SKIN

IN-DEPTH REVIEW

The Implementation of Educational Videos in Mohs Micrographic Surgery for Improved Patient Satisfaction and Comprehension: A Review of Literature

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ABSTRACT

Background: Patients are reported to understand less than half of the information communicated to them by physicians. In an effort to better promote patient education, instructional videos have been implemented in surgical specialties, with demonstrable improvement in patient satisfaction and knowledge. In Mohs micrographic surgery (MMS), Mohs surgeons have begun to implement educational videos to supplement the traditional informed consent discussion and wound care demonstration.

Objective: To review published literature to determine if video education in MMS can improve patient satisfaction and comprehension of their procedure.

Methods: A review of literature was performed using the PubMed database from 2000 to 2020. The articles selected focused on the implementation of educational videos in Mohs surgery for improvement of the informed consent process, post-surgical wound care instructions, and overall patient satisfaction and comprehension.

Results: A total of seven articles met the criteria for review. The videos were noted to improve certain aspects of the informed consent discussion, including a patient's knowledge on the procedural risks. In regard to wound care education, some patients preferred video education to surgeon instruction. While patient comprehension was similar between the intervention and control groups, most studies demonstrated overall patient satisfaction. In addition, the results noted that most patients who watched a video would recommend it to a peer undergoing MMS.

Conclusion: Educational videos have demonstrated promise for patient education in MMS and patients are receptive to learn from them.

INTRODUCTION

Video education has become a popular, innovative tool to explain standardized health information to patients in a simple and interactive manner. It has demonstrated improved patient education and satisfaction in surgical and procedural specialties, including gynecologic surgery and plastic surgery.[1] While verbal communication has long dominated patient education, there is encouraging evidence that instructional videos, which incorporate both verbal and visual learning techniques, are beneficial for patient education.

Mohs micrographic surgery (MMS) is a surgical procedure that is performed by Mohs surgeons for the removal of skin cancers. The surgery removes narrow, pathologic tissue margins until

histopathological tumor clearance is confirmed. It is performed for 3.5 million patients annually. A patient's education on the procedure and their post-surgical expectations are important aspects of patient satisfaction, safety, and overall clinical outcomes. In MMS, Fleischman and Garcia noted that patients who were informed of ten possible Mohs-related complications had an overall retention rate of 24.4% after 1 week.[2] The three most retained complications were death (45.9%), blood loss (41.2%), and scar formation (37.7%). While the patients were presented with the information in a straightforward manner and advised that their retention of the complications would be examined later, their recollection remained low. Therefore, technological advancements in healthcare have sought to bridge this physician-patient communication gap with the integration of digital media (e.g., Internet, e-mails, text messages, and videos) in medicine. While online information can provide patients with a quick and convenient source of MMS knowledge, Mohs surgeons are encouraged to utilize evidence-based patient education modalities – as internet resources available on the procedure are deemed too convoluted for patient comprehension.[3] In an effort to improve patient participation and post-operative satisfaction, Mohs surgeons have begun to implement creative techniques to better educate their patients, including the creation of their own educational videos that supplement the traditional informed consent and wound care discussions. The objective of this review is to determine if instructional videos are a suitable tool for patient education in MMS.

METHODS

A review of published literature on MMS and video education was performed on MEDLINE by PubMed from January 2020 to July 2020 for English-language articles. The following terms were searched: "Mohs micrographic surgery" or "Mohs surgery" combined with "videos," "video education," and "multimedia education." The inclusion criteria were (1) the article was a randomized control trial and (2) the implementation of videos for patient education in MMS was discussed. Exclusion criteria were articles that did not discuss the implementation of videos to educate patients on MMS.

RESULTS

The PubMed search yielded twenty-two articles. Of the twenty-two articles found, seven met the inclusion criteria and were reviewed. The reviewed articles assessed the usefulness of videos to address one of three important aspects of MMS procedures: informed consent, post-surgical wound care instructions, and a patient's perception of educational videos. Each article's research design, number of patients studied, and clinical endpoints are outlined in Table 1.

The Impact of Videos on Informed Consent

In MMS, the traditional informed consent conversation is limited to dialogue delivered by a Mohs surgeon.[4] A discussion about MMS can become convoluted and leave patients overwhelmed and confused, which can diminish their overall clinical experience. In an effort to improve patient comprehension and satisfaction, three studies conducted research on the usefulness of educational videos to supplement the informed consent discussion in MMS.

West and colleagues created an instructional MMS video to determine if it

was a useful supplement to the informed consent process.[5] Patients were randomized into a video or non-video group. Patients in both groups were then asked to complete a questionnaire regarding their satisfaction with the consent process. The results indicated that there were no significant differences in patient satisfaction between the two groups. However, the video group did report a moderate-to-significant improvement in understanding the procedure.[5] There was also improvement in a patient's perception on the ability to understand their procedure (p=0.038) and to ask questions (p=0.003).

Migden and his team created an educational video on the risks, benefits, and alternatives to MMS.[4] The video was delivered before the patients were asked to sign their consent form. Patients were randomized into a video or non-video group. After the visit, both groups answered a satisfaction questionnaire on the consent process. All patients were satisfied with the consent process, regardless of the video; however, 100% of patients who watched the video method of informed consent would recommend it to a friend undergoing MMS.[4]

Delcambre et al created a video which highlighted the risks, benefits, and alternatives to MMS. Patients were randomized into an intervention and control group. After the informed consent process, the two groups were asked to complete a pre-operative State-Trait Anxiety Inventory (STAI), a 7-question satisfaction questionnaire, and 10 multiple-choice questions. In the video group, 82% of patients were satisfied with their pre-operative education, compared to 66.7% of patients in the control group. However, the results were not of statistical significance (p=.212).[6] There was also no significant difference in knowledge (p=.131) or anxiety levels (p=.626) between both groups. However, there was a significant difference (p <0.001) in a patient's identification of procedural complications in the intervention group (88%) compared to the control (69%) based on their responses to the post-video questionnaire. After the video, three-fourths of subjects in the intervention group would recommend the informed consent video to other patients undergoing MMS.[6]

The Impact of Videos on MMS Wound Care Instruction

Skin defects repaired during MMS require aggressive wound care for prevention of post-surgical complications, including wound dehiscence, bleeding, or infection.[7] Traditional wound care instruction has relied on a conversation between the Mohs surgeon/nurse and patient, with a stepwise, verbal description of a plan for action. However, the recent implementation of educational videos in select Mohs practices has looked to audiovisual media to improve wound care instruction for their patients. Two of the seven articles integrated educational videos before the traditional nurse demonstration to assess for improved wound care comprehension.

Migden et al created an educational video of a nurse demonstrating and discussing the proper application of a wound dressing. The video was shown to patients' post-procedure, after which the nurse would enter the room and complete the traditional demonstration. The non-video group had a nurse demonstration and verbal instructions only. After the clinic visit, patients answered a satisfaction questionnaire and a multiple-choice quiz to evaluate their knowledge on the instruction provided.[4] All patients were satisfied with their wound care instruction, and 100% of patients who watched the video would recommend it to a peer undergoing MMS. In addition, the patients

who watched the video scored higher on average on their quiz (91.6% versus 84%).[4]

Van Acker's team created a video in which a Mohs surgeon discussed adequate wound care.[7] The objective of the initiative was to evaluate a patient's retention when a video was delivered pre- or post-MMS, as the authors noted how traditional wound care conversations at the end of the visit were limited by post-surgical stress. After the completion of the video, the patients were asked to complete a 10-question multiple-choice quiz to assess their retention of wound care guidelines.[7] The authors found no significant difference in overall questionnaire performance when the videos were delivered pre- or post-MMS (77 ± 14% versus 83 ± 11%, p=0.13). However, 74% of the patients preferred the wound care video compared to a face-to-face demonstration with a healthcare provider.[7]

A Patient's Perception of Videos, Anxiety, and Overall Satisfaction

A patient's receptiveness to learn from videos is important to consider, as their perception of the educational modality can determine its clinical value.

Hawkins and colleagues created an instructional video that described the MMS procedure.[8] Three additional wound care videos were also created for patient-specific surgical repairs, including regular (flaps, primary closure), grafts, or extremity with compression wraps.[8] Patients were asked to complete a pre-video anxiety questionnaire and a 10-question procedural knowledge quiz; a satisfaction survey was also obtained at their 1-week follow-up visit. Of the patients that watched the informational video (n=47), 94% of patients reported that the MMS video was either "very helpful" or "helpful" in providing them with information about their procedure. 100% of patients who watched wound care video specific to their repair reported that it was "very helpful" or "helpful" in understanding how to provide adequate care for their wound.[8] In regard to anxiety, patients in the video group had a mean anxiety level of 3.7/10 before their video. After the video, the average anxiety level was 3.0, which represented a 19% decrease (p=0.00062). There was no statistical significance between procedural knowledge in the video or non-video group (p=0.21498).[8] In addition, 98% of patients agreed that videos should be used as a form of patient education.[9]

Newsom and her team developed two informational videos on MMS: a traditional, didactic video and a narrative video that included patient testimonials and procedural animations. Before their consultation, patients were asked to answer the General Anxiety Disorder-7 (GAD-7) to assess for pre-operative anxiety. All patients watched the video on initial intake and later met with the Mohs surgeon. A post-video questionnaire was also given to assess a patient's satisfaction. On a scale of 5, with 5 being the highest satisfaction level, the average scores were 4.7 and 4.6 between the narrative and traditional group, respectively. There was no significant difference in satisfaction levels between the two groups; however, both groups still demonstrated high satisfaction levels watching the consultation video, regardless of its traditional or narrative content. All established patients found the videos helpful but preferred the narrative (72.5%) over the traditional (27.5%) video (p=0.01).[10]

DISCUSSION

Digital media is an emerging tool in MMS, and it represents an effort to make patient education more accessible and

Table 1. Patient Video Education in Mohs Surgery

Authors	Year	Study Design	Article Topic	Subjects (n)	Clinical End Points	Results
Migden et al[4]	2008	Randomized controlled trial	Informed Consent, Wound Care	45	Patients' overall satisfaction and knowledge on Mohs surgery after watching a video.	100% of patients in the video group would recommend it to a friend undergoing MMS. Patients who watched the video scored higher on their wound care instruction quiz (91.6% vs. 84%).
Van Acker et al[7]	2014	Randomized controlled trial	Wound Care	51	Patients' knowledge on wound care if videos are delivered pre- or post-Mohs surgery.	No significant difference in overall questionnaire performance when the videos were delivered pre- or post-MMS (77 ± 14% versus 83 ± 11%, p=0.13). 74% of the patients preferred the wound care video compared to surgeon instruction.
Hawkins et al[9]	2017	Investigator-blinded randomized controlled trial	Patient Anxiety and Satisfaction	90	Patients' perception of digital media for the delivery of health information in dermatologic surgery.	98% of patients reported that they would like other doctors to use educational videos as a form of patient education.
Newsom et al[10]	2018	Randomized controlled trial	Patient Anxiety and Satisfaction	120	Patients' preference on Mohs-related video content.	Both the traditional and narrative video groups demonstrated high satisfaction levels watching the consultation video.
Hawkins et al[8]	2018	Investigator-blinded randomized controlled trial	Patient Anxiety and Satisfaction	90	Patients' satisfaction, anxiety, and knowledge after watching a MMS video.	94% of patients reported that the MMS video was helpful. Intervention group had a 19% decrease in anxiety after the video (p=0.00062). No statistical significance in procedural knoweldge was identified (p=0.21498).
Delcambre et al[6]	2020	Single-center randomized controlled trial	Informed Consent	231	Patients' satisfaction, anxiety, and comprehension after watching a Mohs video.	No significant difference in knowledge (p=0.131) or anxiety levels (p=0.626) was identified. A significant difference was noted in a patient's identification of procedural complications compared to the control (p<0.001).
West et al[5]	2020	Prospective, observational randomized control trial	Informed Consent	60	Patients' satisfaction on Mohs surgery after watching a video.	No significant difference in patient comprehension between either group. Intervention group demonstrated significance in their perception of greater opportunities to ask questions (p=0.003) and understand their procedure (p=.038).

comprehensible. Instructional videos incorporate both verbal and visual cues to describe a select intervention. They can be interactive and engage patients more than traditional physician encounters. In order to gauge the value of videos as a tool for patient education in MMS, Mohs surgeons should consider their accessibility, a patient's perception of digital media, and a patient's receptiveness to learn from videos, as these aspects can determine long-term patient satisfaction and information retention. In published literature, educational videos have been used in MMS to augment the traditional informed consent discussion and wound care demonstration. Based on the results of the review, patients were receptive to learn from instructional videos on MMS

Most of the studies demonstrated a positive trend of increased patient satisfaction and knowledge of procedural risks. In addition, patients in the video group were more likely to recommend video education to peers undergoing MMS. While the studies were limited by their sample size, and there were only seven studies to review, the research on video education demonstrates that it could be useful to supplement traditional face-to-face conversations, such as in informed consent or wound care demonstrations. Video education in MMS has demonstrated promise and its content can be diverse and applicable to a range of Mohs techniques.

Educational videos remain a challenging conundrum for healthcare providers. While most studies demonstrated improved patient satisfaction and comprehension after video education, it can be a difficult for Mohs surgeons to create an instructional tool of clinical value, as patients have a diverse level of education, attention span, and learning style. It is important to consider the video's content and length. Delcambre and her team created a condensed 1:40 minute video on MMS, but it was of insufficient duration to have a significant impact on patient knowledge.[6] In contrast, Newsom's instructional video of 4-6 minutes addressed more patient concerns and questions, but 40% of participants reported that the video was "too long."[10] Newsom and colleagues describe the challenge of creating a "one-size-fits-all" video, as patient preferences can range from a detailed illustration of the procedure to a real-life, before- and after-MMS photo comparison.[10] In addition, Mohs surgeries are patient-specific, and one broad video on MMS might not be generalizable to their situation. Hawkins et al thus created wound care videos that were specific to three common repairs in MMS.[8]

The creation of a customizable, interactive video is therefore one potential option to address the range of patient procedures and learning techniques, as well as to incorporate active learning in the education process. Nonetheless, the results of this review indicate that patients are appreciative and receptive of educational videos for MMS education, regardless of their ability to address all of a patient's individual concerns.

Based on this review, educational videos can be used to supplement the traditional face-to-face discussion. As per Migden's article, patients who watched MMS videos asked more subjectively educated questions in comparison to patients who did not.[4] The videos thus can lead to effective, yet succinct conversations with patients. Mohs surgeons should consider the creation and integration of instructional videos for their current practice, as the evidence trends toward increased patient satisfaction and comprehension of procedural risks.

CONCLUSION

Public health is interdependent on patient education. Technological innovations such as high-definition video modules have demonstrated effectiveness in bridging the physician-patient communication gap in other specialties. MMS is a complex surgical procedure that necessitates patient comprehension for informed consent and adequate post-surgical wound care instruction. The implementation of educational videos for MMS has demonstrated promise. The results of this review indicate that multimedia has the potential to be as effective as physician instruction – and is sometimes even preferred. In addition, some articles noted how video education increased a patient's recognition of MMS risks and benefits. While more research needs to be done on the utilization and effectiveness of videos for MMS education, this review highlights the widespread patient acceptance of instructional videos for patient care and health education.

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