

Are the Video Surgery Platforms Useful and Preferable for Urologist?

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ABSTRACT

Objective: To determine the most frequently used video surgery platforms among urologists and how sufficient they are in terms of content and variety.

Methods: A survey was created in Turkish that evaluated the relevant urological specialty, the frequency of video utilization, video resources used, how sufficient the video-based websites for urology are and how these videos contribute to surgical know-how. The form was distributed to urologists working in different cities in Turkey.

Results: A total of 133 urologists have completed the survey. The rate of watching surgery videos was 87.2%, and 51.7% of the video watchers spent over 1 hour monthly watching videos. Seventy-three percent of participants rated the contribution of videos to surgical know-how as 'very' or 'extremely'. The most commonly watched platform was YouTube (84.5%), followed by websites of urological associations (Urosource, Uropedia etc.) (64.7%), Medscape (21%) and WebSurg (3.4%). The necessity of more systematic and reliable video websites was stated by 74.4% of the participants by answering 'extremely'.

Conclusion: Videos are known to have clear and noticeable benefits in the preparation phase of surgical procedures. Albeit, Youtube was most commonly used platform, more systematic and reliable video websites prepared by health professionals are needed to become popular.

INTRODUCTION

The widespread usage of the internet and technological advances, in addition to easy access to multimedia lead to important changes and innovations in surgical training. In this way, the enhancement in surgical knowledge and experience not only went beyond the limits of surgery rooms but became more accessible and easier owing to augmented reality simulators, multimedia-based training and surgical training images in the web.^[1]

One advantage of the internet is the use of multimedia. Multimedia can utilize several media components simultaneously. Examples include texts, graphics, sounds, animations, or videos.^[2] The concept of 'multimedia learning' has been described as the effect of visual and auditory data on learning and has been shown to be of significant benefit on long-term memory.^[3] Multimedia-based learning has

become an important step in surgical training and internet-based platforms are consistently increasing in number. From this platforms, many videos of surgical procedures can be accessed.^[4] Studies have demonstrated the use of these videos in understanding the complex 3-dimensional anatomy and established their role in understanding complex temporal and spatial events.^[5,6]

In the literature, studies on different surgical branches have shown the influence of multimedia-based learning methods on the web on the surgical performances and skills of surgeons or medical students with important benefits.^[2,5-12] In a review assessing 81 articles on surgery videos, it was found that more than 50% of the studies were carried out within the last 3 years and the growing interest on this topic was highlighted.^[4] Surgical procedure videos are more commonly being used in recent years in the preparation phase of surgical procedures taking into consideration

the benefits and eases they provide. However, no studies exist particularly in the field of urology as to which platform is used how often in which surgical procedures, and whether or not there are adequate and reliable resources. Thus, we aimed to investigate the effect of surgical videos on the web platforms for urology specialists.

MATERIAL AND METHODS

A questionnaire consisting of 13 items was created in Turkish that evaluated demographic data, the urological specialty of interest, the frequency of video utilization, video resources used, qualification of the video-based websites for urology are and how these videos contribute to surgical knowledge and skills (Appendix). Question types included forced choice, scaled response, and open-ended. The survey was pilot-tested with two authors and then revised before distribution. These questionnaires were distributed via e-mail to more than 500 urology residents and specialists in different sites of Turkey through social networks on urology and digital platforms of medical associations. Survey access was available for 1 month via SurveyMonkey. All responders were requested to fill out the survey completely. Uncompleted surveys were excluded from the study.

The data from the surveys were recorded and reviewed using SPSS 22.0 (IBM® SPSS® Statistics V22.0, 2013, USA). The data were first analyzed descriptively. Then, exploratory statistical analyses were applied.

RESULTS

A total of 133 urologists (16 residents and 117 specialists) have completed the survey. The mean age was 42 ± 11.4 . The mean duration of professional experience was 16.4 ± 11.3 years. Sixty-five of the participants (48.9%) were from either university or training and research hospitals and 68 (51.1%) worked in state hospitals or private hospitals. Participants were most often concerned with endourology and urooncology (Fig.1) and 86 (64.7%) were actively participating in operations for more than 10 hours per week.

Working conditions within the last year revealed that 47 physicians (35.3%) were actively taking part in the operations for less than 10 hours, 59 (44.3%) between 10 and 20 hours, and 27 (20.3%) for more than 20 hours. One hundred-sixteen (87.2%) of the 133 urology specialists who participated in the survey answered 'yes' to the question, "Do you watch surgery videos on the internet?". Table 1 shows the duration of watching video among the video users (n=116) and the contribution of these videos to surgical knowledge and skills.

Data showing the web platforms that are preferred among surgery video watchers (n=116) are given in Fig. 2. It is

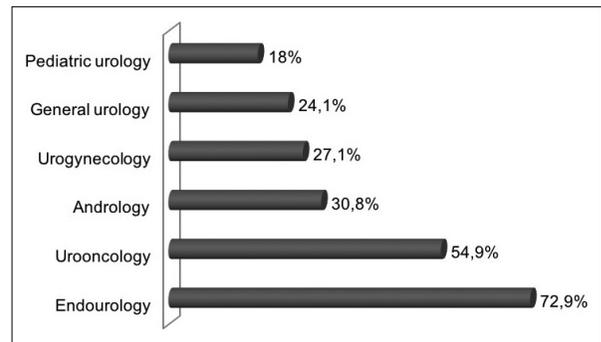


Figure 1. Distribution chart of a urological subdivisions of primary interest among participants.

Table 1. Durations of watching surgery videos within one month and the contribution of these to surgical knowledge and skills among 116 specialists who utilize videos

n=116 (Amongst video users)	
Durations of watching surgery videos within 1 month	
0–1 hour	56 (48.3%)
1–6 hour	57 (49.1%)
6< hour	3 (2.6%)
Contribution of videos to surgical knowledge and skills	
Not at all	0 (0%)
Slightly	1 (0.9%)
Moderately	30 (25.9%)
Very	49 (42.2%)
Extremely	36 (31%)

seen that the most commonly watched web platform is YouTube®, followed by the websites of urological associations (Urosource, Uropedia, etc.) and Medscape. 3.4% of the specialists replied as other and said they used WebSurg platform.

The question, "Can you perform a surgical intervention you are inexperienced in by watching videos?" was answered as 'No' by 13 of 116 doctors (11.2%), 74 (63.8%) thought it depends on the difficulty level of the intervention, and 29 (25%) stated that they can. The necessity of more systematic and reliable video websites was stated as 'extremely', 'moderately' and 'not at all' by 99 (74.4%), 24 (18%) and 10 (7.5%) of the all participants respectively. Table 2 also shows the response rates given to the question, "What do you think about the websites with urological surgery videos?". The question, "Do you think it is reasonable to include scientific video content in journals?" was answered as yes by 121 (91%) physicians.

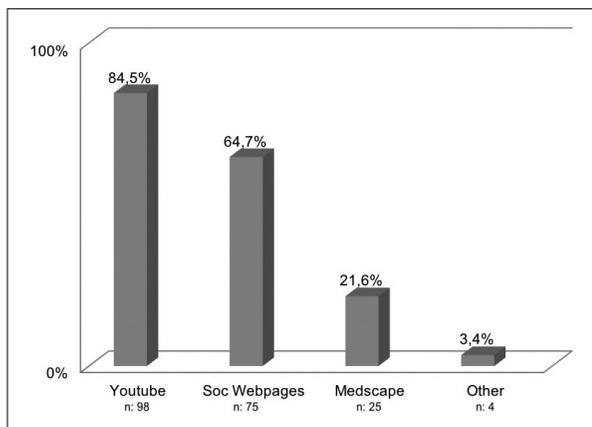


Figure 2. Web platform rates used by specialists who watch surgical videos on the internet.

Table 2. Evaluation of current urological surgery video websites

	Insufficient	Moderate	Sufficient	Total
Video contents	32 (24%)	88 (66.2%)	13 (9.8%)	133
Video varieties	56 (42.1%)	69 (51.9%)	8 (6%)	133

DISCUSSION

Surgery is a complicated procedure that requires a good preparation, adequate exercise and high concentration. The utilization of surgical video platforms have significant benefits on surgeons in the preparation phase of surgical interventions. It was found in our survey that these platforms were highly being used by participants and more than half of the participants devoted more than one hour every month watching these videos. For the question, ‘Can you perform a surgical operation you are inexperienced in by watching videos?’, 88.8% of the participants replied either as it depends on the difficulty level of the procedure or as they would, supporting the effect of videos on surgeons. The most frequently used source in our study was YouTube®. As YouTube® is the second highly visited site in the world both in Turkey,^[13] in fact, it is not surprising that our survey participants use this source frequently. It obviously has advantages such as easy and free access to videos and an extensive content.^[14,15] However, while a medical knowledge is required to be supported by many data that are proven statistically in order to be included in medical literature, the reliability of these types of video websites appears to be controversial in the absence of an editorial filter, reference sources and certain quality standards. This is also supported by the fact that 74.4% of the participants gave the answer ‘extremely’ to the question, “To what

extent do you have the need for a video website that is prepared more systematically and evidence-based by expert surgeons?”.

Some studies have assessed the quality and adequacy of YouTube® videos in terms of various surgical procedures.^[16-20] The common view of these studies suggests that YouTube® has a fairly extensive surgical video library where the video quality substantially varies depending on the recording device used. The scoring system used here can also distinguish between reliable and non-reliable videos. It is noted that the higher point, as well as upload done by health professionals, are rated as more reliable sources.

An article reflecting the experiences on producing an ideal surgical video,^[21] pointed out the importance of high-definition camcorders, a good lighting, and the camera angle; however, no studies are found in the literature on standardization for an optimal surgical video.

Today it is possible to access surgical data in different media formats through several internet platforms other than YouTube®. Relatively more systematic video websites of urology associations prepared for healthcare professionals are also being used by specialists at a high rate (e.g. Uropedia, Urosource). According to June 2018 data from Urosource,^[22] the educational video content website of the European Association of Urology (EAU), suggest that it is less frequently used by participants despite it has a rich content with 21438 webcasts and 691 surgical videos. This may be because Urosource is less well recognized compared to YouTube® and requires membership and payment. Similarly, Uropedia,^[23] the educational video content website of the Association of Urological Surgery, is a local resource in the Turkish language highly used by the participants, contains 645 webcasts and 66 surgical videos according to June 2018 data. It also has an application for smartphones and tablets which is advantageous for ease of access. A survey conducted on general surgeons demonstrated that the surgeons had been using videos preoperatively at a rate of 90% while the use of YouTube® was 86% followed by the websites of medical associations and SCORE (Surgical Council on Resident Education) portal.^[9] It is seen that SCORE portal gives the priority to the education of associates with a large content of basic surgical procedures.^[24] The ‘Medscape’ database, established in 1995 and addressing all medical branches, is used by 21% of our participants and contains mainly current medical news, expert opinions, and training videos.

The rate of those who gave the answer ‘sufficient’ to the question of assessing the videos on the websites of medical associations in terms of variety and content was low. This indicates that the surgical video websites of existing medical associations must make progress in this respect.

CONCLUSION

The rate of video recording of surgical procedures and posting in various web platforms is gradually increasing given the accreted use of endoscopic procedures by the impact of technological developments, a legal necessity in case of possible malpractice,^[25] and digital social platforms becoming more widespread. We argue that the use of these platforms may reduce the utilization of global web-sites such as YouTube® and thereby prevent the potential information pollution provided that they become richer in terms of content and variety while meeting certain video quality standards without violating evidence-based medicine principles in addition to a proper editorial review with a separate section for the education of residents.

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Ethics Committee Approval

No approval was required.

Informed Consent

This study is a physician based survey and does not require informed consent.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: U.C., F.N.; Design: U.C., F.N.; Data collection & or processing: U.C., F.N.; Analysis and/or interpretation: U.C.; Literature search: U.C., ; Writing: U.C.; Critical review: U.C., F.N.

Conflict of Interest

None declared.

REFERENCES

- Pugh CM, Watson A, Bell RH, Brasel KJ, Jackson GP, Weber SM, et al. Surgical education in the internet era. *J Surg Res* 2009;156:177–82. doi: 10.1016/j.jss.2009.03.021
- Pape-Koehler C, Immenroth M, Sauerland S, Lefering R, Lindlohr C, Toaspern J, et al. Multimedia-based training on Internet platforms improves surgical performance: A randomized controlled trial. *Surg Endosc Other Interv Tech* 2013;27:1737–47. doi: 10.1007/s00464-012-2672-y
- Mayer RE. Applying the science of learning: Evidence-based principles for the design of multimedia instruction. *Am Psychol* 2008; 63:760–9. doi: 10.1037/0003-066X.63.8.760
- Loukas C. Video content analysis of surgical procedures. *Surg Endosc* 2018 ;32(2):553-568. Doi: 10.1007/s00464-017-5878-1
- Friedl R, Höppler H, Ecard K, Scholz W, Hannekum A, Stracke S. Development and prospective evaluation of a multimedia teaching course on aortic valve replacement. *Thorac Cardiovasc Surg* 2006;54:1–9. Doi: 10.1055/s-2005-865871
- Friedl R, Höppler H, Ecard K, Scholz W, Hannekum A, Öchsner W, et al. Multimedia-Driven Teaching Significantly Improves Students' Performance When Compared With a Print Medium. *Ann Thorac Surg* 2006;81:1760–6. Doi: 10.1016/j.athoracsurg.2005.09.048
- Dimick JB, Varban OA. Surgical video analysis: An emerging tool for improving surgeon performance. *BMJ Qual Saf* 2015; 24:490–491. Doi: 10.1136/bmjqs-2015-004439
- Bonrath EM, Gordon LE, Grantcharov TP. Characterising "near miss" events in complex laparoscopic surgery through video analysis. *BMJ Qual Saf* 2015;24:516–521. Doi: 10.1136/bmjqs-2014-003816
- Rapp AK, Healy MG, Charlton ME, Keith JN, Rosenbaum ME, Kapadia MR. YouTube is the Most Frequently Used Educational Video Source for Surgical Preparation. *J Surg Educ* 2016; 73:1072–6. Doi: 10.1016/j.jsurg.2016.04.024
- Pape-Köhler C, Chmelik C, Rose M, Heiss M. Moderne Didaktik in der chirurgischen Weiterbildung – zwischen Anspruch und Wirklichkeit. *Zentralbl Chir [Internet]* 2010 [cited 2018 May 21];135:575–9. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/20963687>
- Farquharson AL, Cresswell AC, Beard JD, Chan P. Randomized trial of the effect of video feedback on the acquisition of surgical skills. *Br J Surg* 2013; 100:1448–53. Doi: 10.1002/bjs.9237
- Grenda TR, Pradarelli JC, Dimick JB. Using Surgical Video to Improve Technique and Skill. *Ann Surg* 2016; 264:32–3. Doi: 10.1097/SLA.0000000000001592
- Alexa: The top 500 sites on the web. How popular is youtube.com? [Internet] [Cited 2018 June 21] Available at: <http://www.alexa.com/siteinfo/youtube.com>
- Snelson C. YouTube across the disciplines : a review of the literature. *J Online Learn Teach. [Serial online]* 2011;7(1): 159-169. [Cited 2018 June 21] Available at: <http://www.watchknow.org>.
- YouTube Statistics (2018). [Cited 2018 June 21] Available at: <https://www.youtube.com/yt/press/statistics.html>.
- Larouche M, Geoffrion R, Lazare D, Clancy A, Lee T, Koenig NA, et al. Mid-urethral slings on YouTube: quality information on the internet? *Int Urogynecol J* 2016; 27:903–8. Doi: 10.1007/s00192-015-2908-1
- Fischer J, Geurts J, Valderrabano V, Hügler T. Educational Quality of YouTube Videos on Knee Arthrocentesis. *J Clin Rheumatol* 2013; 19:373–6. Doi: 10.1097/RHU.0b013e3182a69fb2
- Bezner SK, Hodgman EI, Diesen DL, Clayton JT, Minkes RK, Langer JC, et al. Pediatric surgery on YouTube™: Is the truth out there? *J Pediatr Surg* 2014; 49:586–9. Doi: 10.1016/j.jpedsurg.2013.08.004
- Rössler B, Lahner D, Schebesta K, Chiari A, Plöchl W. Medical information on the Internet: Quality assessment of lumbar puncture and neuroaxial block techniques on YouTube. *Clin Neurol Neurosurg* 2012; 114:655–8. Doi: 10.1016/j.clineuro.2011.12.048
- Erdem H, Sisik A. The Reliability of Bariatric Surgery Videos in YouTube Platform. *Obes Surg* 2018; 28:712–6. Doi: 10.1007/s11695-017-2911-3
- Fisher N, Kaplan D, Egol KA. Suggested Tips and Tricks to Enhance Surgical Video Production. *J Orthop Trauma* 2017; 31:S4–5. Doi: 10.1097/BOT.0000000000000897
- UROsource [Internet]. [cited 2018 Jun 8]; Available at: <https://>

- urosourc.uroweb.org/
23. Uropedia - Üroloji kütüphanesi [Internet]. [cited 2018 Jun 8]; Available at: <http://www.uropedia.com.tr/Default.aspx>
24. SCORE | About The Site [Internet]. [cited 2018 Jun 11]; Available at: <http://www.surgicalcore.org/public/about>
25. Henken KR, Jansen FW, Klein J, Stassen LPS, Dankelman J, van den Dobbelaars JJ. Implications of the law on video recording in clinical practice. Surg Endosc 2012 ;26:2909–16. Doi: 10.1007/s00464-012-2284-6

Cerrahi Video İçerikli Platformlar Ürologlar İçin Kullanışlı ve Yeterli Mi?

Amaç: Bu çalışmada ürologlar arasında en çok kullanılan ürolojik cerrahi video platformunu ve bunların içerik ve çeşit açısından yeterliliğini belirlemeye amaçladık.

Gereç ve Yöntem: İlgilenilen ürolojik branş, video kullanım sıklığı, kullanılan video kaynakları, üroloji spesifik video bazlı internet sitelerinin yeterliliği ve videoların cerrahi bilgi ve birikime olan katkısını değerlendiren Türkçe dilinde bir anket oluşturuldu. Anket formu farklı illerde çalışan üroloji asistan ve uzman hekimlerine e-mail yoluyla dağıtıldı.

Bulgular: Toplamda 133 ürolog anketi tamamlandı. İnternet ortamında ameliyat videosu izlenme oranı %87.2 idi. Video izleyicileri arasında yapılan değerlendirmeye göre katılımcıların %51.7'si ayda 1 saatten fazla süresini videolara ayırdığını belirtti. Katılımcıların %73'ü bu videoların cerrahi bilgi ve beceriye olan katkısının 'çok' ve 'ileri derecede' olduğunu bildirdi. En çok izlenen web platformu %84.5 ile Youtube iken, bunu %64.7 ile dernek siteleri (Urosource, Uropedia vs.), %21 ile Medscape ve %3.4 ile Websurge takip etmekteydi. Katılımcılar %74 oranında daha sistematik ve güvenilir video sitelerine 'ileri derece'de ihtiyaç olduğunu düşünmekteydi.

Sonuç: Cerrahi prosedürlere hazırlık aşamasında da video kullanımının açık ve fark edilir faydaları olduğu bilinmekte ve hekimlerce sıklıkla kullanıldığı görülmektedir. Youtube en çok kullanılan platform olarak tespit edilse de sağlık profesyonelleri tarafından hazırlanmış, daha sistematik ve güvenilir internet sitelerinin daha popüler olması gerektiği düşüncesindeyiz.

Anahtar Sözcükler: Cerrahi video; multimedya; üroloji eğitimi; youtube.

APPENDIX*

1. Age
2. How many years of surgical experience? Residency..... Speciality.....
3. The type of hospital you are currently working in,
Training and research hospital University hospital Private hospital Public hospital Other (.....)
4. Mark the urologic subdivisions you are particularly interested in. (You can mark more than one)
Urooncology Stone and Endourology Urogynecology Andrology Pediatric urology General urology
5. When you think of the last year, the duration of the surgery that you actively participate in a week.
<10 hour 10–20 hour >20 hour
6. Do you watch surgery videos on the internet? (If no, continue to question 11)
Yes No
7. How long do you watch the operation videos in average within 1 month
None 0–1 hour 1–6 hours 6< hours
8. Which web platforms do you prefer? (You can mark more than one)
None Youtube Medscape Urological social webpages (Urosource, Uropedia etc.) Other (.....)
9. At what level the contribution of these videos to your surgical knowledge and skills
Not at all Slightly Moderately Very Extremely
10. 'Would you perform a surgical operation you are inexperienced in by watching videos
No It depends on the difficulty level of the intervention Yes
11. To what extent do you have the need for a video website that is prepared more systematically and evidence-based by expert surgeons
Not at all Moderately Extremely
12. What do you think about the websites with urological surgery videos?
Video content Insufficient Moderate Sufficient
Video variety Insufficient Moderate Sufficient
13. Do you think it is reasonable to include scientific video content in journals?
Yes No

*This questionnaire translated from Turkish.