

Surgeons' perspective on video recording of laparoscopic surgeries

Video recording of laparoscopic surgeries

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Abstract

Aim: Videotaping of laparoscopic procedures is not required by law, therefore they are not routinely recorded. Our aim in this survey study was to determine the behaviors and attitudes of general surgeons concerning videotaping of laparoscopic surgical interventions.

Material and Methods: The survey forms consisting of 13 questions were sent to the participants who were general surgeons via e-mail and completed electronically. Forms with incomplete data were not included in the study. The obtained forms were examined, and the responses were statistically analyzed.

Results: A total of 187 general surgeons participated in this study. Only 37.4% of those who performed laparoscopic surgery stated that they recorded a video. The majority (96.8%) of the participants reported that watching the video-recording after laparoscopic interventions would reduce surgical complications. The rate of those who wished to videotape the procedure after a complication developed was significantly higher among the surgeons who did not routinely videotape (71.4% vs. 88%, $p=0.004$). In the group that did not routinely videotape, there was a high rate of participants stating that our survey encouraged them to videotape future laparoscopic procedures (32.9% vs. 62.4%, $p=0.000$).

Discussion: The approach of general surgeons to this issue is positive despite their low video recording rates. We consider that similar studies to be conducted in the future will increase video recording rates among surgeons.

Keywords

Laparoscopic, Surgery, Video, Recording, Survey

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Introduction

Laparoscopic surgical interventions have led to a breakthrough by providing an alternative to conventional surgery. The use of laparoscopy has become the gold standard in performing cholecystectomy, splenectomy, fundoplication, donor nephrectomy, and adrenalectomy [1-4]. Laparoscopic interventions are also considered standard practices in gastric cancer, colorectal surgery, esophageal surgery, hernia surgery, and appendectomy. Laparoscopy and endoscopy have gained a place as standard interventions in gynecological and urological procedures.

Although minimally invasive procedures generally last longer and have higher costs, they have clear advantages that make them popular among surgeons, including smaller incision scars, similar oncological surgical treatment outcomes to open surgery, early postoperative recovery, and early return to work [5,6].

As in conventional surgical methods, it is also important to record laparoscopic procedures in audio-video format. Video records are superior to surgical notes since they can be stored and watched again when necessary. They also have a high potential to contribute to surgical training in terms of allowing residents to watch them in preoperative and postoperative periods. Many studies in the literature have reported that video-assisted training is much more beneficial than other training methods [7-10].

In the event of a complication related to a surgical intervention, the availability of a video-recording provides an opportunity to re-examine the intervention, similar to the black box used in the investigation of plane crashes. A video of each laparoscopic surgery should be stored as medical data in electronic patient files. In related studies conducted in Turkey and the Netherlands, it has been reported that video and audio recordings taken during laparoscopic cholecystectomy are more consistent than surgical notes and are superior to the latter in reporting all the steps of the surgical procedure [11,12]. In another study, van de Graaf et al similarly argued that in colorectal cancer surgery, audio-video recording was superior to surgical notes in documenting the important steps of the surgery [13]. According to a survey study conducted in the Netherlands, many surgeons thought that surgical notes would lose their validity in the future [14].

In addition to studies conducted with surgeons in this area, there are also those evaluating patient views. In a survey study conducted with patients concerning their views related to video recording, two-thirds of the patients thought that video recording of surgery would be beneficial and supported this practice [15]. It is clear that surgery does not only consist of a surgical intervention. Therefore, some studies also emphasized that anesthesia induction before surgery should also be recorded in video and audio format [16]. In a Swedish-based cohort study, it was reported that the video-audio recording of surgical procedures reduced the operative time, but there was no difference in terms of complications [17].

Although laparoscopic interventions are extensively performed across the world, there are only a few studies in the literature on video recording of these interventions. We consider that further and more comprehensive studies should be conducted

to contribute to the literature on this subject. Therefore, we planned this survey study to investigate the behaviors and attitudes of surgeons concerning the video recording of laparoscopic procedures.

Material and Methods

Approval for this survey study was obtained from the local ethics committee (E-46418926-050.01.04-84479). Surgeons with at least 2 years of general surgery experience and performing laparoscopic surgery were included in the study. The electronic survey form was sent to general surgeons by e-mail. The deadline for the submission of the completed form was defined as 30 days from the date it was sent. At the end of this period, the completed survey forms were evaluated.

In our study, surgeons were divided into two groups according to the laparoscopy level. Laparoscopic whipple and laparoscopic colectomy were classified as advanced laparoscopic methods. Laparoscopic cholecystectomy, laparoscopic herniorrhaphy and laparoscopic appendectomy were classified as standard laparoscopic procedures.

The survey consisted of 13 questions on laparoscopic interventions. The surgeons who gave incomplete responses to any of the survey questions were excluded from the study. In the method section of the questionnaire, the participants were evaluated in two groups as those who routinely recorded videos of laparoscopic procedures (Group A) and those that did not record these procedures on video (Group B). These two groups were compared in terms of their responses to all the survey questions.

Statistical analysis

IBM SPSS for Windows, version 22.0 (IBM statistics for Windows version 22, IBM Corporation, Armonk, New York, United States) software package was used for statistical tests. Data were expressed as mean + standard deviation. Numerical variables were evaluated as mean \pm standard deviation, and categorical data as numerical values and percentages. The chi-square and Fisher's exact tests were used to analyze the relationship or differences between the groups in terms of categorical variables. The univariate logistic regression analysis was performed for each variable separately. Then, the multivariate logistic regression analysis was performed for the variables with a significance level of 0.25 or less in the univariate analysis. Risk factors and probabilities, 95% confidence intervals, and p-values associated with the analysis were presented in tables. Comparative results between the groups and other demographic characteristics were presented using the rates of qualitative variables. Quantitative variables were shown as mean and median (minimum-maximum). A p-value of <0.05 was accepted as the statistical significance limit.

Ethical Approval

Ethics Committee approval for the study was obtained.

Results

Of the total 187 general surgeons that participated in our study, 75.9% stated that they had performed advanced laparoscopic procedures, 37.4% reported that they had taken the video recording of the laparoscopic procedures they performed, 81.3% stated that they considered the video recordings of

such procedures to be medical data, and 96.8% thought that watching these video recordings after laparoscopic interventions would reduce surgical complications. Among the surgeons that routinely recorded videos of laparoscopic interventions, 10.3% obtained informed consent from their patients in advance (Table 1).

In relation to complications that developed after laparoscopic surgery, 81.8% of the participants stated that they wished they had recorded a video of the procedure. In addition, 96.8% of the participants thought that such video recordings would act as a black box. Nearly half of the participants (49.2%) think that recording laparoscopic procedures should be a legal obligation. Most (81.8%) participants stated that if they were to undergo a laparoscopic procedure, they would prefer to have a videotape of that procedure. The majority (95.2%) of the participants thought that videotaping of laparoscopic procedures would contribute to laparoscopic training, and 80.2% considered that only advanced laparoscopy procedures should be videotaped (Table 1).

Only 4.3% of the participants reported that they had previously been involved in a medicolegal case. A video recording of the surgical procedure was available in 25% of these cases. All these videos provided evidence in favor of the physician. Nearly half (51.3%) of the participants considered that our survey encouraged them to videotape future procedures (Table 1).

When we compared the surgeons that did and did not videotape the laparoscopic procedures they performed (Groups A and B, respectively), we determined that a significantly higher rate of surgeons in Group A considered videotape to be medical data in patient files (87.1% vs. 77.8% $p = 0.123$). Both groups included a high rate of surgeons considering that video recording would reduce complications, with no statistically significant difference (100% vs. 94.9%, $p = 0.055$).

The rate of surgeons who wished to have a video recording of the procedure after a complication developed was significantly higher in Group B (71.4% vs. 88%, $p = 0.004$). There was no statistically significant difference between Groups A and B in relation to whether they would prefer to have a video recording of a procedure they would undergo (84.3% vs. 80.3%, $p = 0.5$). The rate of those agreeing with the statement that the video recording is a black box in determining the cause of complications was high in both groups (87.1% vs. 86.3%, $p = 0.874$).

There was no significant difference between Groups A and B in terms of whether videotaping of laparoscopic procedures should be a legal obligation (50% vs. 37.6%, $p = 0.098$). Most surgeons in both groups believed that video-recording would contribute to laparoscopic training (95.7% vs. 94.9%, $p = 0.795$). The rate of those who considered that video recording should be performed only for advanced laparoscopic procedures was also high in both groups (85.7% vs. 76.9%, $p = 0.145$) (Table 2). In both groups, the rate of surgeons with a history of involvement in a medicolegal case (2.9% vs. 5.1%, $p = 0.459$) was low. However, the surgeons with this history in Group A stated that in such cases, the videotape provided evidence in their favor. The rate of those who obtained informed consent from their patients for video recording was low in both groups (8.6% vs. 11.1%, $p = 0.579$). In Group B, there was a higher rate

of participants considering that this survey encouraged them to videotape future laparoscopic procedures (32.9% vs. 62.4%, $p = 0.000$). No relationship was found between the level of the surgeon at laparoscopy and the rate of video recording ($p = 0.111$) (Table 2).

Table 1. Survey questions and distribution of participant responses.

	Group A (n=70) (%)	Group B (n=117) (%)	P Value
1. Do you believe that video recordings are medical data that should be included in patient files?	Yes (%87.1)	Yes (%77.8)	0.11
	No (%12.9)	No (%22.2)	
2. Do you think that watching videos of difficult laparoscopic interventions will reduce complications in future surgical procedures?	Yes (%100)	Yes (%94.9)	0.055
	No (%0)	No (%5.1)	
3. Have you ever wished to have a video recording of an intervention when a complication developed?	Yes (%71.4)	Yes (%88)	0.004
	No (%2.6)	No (%12)	
4. If you were to undergo a laparoscopic procedure yourself, would you like to have the procedure recorded on video?	Yes (%84.3)	Yes (%80.3)	0.45
	No (%15.7)	No (%19.7)	
5. Do you believe in the importance of having videotape of laparoscopic interventions, similar to the black box in plane crashes?	Yes (%87.1)	Yes (%86.3)	0.87
	No (%12.9)	No (%13.7)	
6. Should it be a legal obligation to videotape laparoscopic procedures?	Yes (%50)	Yes (%37.6)	0.09
	No (%50)	No (%62.4)	
7. Do you believe that video recording of laparoscopic interventions contributes to surgical training?	Yes (%95.7)	Yes (%94.9)	0.79
	No (%4.3)	No (%5.1)	
8. Have you ever been involved in a medicolegal case due to the laparoscopic intervention you performed?	Yes (%2.9)	Yes (%5.1)	0.46
	No (%97.1)	No (%94.9)	
9. (If yes) Was there a video recording of the intervention you performed?	Yes (%100)	Yes (%0)	-
	No (%0)	No (%100)	
10. (If yes) Was the videotape beneficial for you in the legal process?	Yes (%100)	-	-
	No (%0)	-	
11. If you are recording your laparoscopic procedures on video, do you obtain informed consent from the patient?	Yes (%8.6)	Yes (%11.1)	0.58
	No (%91.4)	No (%89.9)	
12. Will this survey encourage you to videotape future laparoscopic procedures (if not already videotaped)?	Yes (%32.9)	Yes (%62.4)	0.000
	No (%67.1)	No (%37.6)	

Table 2. Laparoscopic experience of the participating surgeons.

	Group A (n=70)	Group B (n=117)	P Value
Standard laparoscopic interventions	13 (%18.5)	32 (%17.4)	0.11
Advanced laparoscopic interventions	57 (%81.5)	85 (%72.6)	

Discussion

The video recording of laparoscopic and endoscopic interventions has not yet become a routine clinical practice. Whether laparoscopic and endoscopic interventions should be recorded on video remains controversial across the world. Previous studies suggest that the video recording of laparoscopic procedures should be discussed by taking into account various aspects, such as surgical training and ethical

and legal issues, and these recordings do include details that cannot be found in surgical notes due to being forgotten or left out deliberately [11,12].

It is emphasized that watching videos postoperatively or preoperatively increases the surgeon's performance and shortens the learning curve [7-10]. One of the many benefits of taking a video of surgical procedures is that these recordings can shed light on medicolegal events. However, this situation has also created concerns for some surgeons believing that it may increase the number of medicolegal cases. In a survey study, Willner et al. reported a high rate of doctors considering that the video-recording of endoscopic procedures would increase medicolegal events [18].

In addition to those considering that video-recordings were a part of medical data in patient files, there are also those arguing that these data should be protected within the framework of confidentiality principles in a way that even the patient cannot access them casually [15,16]. In our survey, 81.3% of the participants had a positive response to the question of whether a video recording was part of medical data. The subject of this study attracted the attention of the surgeons completing our survey, with 62.4% of the surgeons stating that they decided to put more effort to record surgical procedures in the future. It is clear that these recordings will be beneficial in surgical training and improve surgical performance. This is valid for both conventional and laparoscopic surgical operations. Furthermore, the interest in video recording and recording technologies has greatly increased with the widespread use of minimally invasive interventions.

According to the statistical analyses, although the surgeons' responses to many questions indicated a clear arithmetic difference between Groups A and B, there was no statistically significant difference. Those who said "I wish I had videotaped when a complication developed" were significantly higher in the group who did not routinely videotape. The number of those who answered positively to the question "Would this survey encourage you to videotape future laparoscopic procedures?" was statistically significantly higher in the group who did not routinely videotape.

There is still no clear consensus in the literature concerning whether video recording should be routine or mandatory for laparoscopic procedures. According to the data obtained from the current survey, 37.4% (n = 70) of the participants routinely videotaped laparoscopic procedures they performed.

One of the limitations of this survey is that the results do not reflect a general assessment for general surgeons across the country.

Conclusion

Video-recording is not routinely performed in laparoscopic procedures in Turkey, as in most other countries. It is also not expected to become a part of routine surgical practice in the near future. Surgeons do not appear to have a positive attitude toward making videotaping of laparoscopic procedures a legal obligation. However, when they encounter postoperative problems, some do regret not having videotaped the procedure, which could encourage them to take a video recording of future surgery. We consider that our survey will contribute to surgeons' decision to begin this practice. Our study also supports

the literature suggesting that video recordings of surgical procedures can make a great contribution to surgical training. The most important results of our study are that video recording of laparoscopic surgeries is not common among surgeons and surgeons do not want this to be a legal obligation. The reasons for these need to be found and discussed. This is the most important limitation of our study. There is a need for studies and surveys that will reveal the reasons for these habits of surgeons in more detail.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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