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Addressing Medical Errors in Hand Surgery

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Abstract

Influential think-tank such as the Institute of Medicine has raised awareness about the implications of medical errors. In response, organizations, medical societies, and institutions have initiated programs to decrease the incidence and effects of these errors. Surgeons deal with the direct implications of adverse events involving patients. In addition to managing the physical consequences, they are confronted with ethical and social issues when caring for a harmed patient. Although there is considerable effort to implement system-wide changes, there is little guidance for hand surgeons on how to address medical errors. Admitting an error is difficult, but a transparent environment where patients are notified of errors and offered consolation and compensation is essential to maintain trust. Further, equipping hand surgeons with a guide for addressing medical errors will promote compassionate patient interaction, help identify system failures, provide learning points for safety improvement, and demonstrate a commitment to ethically responsible medical care.

Keywords

Ethics; hand surgery; medical errors

Introduction

Medical errors have received considerable and worthy attention since the Institute of Medicine (IOM) report “To Err is Human: Building a Safer Health System” in 1999 (1). As defined by the IOM, a medical error is the “failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim” (1). They detailed the physical, financial, and social consequences of medical errors in the United States. In their estimation, between \$17 billion and \$29 billion are lost yearly due to medical errors. Further, respect for physicians and confidence in their ability to provide safe care is compromised after a medical error.

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Since the IOM's publication, significant effort has been directed towards system-wide changes to effectively address patient safety concerns (1, 2, 3, 4). Within orthopaedic surgery, several campaigns, such as the "Sign your Site" and the universal protocol, have been implemented to curb wrong-site surgery (3, 5, 6). Less attention, however, has been directed at educating and guiding surgeons on how best to approach medical errors. In addition to explaining the error and treating the injury, surgeons have a moral obligation to provide honest and compassionate care. We propose a guide to address medical errors, which will equip hand surgeons with a focused and evidence-based plan. Within this framework, we aim to maximize patient care, minimize surgeon stress, streamline involvement of relevant organizations, and aid in preventing similar errors from occurring in the future.

A recent case report in the *Journal of Hand Surgery* by Kristoffer Sugg (7) artfully described the emotional and ethical conflicts that can occur as a result of a medical error (see below).

Case

A 46-year-old right-hand dominant female presented to the emergency department after falling on her outstretched left wrist. A wrist deformity was noted with associated paresthesias in the median nerve distribution. X-rays demonstrated an extra-articular, dorsally displaced, and comminuted fracture of the left distal radius with associated soft tissue swelling. The fracture was reduced and she was placed in a sugar-tong splint. The patient was subsequently taken to the operating room for an open reduction and internal fixation of the distal radius fracture with concomitant carpal tunnel release. The procedures were uneventful and the reduction was anatomic.

At her one-week post-operative appointment, her paresthesias had resolved and routine x-rays were obtained. Although the reduction appeared excellent, the lateral view confirmed an unexpected finding. The resident who performed the procedure detailed his initial reaction:

"There, right in front of my eyes, was absolute proof of a profound error—a profound error made by me. There was something in the patient that did not belong there ... And I had left it there. That something was a peg guide used for distal radius fracture repair. I looked away a few times hoping the pixelated image would just disappear and all my problems would be solved, but I knew there was no escaping the fate that lay ahead of me." (7)

After agonizing over the details of the case and implications of the error, the resident had a humbling discussion with his attending physician. As an educational exercise, his attending challenged the resident whether they should leave the rather innocuous peg guide alone – after all, it was small, covered by the pronator quadratus, and leaving it behind would save an additional procedure. Ultimately, the resident made the correct decision. The guide did not belong in the patient and there was no justification for leaving it behind. The patient was called, informed of the error, and offered immediate surgical intervention to remove the foreign body.

A hand surgeon reading this case report may sympathize with the author, as most have directly or indirectly experienced the consequences of an unintended medical error. Sugg, however, rightly shifted the focus to the patient and how she was adversely affected by the incident. As a result of the error, the patient required an additional surgical procedure with its associated risks. This case illustrates many important points. The physicians responded in an appropriate manner by identifying the error, disclosing their mistake to the patient, and acting promptly to right their wrong. They also involved relevant oversight within the hospital and made changes to prevent a similar error. The surgeons participated in a root cause analysis protocol in which all involved in this operative procedure discussed the oversight and proposed future remedial solutions. Based on this case, the institution established a protocol to make peg guides included as part of the final surgical count at the conclusion of the procedure.

Medical errors in hand surgery

Medical errors may be a consequence of an individual mistake or a system failure (1). In Sugg's case report, the surgeons committed the individual mistake, but the system failed to provide a safety net to identify their misstep. Hand surgeons are most familiar with intraoperative errors. Not to be overlooked are medical errors occurring outside the operating room, which may be a result of failing to recognize an injury, treatment delays, medication errors, misdiagnosis, and communication failures (3, 8, 9). A variety of error classifications have been proposed. The Joint Commission on the Accreditation of Healthcare Organizations uses a detailed taxonomy system which categorizes errors based on impact, type, domain, cause, prevention, and setting (3). Little has been published about classifying medical errors occurring in hand surgery. As a result, the incidence and effects of errors in hand surgery are difficult to quantify. Therefore, literature often conducts surveys or uses analysis of negligent claims as a means of studying medical errors within surgical specialties.

Matsen et al. analyzed orthopaedic claims from a major medical liability insurance company (8). Their data included 464 claims from 1995 to 2009, demonstrating a wide variety of orthopaedic adverse events and severity of injuries. Failure to protect structures (e.g. nerves, arteries) in the surgical field accounted for 41% of the total payouts to plaintiffs (\$7.3 million out of \$17.9 million paid) and 15% of the total claims (8). Other commonly cited claims with substantial payouts included failure to prevent, diagnose, or treat complications, medication errors, and surgical errors (e.g. retained foreign body, wrong site, wrong procedure) (8). Of the claims, 81% involved surgical procedures, confirming that intraoperative errors are most likely to result in litigation (8).

In 2009, Wong et al. analyzed orthopaedic medical errors through a survey issued to an American Academy of Orthopaedic Surgery (AAOS) mailing list (3). Of the surgeons who responded, 53% had experienced a medical error in the previous 6 months. Categories of medical errors occurring most frequently related to equipment (29%), communication (24.7%), technical errors (13%), and medication errors (9.7%). Wrong-site surgery comprised 5.6% of errors and, of these, hand surgeries accounted for 35%. The author's

critical analysis supports a theory shared amongst safety experts, that errors are an aggregate result of system failures (3).

JCAHO has identified orthopaedic surgery as the specialty with the greatest number of wrong-site procedures (10, 11). A blind survey (mailed to members of the American Society for Surgery of the Hand (ASSH)) conducted by Meinberg and Stern in 2003 revealed that 21% of hand surgeons admit to performing wrong-site surgery (12). Although their survey response was moderate (67%), the article rightfully identifies hand surgery as a high-risk specialty for wrong site operations. The nature of orthopaedic surgery as a high operative volume specialty requiring frequent use of technical equipment with symmetrical surgical sites (right versus left) may partially explain these findings (6). Though there are multiple causes of wrong-site surgery, surgical team noncompliance with the universal protocol has been identified as the most predominant causative factor (3).

Legal and financial consequences of medical errors

Medical errors have major financial implications in terms of costs to hospitals in litigation, loss of worker productivity, and diminished population health status (1). The process of medical malpractice serves to police the medical profession by adequately compensating victims of gross negligence (13). The national system is, however, insufficiently sensitive and specific to reliably meet this goal. Victims injured by errors are often not compensated (lack of sensitivity) and individuals who are not true victims may prevail in malpractice suits (lack of specificity) (13). This results in an inefficient system that promotes faulty claims and defensive medicine (14).

Orthopaedic surgery claims make up 9%–11% of all medical malpractice lawsuits (12). Thirty percent of these claims result in a legal settlement. There is a discrepancy, however, between malpractice claim results based upon the perceived complexity of the procedure (9). Bastidas et al. published their single-institution experience of hand surgery litigation at a major replantation center in New York (15). In their study of claims related to traumatic hand injuries over an 8-year period, only 1 of 23 patients received a successful settlement (15). They concluded that the legal system generally supports physicians and institution that treat complex injuries. Conversely, any deviation from the anticipated straightforward post-operative course for simpler hand conditions (i.e. CTR and wrist fractures) is frequently viewed as a complication and is more likely to generate a claim.

Ethics of medical errors

Ethics is defined as the study of the principles of human behavior and morality (16). Leaders in medical error research believe that patient safety is a moral issue (2). When an error occurs at the hands of physicians, patients suffer. Medical errors violate the core ethical principles of medicine, which are founded upon the teachings of Hippocrates in the 5th century. Non-maleficence states that physicians have an obligation to “do no harm” and to prevent adverse effects on patients (17, 18). Beneficence obliges physicians to prevent or remove harm while also promoting good by acting in the best interest of the patient (18). Hippocrates also detailed appropriate professional behavior for physicians. They should express sympathy for patients, treat patients not diseases, be polite, humane, compassionate,

and disregard a patient's ability to pay for services (19). These principles and attributes characterize the model physician.

Medical errors have ethical consequences at a societal level. Distrust in the medical profession has grown in part because medicine has failed to demonstrate the ability to consistently and reliably focus on patient safety (1, 13). Wrong-site surgery, estimates of avoidable injuries and deaths, and readmission rates are either unchanged or increasing (2, 6). The once cherished doctor-patient relationship has become depersonalized and care is more increasingly compartmentalized by specialization (14, 19). Perpetuating the deteriorating image of medicine is selective media reporting. Steven Glickel, founder of the ASSH Ethics and Professionalism committee, observed that media reports on medicine primarily focus on negative stories, such as ethical breaches in care (19). It will require a concerted effort by organized medicine to regain this trust, particularly because the media generally avoids stories illustrating efforts to improve outcomes.

Preventing medical errors

The 1999 IOM report concluded that health care has fallen behind many high-risk industries in its attention to basic safety. They state that medical errors are commonly a result of "faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them" (1). The Agency for Healthcare Research and Quality (AHRQ) are also advocates of moving toward a system-oriented methodology for reducing medical errors (20). The AHRQ understands that the "name, blame, and shame" approach is not effective (3). Unfortunately, many surgeons have been trained in the punitive environment propagating this counterproductive approach. This proves to make the current and more effective strategies much more difficult to implement.

Though efforts to correct system-wide flaws are essential, there are factors related to patient safety that depend entirely upon a competent surgeon. These include intraoperative performance, perioperative care, interdisciplinary communication, and follow-up care. To decrease surgeon errors, certain programs may be implemented including remedial training for surgeons with high rates of errors, assessment of surgeons with hazardous attitudes, use of guidelines to deter common errors, and identification of unsafe, overused, and unnecessary procedures (2). These changes would likely be the most difficult to implement.

To establish nationwide changes in patient safety, strong leadership is required (1, 2). Patient safety is bolstered by support from professional societies, such as the ASSH. Societies set performance standards for their members and mandate ongoing compliance with those standards (8). Professional organizations should implement effective educational programs at accredited training programs to train safe practicing surgeons (2). Leadership is also required at the hospital level. Clinicians, executives, and governing bodies can collaborate within hospitals to ensure safe working conditions, simplified protocols, and a process for identifying and addressing medical errors (1). Surgeons can contribute to this cause by involving the relevant societal and leadership councils when a medical error has been identified.

How to address a medical error

In a 2004 bulletin, the AAOS stated that medical errors should be disclosed “directly with a patient/family member in an honest, compassionate manner” (21). This mirrors the stance of the ASSH Ethics and Professionalism code which requests that hand surgeons maintain honesty and truthfulness with patients and colleagues (22). Effective communication and full disclosure is important in gaining patient trust and improving patient satisfaction (23, 24, 25). When addressing a medical error, patients are more likely to respond favorably to physicians who apologize and accept responsibility (23). Despite this, there are many barriers to error disclosure (Figure 1).

Discussing medical errors with patients is difficult. Surgeons may be conflicted with fear, apprehension, and guilt when they are responsible for patient harm (26). There may even be consequences from one’s institution or partners. Often, the greatest obstacle for surgeons, however, is the fear of litigation, an understandable response to the current malpractice environment (3, 26). Despite these fears, patients desire an honest explanation of the adverse event. Surgeons are typically in a position to provide the greatest insight and knowledge into the cause, effect and prognosis of any damage caused. Therefore, they should detail the specifics of the complication, why it occurred, propose a treatment plan, and offer a second opinion, if desired (21, 26). To convey this message appropriately and to maintain a trusting surgeon-patient relationship, this conversation should be conducted in an empathetic and consoling manner.

We propose a two-armed guide to addressing a medical error (Figure 2). One arm addresses the concerns of and responsibilities to the patient. The critical steps in caring for a harmed patient include: communicating the error in an empathetic manner, explaining the consequence of the complication, proposing a management plan, and implementing the plan chosen by the patient. The other arm focuses on addressing system failures and reporting the errors, without the fear of censure, to relevant organization charged with surveillance and prevention of medical errors. To assist in root-cause analysis, surgeons should postulate a cause, identify the responsible member/equipment/system failure, propose a systematic change, and aid in the implementation of any newly established protocol at their home institution.

Summary

Medical errors in hand surgery are common and have detrimental effects on patients, surgeons, hospitals, and the nation. Intra-operative errors are the most costly. Considerable focus has been directed at necessary systematic changes, but attention should also be focused on improving the response of surgeons faced with a medical error. Emphasizing the ethical responsibilities of hand surgeons will benefit the specialty and improve public perception. Communication with patients will be effective if done in an empathetic and caring manner. Surgeons should participate not only in the management of an affected patient, but also in addressing the system failure. Leadership from national organizations can facilitate transparency of errors, improve surveillance, promote root-cause analysis, and

ultimately improve patient safety. The guide suggested provides a simplistic and practical response to a medical error.

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Figure 1.
Surgeon and patient factors causing barriers to disclosing errors.

Figure 2.
A simple guide to addressing medical errors.