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Videotaping of Surgery for Use as Demonstrative Evidence in Medical Malpractice Litigation

*J. Douglas Peters**
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I. INTRODUCTION

If John Marshall or Abraham Lincoln were to visit a modern courtroom, they would experience a comfortable familiarity with the proceedings. If, on the other hand, the doctors who attended these famous jurists at their deathbeds were to visit a modern hospital operating room, they would doubtlessly express a high degree of incredulity and perplexity with respect to the modern techniques employed therein.¹

Despite this modern technological revolution in medicine, or perhaps because of it, medical malpractice claims are increasing, and the problem is rapidly being recognized as one with national dimensions. In 1970, the Department of Health, Education and Welfare undertook a study of medical malpractice insurance claims to determine the frequency, nature, and cost of incidents leading to claims. The results of the survey showed:

1. An estimated twelve thousand incidents triggered claim actions in 1970.
2. Total compensation to claimants was estimated to be eighty and three-tenths million dollars.
3. Most cases were settled prior to trial; fewer than 10% reached the trial stage. Approximately 29% of these cases tried resulted in verdicts for the plaintiff.
4. Surgical treatment accounted for 57.2% of all malpractice claims. Orthopedic, gastro-intestinal, and gynecological surgery were the most frequent causes of alleged malpractice in-

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1. McCrystal, *Videotape Trials: Relief for Our Congested Courts*, 49 DEN. L. J. 463 (1973).

jury. The incidents of malpractice usually occurred in hospital settings (75%), and more specifically, in the surgical suite (39%).²

Even measured by the relatively uninflated 1970 dollar, malpractice costs relating to surgery were near fifty million dollars per year. Today's costs are undoubtedly much higher; hospital costs, settlement figures, and the number of claims have increased substantially. Moreover, jury awards are astronomically higher today than in 1970. Given both the dollar impact of malpractice suits and the time expended by the legal and medical communities in resolving the claims, all available means should be utilized to reach speedy and just resolutions. Videotaping surgical procedures for use as demonstrative evidence in a malpractice case may be one such means.

In a typical malpractice action, counsel must rely heavily on hospital records to support or disprove the claim. Attorneys may inspect these documents with the authorization of the patient,³ and, as business records, they are admissible into evidence in court.⁴ In many cases involving alleged surgical malpractice, however, the hospital records — consisting of items such as patient history, physical examination report, medical service information, laboratory data, treatment records, nurses' notes, and chronological summary — will be of little probative value. The claim revolves around what occurred in the surgical suite, and these documents provide few relevant clues.

Yet the legal profession need not be so circumscribed. In the mid-1950's, a new medium of recordation was introduced — the videotape.⁵ Recent articles reveal a growing interest in the possible appli-

2. U.S. DEP'T OF HEW, REPORT OF SECRETARY'S COMM'N ON MEDICAL MALPRACTICE, Appendix at 1-25 (1973).

3. Ludlum & McCabe, *Disclosure of Medical Record Information: A Reappraisal*, 31 HOSPITAL 14 (1957).

4. McCormick, *The Use of Hospital Records as Evidence*, 26 TUL. L. REV. 371, 371-72 (1952).

5. Videotape is a magnetic tape similar to that used in audiotape recording. However, the videotape records both audio and visual signals placed on the tape by magnetically activating the particles of iron oxide adhered to the tape backing. The tape may be recorded and played back several hundred times before picture degradation occurs. Videotape is also fairly insensitive to outside magnetic fields, and thus, the information placed on the videotape is unlikely to be erased accidentally. Finally, videotape may be edited without affecting the original by recording the desired portions onto another tape; the original recording remains intact since

cations of videotape technology to the trial proceeding,⁶ focusing on the use of videotape for depositions, testimony of expert witnesses, demonstrative evidence, and taping of the entire trial. The authors believe that the current uses of videotape have just scratched the surface of potential use in the trial process.⁷

Videotape in the surgical suite would hardly be an innovation. Videotape cameras and recorders are currently in use in most teaching hospitals, as well as several local hospitals, to measure the quality of medical care rendered by the hospital and its staff, and for use as teaching material for professional personnel.⁸ This article advocates the videotaping of surgery for use as demonstrative evidence in medical malpractice litigation.

Benefits of the Use of Videotape

The documentation of surgery by videotape should become part of the hospital records, available to both attorneys. Viewing the tape with a medical expert, the plaintiff's attorney would be in a far better position to determine the merits of the claim of malpractice. Thus, the plaintiff's attorneys can eliminate the time and money spent in the investigation and preparation of groundless suits. But, the videotape "shield" for the surgeon may become the videotape "sword" for the plaintiff's lawyer. Often the plaintiff's lawyer knows something went wrong in the surgical suite, but cannot pinpoint the exact problem. The difficulty is due to inadequate records of the surgical procedure and the reluctance of the medical community to testify against a member without strong proof of negligence. By providing sound evidence, videotape would alleviate both problems.

The defense attorney would also be able to act more efficiently. The mere possibility of an astronomical verdict would no longer force him to settle. If negligence was not revealed by the videotape,

it is neither cut nor spliced. See Stone, *Use of the Videotape in the Legal Profession*, 45 OHIO B.J. 1213, 1213-14 (1972) [hereinafter cited as Stone].

6. Doret, *Trial by Videotape — Can Justice Be Seen to Be Done?*, 47 TEMP. L.Q. 228 (1974) [hereinafter cited as Doret].

7. See Stone, *supra* note 5, at 1220 ("It is clear that the application of videotape techniques to the legal profession in the judicial process has far reaching possibilities which will contribute markedly to these practices and procedures."); Murray, *Comments on a Videotape Trial*, 45 OHIO B.J. 25, 29 (1972) ("The possibilities for the use of videotape by the trial attorney may prove to be limited only by the extent of the imaginative attorney's resourcefulness.").

8. Interview with Mark Amrhein, Director of Audio Visual Communications at St. Vincent Hospital, in Toledo, Ohio (May 5, 1977) [hereinafter cited as Amrhein Interview].

the defense lawyer could justifiably proceed to court. At trial, the defense could move for a directed verdict after the presentation of the plaintiff's case on the basis of the "physical facts" rule, that is, videotape, as a matter of law, outweighs direct testimony.⁹

If the tape did show surgical malpractice, serious settlement negotiations could begin immediately. The plaintiff would not have to bear the long delay normally associated with trial, and court dockets would be lightened by eliminating cases that should not have gone to trial.

Even in those cases where the videotape did not conclusively prove negligence or competent surgical procedure, the tape would serve a vital evidentiary role. Attorneys for both sides could have their expert witnesses testify to the skill and care exercised by the surgeon from the videotape, rather than having them form an opinion based on the result of the operation. Moreover, the videotape would give the jury the best evidence of what actually occurred in the surgical suite, in contrast to the diagrams, charts, and drawings on which they must currently rely.

Videotaping surgical procedures would equally benefit the medical community. Surgeons would no longer be forced into litigation if an operation were unsuccessful despite competent treatment. The reduction of spurious suits might tend to reduce malpractice insurance costs for the good surgeon, while forcing the incompetent surgeon out of practice through ever escalating premiums. Videotape would also enable the American Medical Association and state licensing boards to better police practicing surgeons by refusing to license surgeons who exhibit gross or habitual negligence. Finally, the videotape would serve as an instructional tool, showing how problems arise in surgery and how they can be avoided.

The use of videotape could conceivably have benefits beyond protecting innocent surgeons and easing the burden on attorneys and courts. Since it would be more likely that only valid claims would reach court, videotape might to some degree restore the public's confidence in lawyers; the vision of the greedy lawyer pursuing the hapless doctor would be diminished. Similarly, the defense attorney would not be viewed as an insurance company's tool, attempting to deny an injured plaintiff his right to recover. The use of videotape

9. See Hartzer, *Comparison of Motion Picture and Videotape Production*, 43 J. BIOLOGICAL PHOTOGRAPHIC ASS'N 165 (1975) [hereinafter cited as Hartzer].

should reduce the hostility that is sometimes felt between the medical and legal communities for much the same reason that it should restore some public faith in lawyers: the plaintiff's attorney would be looked upon as an advocate of a just cause. Thus, videotaping of surgery provides potential benefits to all concerned — the patient, the surgeon, the attorneys, and the courts. Moreover, the public as a whole is benefitted by any program which permits a speedier and more just resolution of lawsuits.

II. USE OF VIDEOTAPE AS DEMONSTRATIVE EVIDENCE

Videotape as demonstrative evidence has been held subject to the same rules of admissibility as motion pictures.¹⁰ The analogy, however, is questionable. The rationale for admissibility of the motion picture is that in reality, motion pictures are “a series of still pictures produced to show the persons and objects in motion. There seems to be no good reason why properly authenticated motion pictures, taken under substantially similar conditions, should not be admitted in evidence to explain facts related by witnesses who give oral testimony concerning such facts.”¹¹ Professor Scott points out this analysis is unsuitable for the videotape “motion picture.”

Videotape recordings really are motion pictures made by recording both sight and sound electronically on magnetic tape. When made in this way there are no visible pictures and audible sound until the tape is played back. Therefore, unlike an ordinary motion picture film, the videotape bearing invisible electronic impulses cannot be said to be a series of still pictures. Some of the cases involving the admissibility of ordinary motion pictures point out that such films are really series of still pictures projected in rapid succession to give the illusion of motion and give this as one reason for holding them to be admissible. It would seem that there is no good reason for resorting to such analogy even to make ordinary motion pictures admissible, nor should these cases be considered as authorities against the use of videotape recordings because they are not a series of still pictures.

10. Cunningham, *Videotape Evidence: Technological Innovation in the Trial Process*, 36 ALA. LAW. 228, 235 (1975) [hereinafter cited as Cunningham].

11. *Streit v. Kestel*, 108 Ohio App. 241, 245, 161 N.E.2d 409, 412-13 (1959).

The process by which a motion picture is produced should have no bearing upon its admissibility as long as it can be verified as a fair representation of its subject. Accordingly, videotape recordings should be admitted in evidence and played back for the court and jury on the same basis as ordinary motion pictures on film, subject only to the usual showing of relevancy and materiality and to proper verification.¹²

The Nebraska case of *Transport Indemnity Co. v. Seib*¹³ offers a sounder approach than the motion picture analogy. The *Seib* case tested the admissibility of calculations stored on electronic tape rather than paper. Finding the tapes to be business records, the Supreme Court of Nebraska held that the information retrieved from the tapes was acceptable into evidence. This rationale should equally apply to videotape recordings.¹⁴

Nevertheless, it was not until 1969 that the admissibility of videotape evidence was judicially approved.¹⁵ Since then, in criminal proceedings, wherein the greatest number of constitutional problems arise, videotape has been used to record the confession of the defendant,¹⁶ to record a lineup,¹⁷ to tape the scene of a crime,¹⁸ and to record police actions.¹⁹ In civil proceedings, videotape as demonstrative evidence has been used to show the jury the operation of a hydraulic lift,²⁰ to demonstrate that the view plaintiff and other witnesses had was superior to that of the defendant truck driver, to demonstrate how a cable cutoff switch worked when a casting was inadvertently caught in a door, to demonstrate the appearance, valving, and operation of an anhydrous ammonia tank, and to demonstrate the respective views that the defendant, the plaintiff, and a witness had of each other approaching an intersection from different directions before a crash.²¹

12. C. SCOTT, PHOTOGRAPHIC EVIDENCE § 1294, at 152 (1969).

13. 178 Neb. 253, 132 N.W.2d 871 (1965).

14. Stewart, *Videotape: Use in Demonstrative Evidence*, 21 DEF. L.J. 253, 255 (1972) [hereinafter cited as Stewart].

15. *Paramore v. State*, 229 So. 2d 855 (Fla. 1969).

16. *Hendricks v. Swenson*, 456 F.2d 503 (8th Cir. 1972).

17. *State v. Newman*, 4 Wash. App. 588, 484 P.2d 473 (1971).

18. *People v. Mines*, 132 Ill. App. 2d 628, 270 N.E.2d 265 (1971).

19. *State v. Thurman*, 84 N.M. 5, 498 P.2d 697 (1972).

20. *Zollman v. Symington Wayne Corp.*, 438 F.2d 28 (7th Cir.), cert. denied, 404 U.S. 827 (1971).

21. Stewart, *supra* note 14, at 264-65.

These are not the only instances of videotape use as demonstrative evidence, but they are illustrative. Certainly videotape of any probative value will be used more and more in the future as lawyers begin to recognize its potential.

Procedural Problems

Aside from the question of how to justify theoretically the admission of videotape, it has generally been required that the videotape be authenticated by the testimony of someone who witnessed first-hand the place or events taped and who can testify as to the accuracy of what he observed.²² Barring these requirements for laying a proper foundation, there should be no obstacles to the introduction of demonstrative evidence recorded or videotaped.

Although rule 30(b)(4) of the Federal Rules of Civil Procedure permits videotaped depositions,²³ no rule explicitly states videotape may be used as demonstrative evidence. Nevertheless, in *Zollman v. Symington Wayne Corp.*,²⁴ the Seventh Circuit admitted videotape demonstrative evidence of the operation of a hydraulic lift.

While the admissibility question thus appears to be resolved at the federal level, the same is not true in state courts. Ohio is currently the only state to provide expressly for the use and method of introduction of videotaped evidence. In 1972, the Ohio Supreme Court submitted an amendment to Ohio Rules of Civil Procedure which subsequently became effective: "Rule 40—*Pre-Recorded Testimony*—All of the testimony and such other evidence as may be appropriate may be presented at a trial by videotape, subject to the provisions of the Rules of Superintendence."²⁵ The court promulgated additional rules on the presentation and preservation of videotaped evidence. First, the trial court must provide playback and reproducing facilities, at the minimum, a videotape player and a monitor with a fourteen inch screen. Second, ownership of the tape remains with the proponent of the evidence; and the trial court may authorize the release of the tape upon final disposition of the case whether before trial, after trial if no appeal is filed, or after final

22. Cunningham, *supra* note 10, at 235.

23. FED. R. CIV. P. 30(b)(4). See *Carson v. Burlington Northern, Inc.*, 52 F.R.D. 492 (D. Neb. 1971) (FED. R. CIV. P. 30(b)(4) encompasses deposition recorded by videotape).

24. 438 F.2d 28 (7th Cir.), *cert. denied*, 404 U.S. 827 (1971).

25. Ohio R. Civ. P. 40 (emphasis added).

appeal.²⁶ Thus, there seem to be no procedural barriers in Ohio for the suggested use of videotape.²⁷

Technical Problems

Several questions with regard to the format for presenting the taped surgery to the jury must be resolved. One alternative is panorama taping, which would give the jury a viewing similar to that of watching a movie of a stage play. This presents the least intrusion on the visual field offered to the juror, who would be able to scan the entire surgical suite, because while usually concentrating on the surgeon, the juror may wish to focus on others in the surgical suite. The panorama, however, fails to capture in great enough detail the hands of the surgeon. To some degree, clarity could be improved by using cameras which scan at double the normal rate. These cameras produce a very detailed image and are typically used for medical school purposes.²⁸ But the difficulty of capturing the precise actions of the surgeon could be overcome more easily, and less costly, by training a camera in a tight, close-up shot on the surgical field. Unfortunately, this too is less than an adequate answer since the juror might miss important information conveyed off-camera. Further, a tight shot might become monotonous.

Perhaps the best method would be the use of multiple cameras. One trained on the surgical field, another focused on the operating table area, while a third could offer a panoramic view of the surgical suite. The camera angles could be fixed, eliminating the need for a cameraman. Prior to trial, the tapes would be reviewed by both parties' medical experts and the judge. The tape could then be edited by combining the shots which contain the most important information into a continuous sequence. This would create a variety of shots and angles to help hold the jurors' interest without any loss of relevant information during the crucial stages. Alternatively, a split screen image could be utilized showing both the surgical field and a panorama of the surgical suite.

26. Ohio Superintendence R. 15(G), *Disposition of Videotape Filed with the Court*.

27. However, the Ohio rules require ½-inch videotape and do not require the court to furnish color facilities. Both of these points may create special problems. A change in these rules would aid in precisely and accurately depicting the surgery.

28. Dresnick, *Uses of the Videotape Recorder in Legal Education*, 25 U. MIAMI L. REV. 543, 562 n.125 (1971).

A related and certainly important factor in determining format is consideration of the identity of the final viewers.²⁹ If the case goes to trial, the viewer will be a juror, someone fairly unsophisticated with surgical techniques. Nevertheless, the tape must still be accurate enough for the expert medical witnesses to help the jury in the proper interpretation of the scene. Admittedly, even poor quality videotaping would reveal gross surgical mishaps such as leaving instruments in the patient. Not only would expert testimony not be needed, but it is unlikely that the action would reach trial. However, production factors become critical as the negligence question becomes more subtle. The tape must be accurate enough to show the possible slip of the scalpel and the equally important audio occurring at that moment. With the proper lighting, high quality cameras and microphones, and professional handling of the production, the videotape should be able to record the event with enough accuracy to determine the issue of negligence with help from the expert witness in regard to any necessary interpretation.

The videotape, of course, has limitations. Even with the finest equipment and best production techniques the question of whether the surgeon made the incision 1 mm too deep or wide will, for the most part, be unanswerable. Additionally, all electronic equipment has inherent levels of distortion. The video-recorder, in recording the impulses fed from the camera, degrades the signal with its own inherent distortions.³⁰ The tape, as a reproducer of the signal, causes further distortion, as does the television monitor at the playback end. The television medium itself has reduced information carrying capacity, limited definition, and a limited brightness scale due to the process of scanning and the striations that result.³¹ The overall impact of these separate distortions diminishes the accuracy of the information communicated.

Moreover, the filtering of the information through the camera inevitably biases the communication;³² everything the camera sees, it interprets. Finally, the selection of the camera angle and the editing of the tape will also affect the interpretation. Nonetheless, these disadvantages will equally burden both sides and, therefore, should not affect the outcome. And, despite its limitations, the

29. See Hartzer, *supra* note 9.

30. See Doret, *supra* note 6.

31. G. MILLERSON, *THE TECHNIQUE OF TELEVISION PRODUCTION* 43-47 (6th rev. ed. 1968).

32. *Id.* at 198.

videotape permits the viewer more than one opportunity to observe the action and thus should provide a far more accurate basis for the resolution of surgical malpractice claims than currently exists.

III. VIDEOTAPE IN SURGERY

Today

As previously noted, the medical profession currently uses videotape in some surgical suites for utilization review and teaching purposes.³³ Introduced in 1927, films, and now videotapes, are well accepted for use in the education of surgeons, thus indicating the faith the medical profession has in the value of recording surgery.³⁴ Today the Surgical Film Library lists over thirteen hundred subjects available for instruction in surgery,³⁵ and the National Medical Audiovisual Center has over one hundred surgical videotapes available.³⁶

The major difficulty with the videotape equipment used today in surgical suites is the tape's accuracy. Standard videotape material can be recorded with anywhere from one hundred to five hundred twenty-five lines of resolution. The more lines of resolution, the better the picture quality and the amount of detail. However, before implementing a program much thought must be given to, and while the program is operational much emphasis must be placed upon, the original recording and the production factors such as lighting, the kind of cameras being used, and the professional competency of those handling the production tasks.³⁷

Lighting poses no problem; the high intensity lights required for surgery generally are sufficient for videotaping.³⁸ The quality of the camera, because of its utmost importance, requires greater attention. Cameras are either monochrome or color, and vary in price

33. See note 8 and accompanying text *supra*.

34. See E. LEVITAN, AN ALPHABETICAL GUIDE TO MOTION PICTURES, TELEVISION, AND VIDEO-TAPE PRODUCTION 742 (1970); AMERICAN COLLEGE OF SURGEONS, SURGICAL FILM CATALOGUE (1975). The first films produced were black and white silent films utilizing 35 mm film. The awkwardness and size of the photographic equipment necessitated changes, and improved 16 mm film met the requirements.

35. See AMERICAN COLLEGE OF SURGEONS, SURGICAL FILM CATALOGUE (1975).

36. NATIONAL MEDICAL AUDIOVISUAL CENTER CATALOG, at vii (1974). The volume of requests for duplication of videotapes forced the NMAC to discontinue its practice of duplication and transferred that responsibility to a sales agency of the National Audiovisual Center.

37. Hartzler, *supra* note 9, at 167.

38. See Amrhein Interview, *supra* note 8.

from \$150 to over \$100,000.³⁹ Any camera used would have to be in at least the \$1,500 to \$6,000 range if recording in monochrome; the less expensive cameras are only useful for surveillance, traffic control, housing protection, and pilferage control. Color cameras with the equivalent resolution could cost from \$12,000 to \$20,000.⁴⁰

The desired format must also be selected considering the resolution capability and cost factor.⁴¹ A versatile ¾-inch videocassette is currently replacing other formats and is capable of approximately four hundred lines of resolution at a tape cost of approximately \$25.00 an hour, plus \$5.00 to \$7.00 an hour for a monitoring technician.⁴²

Tomorrow

This article proposes the videotaping of surgery for use as demonstrative evidence in medical malpractice litigation. The videotape of the surgery would become part of the hospital record, and thus be discoverable. The videotape would collaterally serve more traditional purposes as a teaching device, and as a tool in utilization review. There are, however, two obstacles to the implementation of this proposal. First, a means to institute the program on a large scale would be necessary. Second, it would be essential to determine the cost of the program and to devise a method of funding it.

Several devices could be employed to insure widespread use of videotape — federal and state legislation, hospital by-laws, or voluntary cooperation of the medical profession. Enactment of federal legislation, however, is unlikely since there is considerable opposition from the American Medical Association to any federal regulation of medicine. State legislation might offer a more realistic alternative; each state could more closely evaluate the needs of its hospitals, patients, and courts. However, state regulation faces much the

39. Haines, *Selecting a Camera*, in *THE VIDEO HANDBOOK* 19 (2d ed. 1974).

40. *Id.*

41. Goodwin, *Selecting a Master Format*, in *THE VIDEO HANDBOOK* 21 (2d ed. 1974). Videotape is available in 2-inch, 1-inch, ¾-inch, and ½-inch formats. The 2-inch videotape is color broadcast quality, and an eight hour day of taping with two cameras and the necessary technicians would cost approximately \$3,500. This cost probably eliminates the 2-inch format.

42. See Amrhein Interview, *supra* note 8. The ½-inch EIAJ-1 sanctioned for use in the Ohio courts is capable of scanning at about two hundred sixty-five lines of resolution, and production costs are about the same as with the ¾-inch format. See *EIAJ Standards for Half-Inch Videotape Recorders*, in *THE VIDEO HANDBOOK* 190 (2d ed. 1974).

same opposition as does federal legislation. Hospital by-laws offer the most attractive means of implementation. Such a program would encounter less opposition from the American Medical Association than legislation and hospitals initially adopting these by-laws could serve as models for others. Further, it would not be as difficult administratively to implement the program, and associated problems such as storage of the tapes and duplication problems could be handled in the by-laws. Voluntary cooperation by the medical profession without hospital assistance would be of little value as an implementation device; the doctors could not provide the required facilities for taping, storage, or duplication.

The second obstacle is the cost of installing and operating the videotape system and determining who is going to pay for it. As stated earlier, the average cost per camera would be between \$1,500 and \$6,000. Each surgical suite should be equipped with at least two cameras to offer both a panorama and a tight shot of the surgical field and a large hospital may have from ten to twenty surgical suites. The cost for cameras alone would be \$30,000 to \$240,000 per hospital.⁴³ Added to camera cost is the funding needed for microphones and storage and duplication facilities. After the initial investment, there are continuing costs for operation and personnel. If each surgical suite were in use for forty to eighty hours per week, the weekly cost of $\frac{3}{4}$ -inch videocassettes would be \$800 to \$1,600 per suite; salaries for technicians operating the videotape for forty to eighty hours per week in each suite would run between \$200 and \$550. Thus, the cost might be prohibitive. Hospitals that currently own videotape facilities have demonstrated the ability to bear the costs. If videotaping were instituted in all hospitals, however, other means of financing would undoubtedly have to be found. Insurance might be used, either by including videotaping as a service covered by hospitalization or by adding it to the cost of malpractice insurance. Additionally, federal or state grants might be available, since the videotapes would provide a useful tool in the education of medical students and practicing surgeons. Once the benefits of videotaping surgical procedures were widely recognized, it is likely that a method of funding could be found.

43. See Amrhein Interview, *supra* note 8.

IV. CONCLUSION

The videotape has already proved its usefulness in many aspects of the judicial process. Videotaping surgery for use as demonstrative evidence presents yet another avenue for the better administration of justice. It would greatly simplify the tasks of attorneys, expert witnesses, and jurors in dealing with malpractice cases and would offer needed protection to the innocent surgeon. Anyone disputing this use of videotape cannot do so if they envision the court system as the finder of truth. The mechanism exists and it is only awaiting the advocated use.

