Original Article

Evaluation of the Quality of YouTube Videos in Gonioscopy-Assisted Transluminal Trabeculotomy Surgery

Ramazan Birgul[1]
[1]Department of Ophthalmology, Izmir City Hospital, Turkey

ABSTRACT

Purpose: To evaluate the educational quality and usefulness of YouTube videos as a resource in gonioscopy-assisted transluminal trabeculotomy (GATT) surgery.

Study Design: Descriptive observational.

Place and Duration of Study: Department of Ophthalmology, Izmir City Hospital, Turkey. The videos available until 26 June 2025 were included.

Methods: The first 50 YouTube videos found using the search term 'gonioscopy-assisted transluminal trabeculotomy were included for the study. The steps of GATT surgery were scored (range:1–12) and standardised according to the literature. The videos were analysed using the Quality Criteria for Consumer Health Information (DISCERN) score(range:16–75), the Global Quality (GQ) score (range:0–5), and the Journal of the American Medical Association (JAMA) score (range:0–4).

Results: The mean number of views (1910.6±3221.5), likes (21.7±29.4), dislikes (0.2±0.7), comments (1.5±2.1), video duration (278.5±233.1 seconds), time since upload (45.3±38.6 months), view rate (2.2±3.7), likes rate (98.7±4.5), video power index (2.2±3.7), and interaction index (0.00025±0.00026) were calculated. The mean surgical quality score of the videos was 8.9±2.2,the DISCERN score was 35.8±9.2 (poor quality), the GQ score was1.4±0.7 (insufficient quality), and the JAMA score was 1.8±0.8 (moderate quality).

Conclusion: Most of the videos examined in this study relate to surgical techniques and were produced by doctors. Although the surgical score of the videos related to surgical technique was found to be high, their quality as a resource was low according to the video quality scoring criteria used worldwide.

Keywords: Social media, Video Recording, Gonioscopy, Trabeculotomy.

Correspondence: Ramazan Birgul
Department of Ophthalmology, Izmir City Hospital, Turkey
Email: ramazanbirgul@hotmail.com

INTRODUCTION

Trabeculectomy is considered as a gold standard in surgical management of Glaucoma.[1] To avoid complications associated with trabeculectomy, alternative procedures have been sought. Recently, surgical methods using Schlemm's canal and suprachoroidal and subconjunctival drainage routes, defined as microinvasive glaucoma surgery, are commonly performed before planning for trabeculectomy.[2-4] One such procedure is Gonioscopy-assisted transluminal trabeculotomy (GATT). It was first described by Grover et al and is performed with the help of a goniolens placed on the cornea in patients with moderate or mild POAG.[5] A360-degree trabeculotomy is performed with a micro-catheter or 4.0 nylon with a cauterised tip. Studies have reported up to 30–40% decrease in intraocular pressure following this surgery.[5,6]

Video-sharing sites are widely used by doctors, especially for learning new surgical techniques. At present, the most widely used video-sharing platform is YouTube. It is one of the most visited websites in

the world and offers its users the opportunity to upload videos as well as watching them. However, the fact that videos can be uploaded by anyone without supervision creates a situation known as information pollution.[7,8] In this study, GATT videos available on YouTube were analysed and their medical and surgical qualifications were examined with the aim of obtaining objective data about the content of these videos. The aim of this study is to examine GATT surgical videos that have not been previously evaluated in the literature and to assess the quality and educational contribution of these videos through standard scoring.

METHODS

This was a cross-sectional observational study, conducted by evaluating publicly available videos on YouTube until 26 June 2025. The patient and video uploaders' identities were not disclosed. All internet search history was deleted to avoid affecting YouTube's search engine algorithms. The term 'gonioscopy-assisted transluminal trabeculotomy' was typed into the YouTube search engine, and the first 50 videos were selected. The reason was that there are usually 50 videos on the first three pages of the results in search engines, and 95% of users do not look beyond these first three pages.[9] Only videos related to GATT in English were included in the study. Repetitive videos, videos in other languages, and videos with disabled comment, like, and dislike functions were excluded from the study.

The number of views, likes, dislikes, like rate (likes ×100/likes+dislikes), comments, video duration, when it was uploaded, view rate (total views divided by the number of days since upload), video power index, and interaction index were calculated. The video power index, which shows the popularity of the video and its power on YouTube, was calculated as the rate ×view rate/100.[10] The interaction index was calculated as the number of likes, number of dislikes/total number of views×100.[11] The videos were evaluated by an experienced ophthalmologist (R.B.).

The steps of GATT surgery were standardised according to the literature by scoring each step as one point (range:1–12).[5,6]

- 23-gauge (G)micro vitreo retinal (MVR) paracentesis through the cornea into the anterior chamber from the superonasal or inferonasal quadrant.

- Viscoelastic material in the anterior chamber.

- Creation of a new paracentesis with 23-G MVR from the temporal quadrant.

- Insertion of a cauterised suture or micro-catheter into the anterior chamber.

- Visualisation of the angle by placing the goniolens on the cornea.

- 1-2 mm goniotomy with MVR knife by entering the anterior chamber.

- Entering the anterior chamber with micro-forceps and placing a cauterised 4.0 nylon suture or micro-catheter into Schlemm's canal through the goniotomy incision.

- Advancement of a cauterised 4.0 nylon suture or micro catheter 360 degrees in Schlemm's canal with the help of micro-forceps.

- Trabeculotomy by pulling the proximal end of a cauterised 4.0 nylon suture or micro-catheter with the help of micro-forceps.

- Irrigation aspiration in the anterior chamber to remove viscoelastic and blood in the anterior chamber.

- Administration of viscoelastic to the anterior chamber to tamponade the haemorrhage.

- Closing the entrance points.

Videos were analysed using Quality Criteria for Consumer Health Information (DISCERN), Global Quality (GQ), and the Journal of the American Medical Association (JAMA).

There are 16 questions in the DISCERN scoring. All questions have a score from 1 to 5. The first eight questions are used to determine the security of the webpage. Questions 9–15 in the second section assess the quality of information about treatment options. The sixteenth and last question is a general evaluation of the website and is usually excluded from scoring. Scoring was done using GQS (Global Quality Scale) as; very poor (16–26), poor (27–38), fair (39–50), good (51–62), and excellent (63–75).[12] GQ scoring reviews the videos in general and evaluates them according to the flow of information presented. Scoring ranges from 1 to 5.[13]

The JAMA criteria assess the basic information used on websites. JAMA assessment includes four main sections: authorship, bibliography, patent rights,

and currency.[14] Each criterion receives 1 point. One is the weakest quality, while four is the highest.

Statistical analyses were performed using IBM SPSS (IBM Corp., Armonk, NY, USA) version 20.0. Descriptive statistics of categorical variables were presented as percentages. ANOVA was used when three or more variables were available, and following that, the Bonferroni test was used to correct the error rate. The significance level was $p < 0.05$.

RESULTS

The mean number of views(1910.6±3221.5), likes (21.7±29.4), dislikes (0.2±0.7), comments (1.5±2.1), video duration (278.5±233.1 seconds), time since upload (45.3±38.6 months), view rate (2.2±3.7), likes rate (98.7±4.5), video power index (2.2±3.7), and

Table 1: *General Characteristics of YouTube Videos about Gonioscopy-Assisted Transluminal Trabeculotomy.*

	Average	Range
Number of Views	1910.6	17–15239
Likes	21.7	1–166
Dislikes	0.2	0–3
Comments	1.5	0–7
Duration(seconds)	278.5	54–1571
Age(months)	45.3	1–127
View Ratio	2.2	0.08–19.8
Like Ratio	98.7	77–100
Video Power Index	2.2	0.08–19.8
Interaction Index	0.00025	0.000029–0.0016
Surgical Quality	8.9	4–12
DISCERN	35.8	25–67
GQ	1.4	1–4
JAMA	1.8	1–4

Table 2: *Comparison of YouTube Videos with Each Other According to Sources.*

	Doctor(n = 34)	Private Hospital(n = 4)	Health Channels(n = 12)	P Value
DISCERN	34.7 ± 8.3	41.2 ± 15.3	37.1 ± 9.5	0.359
GQ	1.2 ± 0.6	1.7 ± 1.5	1.5 ± 0.9	0.298
JAMA	1.8 ± 0.7	2 ± 1.4	1.6 ± 0.7	0.761
Surgical Quality	9.2 ± 1.9	9.2 ± 3	8.2 ± 2.8	0.448
Number of Views	1849 ± 3054	5327 ± 6704	944 ± 841	0.05
Likes	19 ± 21.4	71.7 ± 70.2	12.6 ± 10.1	**0.001**
Dislikes	0.1 ± 0.4	0.7 ± 1.5	0.3 ± 0.7	0.17
Comments	1.7 ± 2.2	2 ± 2.7	0.7 ± 0.9	0.33
Duration(seconds)	244.5 ± 115.5	510.5 ± 711.8	297 ± 200	0.09
Age(months)	47.3 ± 38.5	40 ± 10.6	41 ± 45.9	0.86
View Ratio	1.8 ± 2.8	3.8 ± 3.9	2.7 ± 5.4	0.49
Like Ratio	99.8 ± 1.7	99.5 ± 0.8	96.2 ± 8.6	0.09
Video Power Index	1.7 ± 2.9	3.8 ± 3.8	2.7 ± 5.4	0.49
Interaction Index	0.00025 ± 0.00029	0.00015 ± 0.00006	0.00024 ± 0.002	0.75

Anova Test: **p<0.05.

Table 3: *Comparison of YouTube Videos with Each Other According to Content.*

	Surgical Technique(n = 42)	About the Disease(n = 8)	P Values
DISCERN	32.5 ± 3.7	53.5 ± 9.3	**<0.01**
GQ	1.1 ± 0.2	2.8 ± 0.8	**<0.01**
JAMA	1.5 ± 0.5	3 ± 0.9	**0.003**
Surgical Quality	8.9 ± 2.2	9.1 ± 2.4	0.846
Number of Views	2070 ± 3479	1070 ± 871	0.427
Likes	22.9 ± 31.7	15.3 ± 9.1	0.511
Dislikes	0.2 ± 0.7	0	**0.026**
Comments	1.7 ± 2.1	0.1 ± 0.3	**<0.01**
Duration(seconds)	221.1 ± 109.9	579.7 ± 431.4	0.051
Age(months)	49.1 ± 40.7	24.8 ± 11.8	**0.003**
View Ratio	2.3 ± 4	1.3 ± 0.7	0.5
Like Ratio	98.5 ± 4.9	100	0.41
Video Power Index	2.3 ± 4	1.3 ± 0.7	0.5
Interaction Index	0.00025 ± 0.00028	0.00021 ± 0.00014	0.738

Anova Test: **p<0.05.

interaction index (0.00025±0.00026) was calculated. The mean surgical quality score of the videos was 8.9±2.2, the DISCERN score was 35.8±9.2 (poor quality), the GQ score was 1.4±0.7 (insufficient quality), and the JAMA score was 1.8±0.8 (moderate quality) **(Table1).**

Of the 50 videos, 34 (68%) were uploaded by doctors, 4 (8%) by private hospitals, and 12 (24%) by health channels. When these groups were compared with each other, there was a significant difference between the groups only in terms of the number of likes, while there were no significant differences between the remaining parameters with p=0.001 (Table 2).

When the videos were analysed in terms of surgical technique and disease information, 42 (84%) videos were about surgical technique, and 8 (16%) videos were about the disease. When the two groups were compared in this way, there were significant differences between them in terms of DISCERN, GQ, JAMA, dislikes, comments, and time elapsed since uploading, while there were no significant differences between the groups in terms of the other parameters (Table 3).

DISCUSSION

Today, access to information has become extremely easy with the Internet revolution, and YouTube is one of the most visited websites in the world. The fact that visual media is preferred more than written media today has brought this site to the forefront. In addition, free video uploading and earning are also reasons for its popularity. For this reason, many videos on every subject are uploaded and the site has turned into a video dump. Despite this, patients watch YouTube videos because they see it as a place where they can easily access information about their conditions. Recently, with the uploading of videos containing surgical techniques, YouTube videos are being utilised by doctors and health professionals.[7,8,15,16] All this information makes it necessary to evaluate the quality of the videos posted on YouTube. The lack of a study analysing videos related to GATT in our literature review provided the motivation to conduct this study.

When YouTube videos about GATT were analysed in this study, the mean DISCERN score indicating video quality was 35.8±9.2 (poor quality), the GQ score was 1.4±0.7 (insufficient quality), and the JAMA score was 1.8±0.8 (moderate quality). In

the literature, these scores evaluating YouTube video quality are quite different from each other. For example, in their study examining refractive surgery videos, Küçük and Sirakaya found DISCERN (33.2±15.3) and GQ scores (1.7±0.8) similar to our study, but JAMA scores (0.7±0.8) were different.[17] Mangan et al, examined videos of strabismus and found the DISCERN score as42.2±15.3, GQ score as2.7±1.1 which differed from our study, while the JAMA score (1.9±1.2) was similar to our study.[18]

In the present study, when different video producers, such as doctors, private hospitals, and health channels, were compared with each other, there were no significant differences between the groups in terms of DISCERN, GQ, and JAMA scores. Kalaycı et al, compared doctor-generated and non-doctor–generated keratoplasty videos on YouTube.[11] In their study, there was no significant difference between the groups in terms of DISCERN score, but there were significant differences in terms of GQ and JAMA scores. Bolac et al, examined YouTube videos related to Fuchs' endothelial corneal dystrophy.[19] The videos were divided into groups similar to our study and similar results were obtained. In their study, when physicians, private hospitals, and health groups were compared in terms of DISCERN, GQ, and JAMA scores, no significant differences were found.

In this study, there were no significant differences between physicians, private hospitals, and health care groups in terms of DISCERN, GQ, and JAMA scores. In addition, different parameters such as surgical quality, number of views, likes, dislikes, comments, video duration, time since upload, viewing rate, liking rate, video power index, and interaction index were also evaluated between the groups. There was a statistically significant difference between the groups only in the number of likes. The differences between doctors and private hospitals, and health channels and private hospital groups were significant, while the difference between doctors and health channels was statistically insignificant (p = 0.001, p = 0.001, p = 1). Our results showed that the videos produced by private hospitals received a greater number of likes. In terms of all other parameters, the various video content producers did not differ from each other.

When we analysed YouTube videos related to GATT, most of them were related to surgical technique. Therefore, we included a surgical quality score in our study in addition to the video quality assessment scores used worldwide. Surgical quality

scores were similar in both groups, and there was no statistically significant difference between them. DISCERN, GQ, and JAMA scores were higher in the disease-related group and statistically significant. This shows that videos about the disease provide information about both the disease and surgical technique. In their study on YouTube videos related to retinal detachment surgery, Songur and Citirik divided the videos into those that included surgery and those that did not.[20] It was reported that videos with surgical content were of higher quality in terms of DISCERN, GQ, and JAMA scores. In our study, the opposite result was found, suggesting that videos about the disease are mostly designed for doctors and not for patients. The intention of these videos was to explain a new surgical technique to ophthalmologists.

This study had some limitations. First, although they were evaluated by an experienced ophthalmologist, these evaluations were subjective. Second, complications were not shown in the videos, and all aspects of the surgery could not be evaluated. In addition, this study was limited by the fact that only 50 videos were analysed, and the rankings of the evaluated videos constantly changed in the searches of other users.

CONCLUSION

Most of the videos examined in this study relate to surgical techniques and were generally produced by doctors. Although the surgical score of the videos related to surgical technique was high, their quality as an instructional resource was low according to the video quality scoring methods used worldwide. However, both the surgical quality score and video quality scores of the videos related to the disease were high. This shows that videos about the disease are mostly designed for doctors, not for patients. These videos were intended to explain a new surgical technique to ophthalmologists. Another result was that video quality scores increased as video duration increased, suggesting that the disease is explained in more detail in videos of a longer duration.

Patient's Consent: Researchers followed the guidelines set forth in the Declaration of Helsinki.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: Ethical approval was not required because this was a record-based study.

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Author's Designation and Contribution

Ramazan Birgul; Consultant Ophthalmologist: *Concepts, Design, Literature search, Data acquisition, Data analysis, Statistical analysis, Manuscript preparation, Manuscript editing, Manuscript review.*

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