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Assessment of Laparoscopic Radical Nephrectomy Videos on YouTube Using LAP-VEGaS Criteria: A Cross-Sectional Analysis

YouTube'daki Laparoskopik Radikal Nefrektomi Videolarının LAP-VEGaS Kriterleri Kullanılarak Değerlendirilmesi: Kesitsel Bir Analiz

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ABSTRACT

Objective: YouTube has become an increasingly important platform for surgical education; however, the quality of laparoscopic surgery videos is variable. The LAParoscopic Surgery Video Educational Guidelines (LAP-VEGaS) provides a standardized framework for assessing surgical video quality.

Material and Methods: A systematic search was conducted on YouTube using relevant search terms. English-narrated laparoscopic radical nephrectomy videos were included. Each video was evaluated using the 9-item core LAP-VEGaS checklist.

Results: Twenty-one videos were included. The mean LAP-VEGaS score was 9.14 ± 3.72 (range 3–16). Videos originated from 11 different countries, with India contributing 38.1% (n=8). No significant correlation was found between popularity metrics and educational quality ($p>0.05$).

Conclusion: Laparoscopic radical nephrectomy videos on YouTube demonstrate a moderate level of educational quality. The lack of association between popularity and educational value highlights the necessity of quality assessment tools in surgical education.

Keywords: laparoscopic surgery, LAP-VEGaS, nephrectomy, video quality assessment, YouTube

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ÖZET

Amaç: YouTube cerrahi eğitimde giderek artan önemde bir platform haline gelmiştir, ancak laparoskopik cerrahi videolarının kalitesi değişkendir. LAParoscopic surgery Video Educational GuidelineS (LAP-VEGaS) cerrahi video kalitesini değerlendirmek için standart bir çerçeve sağlar.

Gereç ve Yöntem: YouTube'da ilgili arama terimleri kullanılarak sistematik arama yapıldı. İngilizce açıklamalı laparoskopik radikal nefrektomi videoları dahil edildi. Her video 9 maddelik LAP-VEGaS temel kontrol listesi kullanılarak değerlendirildi.

Bulgular: Yirmi bir video dahil edildi. Ortalama LAP-VEGaS skoru 9.14±3.72 (aralık 3-16) idi. Videolar 11 farklı ülke kaynaklıydı, Hindistan %38.1 (n=8) katkı sağladı. Popülerlik metrikleri ile eğitimsel kalite arasında anlamlı korelasyon bulunmadı (p>0.05).

Sonuç: YouTube'daki laparoskopik radikal nefrektomi videoları orta düzeyde eğitimsel kalite göstermektedir. Popülerlik ve eğitimsel değer arasındaki bağlantısızlık, cerrahi eğitimde kalite değerlendirme araçlarının gerekliliğini vurgulamaktadır.

Anahtar Kelimeler: laparoskopik cerrahi, LAP- VEGaS, nefrektomi, video kalite değerlendirmesi, YouTube

INTRODUCTION

Laparoscopic radical nephrectomy has become the gold standard surgical approach for the treatment of renal masses, offering reduced morbidity and improved recovery compared to open surgery (1). The acquisition of laparoscopic skills traditionally relies on the master-apprentice model, but increasing surgical volumes and reduced training opportunities have necessitated alternative educational approaches (2).

YouTube has emerged as a significant platform for surgical education, with millions of users accessing medical content daily (3). The platform's accessibility and comprehensive video library have made it an attractive resource for surgical trainees and practicing surgeons seeking to enhance their skills (4). However, the quality of surgical videos on social media platforms remains highly variable, raising concerns about the educational value and potential impact on surgical practice (5).

The LAParoscopic Surgery Video Educational Guidelines (LAP-VEGaS) were developed to provide a standardized framework for assessing the quality of laparoscopic surgery videos (6). This validated assessment tool evaluates videos across nine essential criteria, including author information, case presentation, technical setup, procedural demonstration, anatomical landmarks, outcomes, educational aids, language, and technical quality.

Previous studies have examined the quality of surgical videos across various specialties, consistently demonstrating variable educational standards (7,8). However, specific evaluation of laparoscopic radical nephrectomy videos using validated assessment tools remains limited, despite the procedure's complexity and educational importance.

MATERIAL AND METHODS

This cross-sectional observational study was granted exemption from institutional review board approval due to the analysis of publicly available content. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki for research involving human subjects, though no direct human participation was involved. To replicate a trainee's internet search in real-world scenarios, a systematic search was performed on March 1, 2023, using a cache-cleared browser to ensure unbiased results. Four search terms were employed: "laparoscopic radical nephrectomy," "nephrectomy," "laparoscopic nephrectomy," and "radical nephrectomy." The first 40 results from each search term were evaluated for eligibility, totaling 160 potential videos.

Videos were included if they: (1) featured laparoscopic radical nephrectomy procedures, (2) contained English commentary or subtitles, and (3) were uploaded within the last 10 years to ensure contemporary relevance. Videos were excluded if they: (1) were not in English, (2) were older than 10 years, (3) did not demonstrate actual surgical procedures, (4) were duplicate uploads, or (5) contained incomplete or fragmented procedures. Videos shorter than 5

minutes were also excluded because they were considered insufficient to represent a complete laparoscopic radical nephrectomy procedure.

For each included video, the following data were extracted: video title, ranking position in search results, number of views, upload country, upload date, video duration (minutes), number of comments, and number of likes. Geographic origin was determined based on the uploader's stated location or institutional affiliation.

Each video was independently assessed using the LAP-VEGaS essential checklist, consisting of nine key criteria: (1) Authors and Institution Information, (2) Case Presentation, (3) Technical Setup, (4) Procedural Steps, (5) Anatomical Demonstration,

(6) Outcomes, (7) Educational Aids, (8) Language, and (9) Technical Quality. Each criterion was scored as: 0 (not presented), 1 (partially presented), or 2 (extensively presented), yielding a total possible score of 18 points.
Descriptive statistics were calculated for continuous variables (mean ± standard deviation) and categorical variables (frequencies and percentages). Spearman correlation analysis was performed to examine relationships between video characteristics, engagement metrics, and LAP-VEGaS scores. Statistical significance was set at $p < 0.05$.

RESULTS

A total of 160 videos were initially assessed based on the LAP-VEGaS criteria. Of these, 45 videos were excluded due to insufficient duration, 38 for poor quality, 43 were identified as duplicates, and 13 were excluded because they were not in English. Following these exclusion criteria, 21 videos remained for final analysis. The videos originated from 11 different countries, with India contributing the highest proportion at 38.1% (n=8), followed by Ukraine at 9.5% (n=2). Other contributing countries included the United States, Turkey, Germany, and the United Kingdom, each representing a single contribution.

The mean video duration was 34.27±21.50 minutes (range: 6.4–83 minutes). Video upload dates ranged from 2013 to 2023, with 71.4% of videos uploaded within the last 5 years. The total number of views ranged from 2,785–65,300, with a mean of 15,532 ± 17,816 views per video.

The mean total LAP-VEGaS score was 9.14±3.72 (range: 3-16), with 52.4% of videos achieving scores ≥9, indicating moderate educational quality according to established thresholds. Characteristics of reviewed surgical videos on Laparoscopic Radical Nephrectomy on YouTube are shown in Table 1. The LAP-VEGaS assessment revealed variable compliance across the nine criteria, as shown in Table 2.

Video Characteristics and Geographic Distribution are shown in Table 3. Video engagement metrics showed considerable variation. The mean number of likes was 104.52 ± 133.85 (range: 12–565), and the mean number of comments was 9.62 ± 18.86 (range: 0–70). Spearman correlation analysis showed no significant association between popularity metrics and educational quality: Views vs. LAP-VEGaS ($\rho = -0.183$, 95% CI [−0.57, 0.27], $p = 0.427$), Likes vs. LAP-VEGaS ($\rho = -0.084$, 95% CI [−0.50, 0.36], $p = 0.716$), Comments vs. LAP-VEGaS ($\rho = -0.049$, 95% CI [−0.47, 0.39], $p = 0.834$), indicating that popular videos do not necessarily provide superior educational quality.

Table 1. Characteristics of reviewed surgical videos on Laparoscopic Radical Nephrectomy on YouTube

Video Rank	Video Title	Number of Views	Country	Upload Date	Length of Video (min)	Number of Comments	Number of Likes
1	Laparoscopic Radical Nephrectomy - Step by Step, AINU	65300	India	23.10.2018	19.6	34	565
2	Laparoscopic right nephrectomy takes about half an hour	57568	Ukraine	2.10.2014	32.6	70	215

3	Laparoscopic Nephrectomy	39438	India	19.01.2019	29.3	12	314
4	Laparoscopic nephrectomy less than 20 min	33021	Ukraine	21.01.2017	18.9	51	270
5	Antonio Alcaraz - Laparoscopic radical nephrectomy, left side	13280	Germany	12.09.2018	83	0	77
6	lap right nephrectomy	13192	Egypt	8.05.2013	29.3	12	49
7	CILR 2016 - Antonio Alcaraz - Advanced laparoscopic left radical nephrectomy	12191	Spain	13.06.2017	52.7	0	77
8	Laparoscopic Right Radical Nephrectomy | Surgical Videos	10040	India	20.09.2021	16.6	0	86
9	Left Laparoscopic Radical Nephrectomy | Safe Laparoscopy	9617	Greece	5.09.2021	21.2	3	99
10	Laparoscopic Left Radical Nephrectomy (Kidney Cancer Surgery) Renal Cell Carcinoma - Unedited Video	9193	India	29.06.2020	62	1	46
11	Left Laparoscopic Transperitoneal Nephrectomy	9095	Australia	23.12.2017	17.3	3	76
12	Nefrectomía Laparoscópica izquierda. Laparoscopic nephrectomy. Kidney tumor	8907	Costa Rica	31.08.2015	6.4		43
13	Technique of Laparoscopic Nephrectomy for Kidney Cancer	7716	India	23.04.2017	8.2	2	26
14	CILR 2015 - Renaud Bollens - Advanced laparoscopic radical nephrectomy	6960	Turkey	13.06.2017	52.5		39
15	Right laparoscopic nephrectomy	6276	Australia	28.11.2017	14.2	2	28
16	Laparoscopic Right Radical Nephrectomy for Kidney Cancer	5489	India	1.08.2021	23.8	9	50
17	CILR 2012 - Renaud Bollens - Advanced laparoscopic right radical nephrectomy	4786	Italy	13.06.2017	70	1	27
18	CILR 2011 - Renaud Bollens - Advanced right nephrectomy	4375	Germany	13.06.2017	62		27
19	Laparoscopic right nephrectomy	3625	South Africa	19.05.2020	40.6		42
20	Laparoscopic Nephrectomy - Dr. Nagendra Parvataneni	3327	India	7.10.2016	24.2	1	27
21	Laparoscopic Right Radical Nephrectomy	2785	India	28.11.2018	35.3	1	12

Table 2. LAP-VEGaS Criteria Compliance and Scoring

LAP-VEGaS Criterion	Videos Meeting Criterion n(%)	Partial Compliance n(%)	Not Presented n(%)	Mean Score±SD
1. Author/Institution Information	18 (85.7)	2 (9.5)	1 (4.8)	1.81±0.51
2. Case Presentation	13 (61.9)	5 (23.8)	3 (14.3)	1.48±0.75
3. Technical Setup	16 (76.2)	3 (14.3)	2 (9.5)	1.67±0.66
4. Procedural Steps	19 (90.5)	2 (9.5)	0 (0.0)	1.90±0.30
5. Anatomical Demonstration	17 (81.0)	3 (14.3)	1 (4.8)	1.76±0.54
6. Outcomes Presentation	14 (66.7)	4 (19.0)	3 (14.3)	1.52±0.75
7. Educational Aids	12 (57.1)	6 (28.6)	3 (14.3)	1.43±0.75
8. English Commentary	21 (100.0)	0 (0.0)	0 (0.0)	2.00±0.00
9. Technical Quality	20 (95.2)	1 (4.8)	0 (0.0)	1.95±0.22
Total LAP-VEGaS Score	**Range: 3-16**			**9.14±3.72**

Table 3. Video Characteristics and Geographic Distribution

Characteristic	Value
Total Videos Analyzed	21
Mean Duration (minutes)	34.27±21.50 (range: 6.4–83)
Mean Views	15,532±17,816 (range: 2,785–65,300)
Mean Likes	104.52±133.85 (range: 12–565)
Mean Comments	9.62±18.86 (range: 0–70)
Countries Represented	11
Top Contributing Country	India: 8 videos (38.1%)
Videos with LAP-VEGaS ≥9	11 videos (52.4%)

DISCUSSION

Our findings reveal that laparoscopic radical nephrectomy videos on YouTube demonstrate moderate educational quality, with a mean LAP-VEGaS score of 9.14±3.72. This finding is consistent with previous studies evaluating surgical videos across different specialties, which have consistently reported variable educational standards on social media platforms (9,10).

The LAP-VEGaS assessment revealed significant strengths and weaknesses in video quality. Most videos demonstrated excellent technical quality (95.2% compliance) and comprehensive procedural demonstration (90.5% compliance), indicating that basic surgical recording standards are generally met. However, areas such as formal case presentation (61.9% compliance) and educational aids (57.1% compliance) showed considerable room for improvement.

Our findings align with the recent study by Baturu et al., which examined laparoscopic radical nephrectomy videos using different quality assessment tools (11). While their study focused on comparing short versus long video formats using JAMA, DISCERN, and GQS criteria, our study provides the first comprehensive LAP-VEGaS-based evaluation of this surgical procedure. Notably, both studies identified a disconnect between video popularity and educational quality, reinforcing concerns about algorithm-driven content discovery in surgical education.

The findings also complement those of Kayar et al., who recently evaluated similar videos using LAP-VEGaS criteria but focused on comparing institutional versus personal uploads (12). Their study reported higher LAP-VEGaS scores for institutional videos (6.3±2.2) compared to personal uploads (4.0±2.1). While our study did not specifically categorize videos by upload source, our overall mean score of 9.14±3.72 suggests potential methodological differences or different video selection criteria between studies.

A unique finding of our study is the significant geographic concentration of content creation, with India contributing over one-third (38.1%) of the analyzed videos. This contrasts with the more distributed geographic representation reported in other surgical specialties and may reflect regional differences in laparoscopic nephrectomy adoption, academic output, or video sharing practices (13,14).

The representation of 11 different countries in our sample demonstrates the global nature of surgical knowledge sharing through YouTube, but also highlights potential disparities in educational resource development. The predominance of content from specific geographic regions may limit the diversity of surgical techniques and approaches presented to international audiences.

The lack of correlation between video popularity metrics and educational quality represents a critical finding for surgical education. This disconnect suggests that YouTube's algorithm-driven content discovery may not align with educational objectives, potentially directing learners toward entertaining but less educational content (15,16). This finding is consistent with studies in other medical specialties and reinforces the need for quality-based content curation in medical education platforms.

The use of LAP-VEGaS criteria provides several advantages over other quality assessment tools used in recent studies. Unlike the JAMA benchmarks or DISCERN questionnaire employed by Baturu et al., LAP-VEGaS was specifically developed and validated for laparoscopic surgery videos (11). This procedure-specific focus allows for more nuanced evaluation of surgical education content, particularly in areas such as procedural demonstration and anatomical landmark identification.

For surgical trainees and practicing surgeons using YouTube as an educational resource, our findings emphasize the importance of applying critical evaluation skills rather than relying on popularity metrics. The moderate overall quality scores suggest that while YouTube videos can provide valuable supplementary educational content, they should not replace formal surgical training programs or structured educational curricula (17,18).

Educational institutions and surgical societies should consider implementing LAP-VEGaS-based quality assurance processes for video content creation and dissemination. The development of curated video libraries with quality-assured content could address the current limitations in algorithm-driven content discovery (19,20).

Several limitations should be acknowledged. First, our analysis was restricted to YouTube and excluded other video-sharing platforms that may host high-quality surgical content. Second, the English-language requirement may have excluded high-quality videos in other languages, potentially affecting the geographic representation of our sample. Third, the moderate sample size (n=21) limits the generalizability of findings, although this reflects the relatively limited availability of high-quality laparoscopic radical nephrectomy videos meeting our inclusion criteria.

Additionally, the LAP-VEGaS assessment, while comprehensive, does not evaluate actual learning outcomes or the practical impact of video quality on surgical skill acquisition. Future studies should examine the relationship between video quality scores and measurable educational outcomes.

Future research should examine learning outcomes associated with high-quality versus low-quality surgical videos to establish the clinical relevance of quality assessment tools. Longitudinal studies tracking changes in video quality over time could inform understanding of how social media platforms evolve as educational resources (21,22).

Additionally, comparative studies examining the educational effectiveness of different quality assessment tools (LAP-VEGaS, JAMA, DISCERN, GQS) could help establish optimal evaluation frameworks for surgical video content. Investigation of learner preferences and the relationship between video characteristics and knowledge retention would further inform evidence-based surgical video production guidelines.

CONCLUSION

Laparoscopic radical nephrectomy videos on YouTube demonstrate moderate educational quality according to LAP-VEGaS criteria, with significant geographic variation in content creation and a notable disconnect between popularity and educational value. While these videos can serve as valuable supplementary educational resources, the variable quality highlights the need for critical evaluation skills among learners and quality assurance processes in surgical video production.

The findings support the importance of validated assessment tools like LAP-VEGaS in evaluating surgical educational content and emphasize the need for evidence-based approaches to surgical video creation and curation. As social media platforms continue to play an increasingly important role in surgical education, ensuring content quality and educational appropriateness remains a critical priority for the surgical community.

Conflict of Interest: The authors declare no conflicts of interest.

Informed Consent: This study is based on publicly available YouTube videos and does not involve human participant data. Therefore, informed consent was not required

Funding: This research received no external funding

Ethical Approval: This cross-sectional observational study was granted exemption from institutional review board approval due to the analysis of publicly available content. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki for research involving human subjects, though no direct human participation was involved.

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