of informed consent for

Table 1 30-yr summary of litigation involving otolaryngology trainees (1990-2020)

Outcome	State	Plaintiff award (\$)	Precipitating Medical Outcome	Allegations	Case summary	Case reference
Plaintiff	MA	32654	Right sided hearing loss	3, 4	Pt underwent surgery for middle ear cholesteatoma. Resident/attending performed surgery. Stapes and oval window were violated	1991; Jury Verdicts LEXIS 50361
Plaintiff	PA	12876069	Vegetative state secondary to anoxic encephalopathy	2, 3, 7	Pt with goiter underwent surgery. Pt given pain meds post-op. Pt vomited and developed neck hematoma. Resident was unable to do a trach and waited for attending to complete it. While waiting, pt became comatose	2012; Jury Verdicts LEXIS 5466
Plaintiff	VA	750000	Permanent blindness in right eye secondary to retro-orbital hematoma	5, 6	Surgeon consented pt with CF to FESS to remove mucocele. Residents performed procedure and attending left OR. Ethmoid artery was severed; bleeding was stopped. Rebleed in post-op recovery causing a retro-orbital hematoma compressing the optic nerve	2004; Dolan Media Jury Verdicts LEXIS 4472
Plaintiff	VA	2200000	Bilateral recurrent laryngeal nerve injury and tracheostomy dependence	3, 5, 7	Pt underwent total thyroidectomy for PTC. Both recurrent laryngeal nerves were severed	2019; Jury Verdicts LEXIS 104401
Plaintiff	OH	14460000	Vegetative state secondary to anoxic encephalopathy	3, 5, 6, 7	Pt underwent surgery for deviated septum performed by resident. Pt was prematurely taken off ventilator resulting in cardiac arrest	1997; OH Trial Rptr. LEXIS 1361
Plaintiff	MI	1003764	Death secondary to airway obstruction	2, 3	Pt was intubated due to diabetic condition. Nasal packing was placed in both nostrils. During extubation, nasal packing went down pt's throat. Laryngoscope pushed packing deeper into trachea causing suffocation	1995; Jury Verdicts LEXIS 60765
Plaintiff	NY	300000	Facial nerve paralysis	3, 4, 5	Facial nerve severed by resident during mastoidectomy	1993; Jury Verdicts LEXIS 54896
Plaintiff	GA	2350000	Death secondary to traumatic vocal cord injury	1, 2, 9	Pt underwent lung wedge resection for nodule. Pt had episodes of aspiration. Nasopharyngoscopy showed significant glottal gap. Vocal cord injury was not recognized. Pt aspirated and died	2020; Jury Verdicts LEXIS 318581
Plaintiff	OH	17050000	Anoxic encephalopathy leading to spastic quadriplegia and mental retardation	2	Pt with bacterial tracheitis was admitted. Pt suffered temporary respiratory arrest. Pt treated with racemic epi but went into cardiac arrest. Pt was resuscitated but had brain injury with quadriplegia. Pt claimed defendants were negligent to order a bronchoscope and intubate to protect airway	1992; Jury Verdicts LEXIS 50387
Settlement	NY	1100000	Death secondary to malignancy	2	Pt presented with ear pain. Resident attributed pain to odontogenic origin. Oral surgeon removed teeth. Neurologist suspected trigeminal neuralgia. Neurosurgery then referred to ENT. MRI showed SCC. Missed cancer had spread, resulting in death	2004; Jury Verdicts LEXIS 48892
Settlement	NY	5150000	Anoxic encephalopathy; subglottic stenosis/tracheal stenosis due to prolonged intubation	2, 9	Pt had pulsatile mass noted on fiberoptic exam. CT revealed sphenoid mass, possible angiofibroma. Pt had heavy bleeding from nose with perforated carotid artery. Pt claimed resident never informed attending of pulsatile mass and did not act with urgency to embolize	2004; Jury Verdicts LEXIS 47843
Settlement	MI	485000	Vegetative state secondary to anoxic encephalopathy	1	Pt underwent surgery for cholesteatoma. CPAP was discontinued post-op. Continuous pulse ox was not monitored. Pt became non-responsiveness but breathing. Fellow ordered to recheck vitals in 30 min. Pt stopped breathing in 15 min	2003; MI Trial Rptr. LEXIS 922
Settlement	NY	4700000	Vegetative state secondary to anoxic	1, 2	Pt underwent elective thyroidectomy. Hypocalcemia was unnoticed in post-	2008; Jury Verdicts LEXIS

			encephalopathy		op. Pt went into respiratory failure and cardiac arrest. Resident opened surgical site, which revealed airway compromise due to post-thyroidectomy hematoma	31978
Settlement	TX	225000	Death secondary to ARDS	3, 7, 8	Pt developed post-op ARDS secondary to aspiration following glottis-dilating surgery	1995; Jury Verdicts LEXIS 72772
Settlement	NY	450000	Spinal accessory nerve damage	3, 4	Pt underwent excisional biopsy of left cervical node. Pt developed winged scapula and inability to lift shoulder post-op	1999; Jury Verdicts LEXIS 55907
Defense	TN	0	Vegetative state secondary to anoxic encephalopathy	3	Pt scheduled for tracheotomy. CRNA paralyzed pt rather than sedating. Defendants were unable to secure airway for 6-8 min	2000; TN Jury Verdicts & Sett. LEXIS 564
Defense	LA	0	Permanent hearing deficit, facial pain and numbness	2, 6, 9	Pt c/o hearing loss. Resident diagnosed sinusitis rather than CN deficit failing to prescribe steroids. Pt was prescribed steroids 3 d later. Delay caused permanent hearing deficit and facial pain	2019; LA JURY VERDICTS & SETT. LEXIS 247
Defense	OH	0	Permanent lateral diplopia bilaterally	3, 4, 5	Pt underwent FESS complicated by a breach of lamina papyracea. Pt claimed possibility of vision compromise was not mentioned during consent, and resident should not have been on the case	2003; OH Trial Rptr. LEXIS 1107
Defense	MA	0	Injury to the face during rhinoplasty	3, 6	Negligent supervision of resident performing rhinoplasty resulting in retained foreign object from broken surgical instrument	2010; Jury Verdicts LEXIS 93443
Defense	CA	0	CSF leak, photophobia, and meningitis	3, 5, 6, 7	Pt underwent FESS complicated with a CSF leak. Photophobia and meningitis were noted post-op. Pt underwent subsequent surgeries. Defendants claimed pt had Munchausen's syndrome	1997; Jury Verdicts LEXIS 66164

Allegations: 1: Delay in evaluation; 2: Incorrect diagnosis or treatment; 3: Procedural error; 4: Improper informed consent of procedure; 5: Lack of knowledge of trainee involvement; 6: Failure to supervise trainee; 7: Inexperienced trainee; 8: Prolonged operation; 9: Trainee did not communicate or inform attending. Pt: Patient; Post-op: Post-operation; Trach: Tracheostomy; CF: Cystic fibrosis; FESS: Functional endoscopic sinus surgery; OR: Operating room; PTC: Papillary thyroid cancer; Epi: Epinephrine; ENT: Ear nose throat surgeon; MRI: Magnetic resonance imaging; SCC: Squamous cell carcinoma; CT: Computed tomography; CPAP: Continuous positive airway pressure; Pulse ox: Pulse oximetry; ARDS: Acute respiratory distress syndrome; CRNA: Certified registered nurse anesthetist; C/O: Complaining of; CN: Cranial nerve; CSF: Cerebrospinal fluid.

residents being present during the procedure.

Adverse medical outcomes

The medical outcomes of each of the 20 cases were categorized (Table 3). The most common outcomes included anoxic encephalopathy leading to a persistent vegetative state ($n = 7$, 35%) and death ($n = 4$, 20%). Other less commonly reported outcomes included cranial nerve injuries (facial nerve, recurrent laryngeal nerve, accessory nerve XI) ($n = 4$, 20%), hearing loss ($n = 2$, 10%), vision loss ($n = 2$, 10%) and cerebrospinal fluid leak ($n = 1$, 5%).

Legal outcomes: Settlements and awards

A total of 9 (45%) cases had verdicts in favor of the plaintiff, whereas 5 cases had verdicts in favor of the defense (25%). Six (30%) cases ended in a settlement. The overall median award to the plaintiffs was \$617500 (IQR, \$24490-\$2937500). Of the cases that were ruled in favor of the plaintiff, the median payout was \$2200000 (IQR, \$750000-12876069). Of the cases that were settled, the median payout was \$792500 (IQR, \$458750-3800000).

Table 2 Allegations observed in 20 cases against otolaryngology trainees

Allegation	n (%)
Delay in evaluation	3 (6.4)
Incorrect diagnosis or treatment	8 (17.0)
Procedural error	12 (25.5)
Improper informed consent of procedure	4 (8.5)
Lack of knowledge of trainee involvement	6 (12.8)
Failure to supervise resident	5 (10.6)
Inexperienced trainee	5 (10.6)
Prolonged operation	1 (2.1)
Trainee did not communicate or inform attending	3 (6.4)
Total	47 (100)

Table 3 Adverse outcomes in 20 cases against otolaryngology trainees

Outcome	n (%)
Anoxic encephalopathy	7 (35)
Death	4 (20)
Hearing loss	2 (10)
Vision loss	2 (10)
Facial nerve injury	2 (10)
Recurrent laryngeal nerve injury	1 (5)
Cerebrospinal fluid leak	1 (5)
Accessory nerve injury	1 (5)
Total	20 (100)

DISCUSSION

In the current study, we analyzed state and federal malpractice litigation wherein otolaryngology trainees were involved or named as defendants. This is the first report to specifically analyze trainee involvement in otolaryngology malpractice cases. Our analysis highlights the importance of procedural training, informed consent, and communication between patients, trainees, and attending physicians. These areas for improvement are similar to those identified in previous literature on trainee litigation in other specialties[27-29]. Given the significant healthcare costs associated with litigation and its contribution to physician burnout, it is critical to understand the causes of malpractice suits[4,7,6,11]. In doing so, the specialty can adjust medical training, reduce defensive medicine practices, and improve patient outcomes.

Procedural error and incorrect diagnosis/treatment by a trainee were the most common allegations by plaintiffs. There is a steep learning curve for trainees as they acquire new skills during training, yet patients hold trainees to the same standard as attending physicians despite trainees not having matured their surgical skills[30]. Certain steps may be taken to mitigate the risk of complications, such as increasing the experience threshold at which trainees can independently perform procedures (graduated autonomy)[31]. Increasing use of simulation courses for trainees to practice maneuvers and prepare for medical errors in a controlled setting are options for accelerating the learning curve[32-35]. These simulations might include airway emergencies, near miss events, common surgical errors, and post-surgical complications[36]. With regards to otolaryngology specifically, 3D printed models have been used to mimic complex surgical anatomy during temporal bone dissection and endoscopic sinus surgery in order to allow hands on surgical practice[37-42]. Other training modalities such as virtual reality and artificial intelligence simulators are also emerging, though their use is currently limited by the lack of haptic feedback and the cost of training[37,43-46].

Importantly, our sample included allegations that residents failed to inform the supervising physician of the severity of postoperative complications. Failure to recognize life threatening findings, fear of repercussions, or miscommunication may play a role in residents failing to report concerning findings to

attending physicians. Failure to diagnose or initiate appropriate treatment for such cases could be due to an incomplete clinical gestalt early in residency. Otolaryngology in particular consists of pathology that is beyond the scope of most medical school curriculums in the United States and abroad[47-51]. Allowing for weekly interactive didactic sessions that not only provide traditional lecture style learning, but also incorporate case-based applications can improve short- and long-term retention of information [52-55]. Simulations coupled with effective didactic sessions can help residents recognize emergencies or critical diagnoses, decrease their response time, and allow for appropriate action or escalation of care. Taken together, this could effectively reduce medical errors and improve outcomes for patients.

Lack of informed consent regarding procedural risks or resident participation was also commonly alleged. Some plaintiffs claimed they were not appropriately informed of procedural risks, while others claim they were not aware of resident involvement in surgical care. These miscommunication claims suggest a disconnect in patient-physician relationships and an incomplete consent process. An important first step in implementing a standardized informed consent process involves training residents to acquire consent through didactic sessions and standardized patient encounters[56-59]. Due to the complicated nature of many ENT procedures, it is possible for trainees to be unaware of all possible complications and procedural risks. Particularly at teaching hospitals and clinics, where residents are regularly involved in patient care, we recommend that informed consent process is standardized to include disclosure of trainees participating in all care provided[60-62]. Such open communication and detailed documentation are vital parts of a positive patient-physician relationship and can minimize litigation[20].

The majority of cases included in this study were ruled in favor of the plaintiffs. Importantly, even when cases were ruled in favor of the defendants, medical malpractice lawsuits can leave lasting consequences. First, malpractice litigation costs the healthcare system billions of dollars in fees, lost productivity, and the costs of defensive medicine[4,11]. In just the lawsuits included in this study, over 63 million dollars in payouts were issued. In addition, many studies have linked malpractice lawsuits to physician depression, burnout, and decreased quality of life[4,11,63-65]. One study reported that many trainees are unaware of their vulnerability to malpractice lawsuits during training[11]. This suggests that there is a lack of resident education concerning malpractice lawsuits. Therefore, the authors recommend providing trainees with formal malpractice education that integrates faculty disclosure and the cases reported herein. This would be an important step toward reducing medical errors and helping trainees understand available resources should they be implicated in litigation[36,66].

From an international perspective, litigation in the field of otolaryngology has been examined in great detail[67-71]. In a recent study in China, the highest rates medical malpractice claims among all specialties were observed in otolaryngology (51.9%)[72]. Despite this preponderance of litigation, no prior international literature exists on incidents of trainee malpractice cases. Given that Otolaryngologists in training would arguably derive the most benefit from enhanced education on the topic of medicolegal issues, one would expect more studies from abroad to focus on legal pitfalls encountered by trainees. Further investigation of resident and fellow malpractice cases in other countries are warranted, which collectively would serve to inform education-based efforts.

There are several limitations to this study. First, the LexisNexis legal database only contains cases conducted at the state and federal level. A number of malpractice cases are resolved prior to trial, limiting the number of cases publicly available. Furthermore, LexisNexis does not standardize the information, meaning the medical, legal and demographic information provided was variable and limited. The medical records for the plaintiffs and the cases were not available, so the cases could not be verified for the accuracy of the clinical events that occurred. Moreover, LexisNexis relies on individual attorneys to submit trial documents. There could be allegations of medical malpractice that have not yet been released to this database by the involved law firms, which could explain why fewer reported cases were observed in more recent decades. Whether the alleged errors were attributable to factors that could be addressed in training or intrinsic personal skill remains a matter of speculation. Finally, cases that involved otolaryngology trainees could have been excluded if these trainees were not explicitly mentioned using one of the search criteria utilized in this study. Additionally, trainees were not listed with personal identifying information in case records, so there was no way to check for potential misclassification of trainees.

CONCLUSION

Otolaryngology residents and fellows can be involved in malpractice lawsuits for both procedural and nonprocedural events. This study highlights the importance of malpractice education specifically within the domains of procedural errors, informed consent, proper diagnosis and management, and clear communication within patient care teams. Limiting malpractice litigation by addressing these domains holds the potential to decrease trainee burnout and, more importantly, improve patient outcomes.

ARTICLE HIGHLIGHTS

Research background

Errors, misdiagnoses, and complications can occur while trainees are involved in patient care. Analysis of such events could reveal areas for improvement by residency and fellowship programs.

Research motivation

Understand lawsuits tried at the state and federal level involving otolaryngology trainees.

Research objectives

To examine lawsuits tried at the state and federal level involving otolaryngology trainees.

Research methods

The LexisNexis database, an online legal research database containing state and federal case records from across the United States, was retrospectively reviewed for malpractice cases involving otolaryngology residents or fellows from January 1, 1990 to December 31, 2020. Case data collected: Plaintiff/trainee/defendant characteristics, allegations, medical outcomes, and legal outcomes.

Research results

Over the study period, 20 malpractice lawsuits involving otolaryngology trainees were identified. Plaintiffs raised numerous allegations including procedural error ($n = 12$, 25.5%), incorrect diagnosis and/or treatment ($n = 8$, 17.0%), and lack of knowledge of trainee involvement ($n = 6$, 12.8%). Nine cases (45%) had verdicts in favor of the plaintiff, whereas 5 cases (25%) had verdicts in favor of the defense. Six cases (30%) ended in a settlement. Awards to plaintiffs were heterogeneous, with a median of \$617,500 (range \$32K-17M) for settled cases and verdicts favoring plaintiffs.

Research conclusions

The findings enclosed herein represent the first published analysis of trainee involvement in otolaryngology malpractice cases held at the state/federal level. Otolaryngology trainees can be involved in lawsuits for both procedural and nonprocedural events. This study highlights the importance of education specifically in the domains of procedural errors, informed consent, proper diagnosis/management, and clear communication within patient care teams.

Research perspectives

Training programs should incorporate these study findings into effective simulation courses and didactic sessions. Educating trainees about common pitfalls holds the promise of decreasing healthcare systems costs, reducing trainee burnout, and, most importantly, benefiting patients.

FOOTNOTES

Author contributions: Suresh NV, Shah VN, and Fritz CG designed the research study; Griff JR, Shah S, Watane A and Parikh RS performed the research; Suresh NV and Fritz CG analyzed the data and wrote the manuscript; all authors have read and approve the final manuscript.

Institutional review board statement: This study was exempted.

Informed consent statement: Patients were not required to give informed consent to the study because the analysis used anonymous clinical data that were obtained after each patient agreed to treatment by written consent.

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