The safety of surgical mesh: what is online video content teaching our patients?

Patients are increasingly anxious about the use of mesh in surgery [1]. Due to the complications associated with transvaginal mesh for pelvic organ prolapse repair, many patients are understandably reluctant to consent to other procedures that also involve mesh, such as those for stress urinary incontinence and hernia repair, despite evidence-based practice supporting its use in surgery [1,2]. As clinicians, it is essential we provide education with reference to appropriate sources of information and recognize that patients may have informed or misinformed preconceptions in this area.

The Internet is the one of the most readily accessible sources for patients to access health information. In the United States in 2013, 72% of people with access to the Internet had used it to search for health information [3]. Currently in 2021, there is an even greater dependence on the Internet as a medium for accessing information. After Google, YouTube is the second most popular website in the world. YouTube is a website with the world’s largest, free-to-access online video content. In recent years, particularly with the impact of the COVID-19 pandemic, it has had a growing influence on the distribution of health information [4]. The concern is that, as a source of information for patients, the videos available on this platform providing health information are not regulated, potentially perpetuating a misunderstanding of many health conditions.

Our objective was to assess the quality and content of information which patients are likely to view when searching online video content regarding the safety of mesh in surgery. Two independent reviewers searched ‘Is surgical mesh safe?’ on YouTube in June 2021 and evaluated the first 50 videos listed, reflecting the content patients are most likely to view. No search or geographic restrictions were applied, including language. Subtitles were used to interpret videos (n = 3) in languages other than English. No videos were excluded. Information related to views, video producer, quality of content, understandability and actionability for viewers was assessed. The videos were assessed using the validated Patient Education Materials Assessment Tool (PEMAT) and the DISCERN criteria [5,6]. PEMAT is a tool which assesses the understandability and actionability of audio-visual content [5]. It consists of assessment of 13 areas of understandability and four areas of actionability. For each area, assessors graded the content on whether or not it reflected the criteria, as either ‘Agree’, ‘Disagree’ or ‘Not Applicable’. ‘Agree’ was chosen if the content assessed occurred in 80–100% of the material presented. The total score was then calculated (‘Agree’ = 1 point, ‘Disagree’ = 0 points) and a percentage score for understandability and actionability generated. The DISCERN criteria assess the quality of consumer health information, focusing on the sourcing, bias and reliability of information provided [6]. The content is assessed across 16 areas, rated overall from a score of 1 (serious or extensive shortcomings) to 5 (minimal bias). Before assessing content, both reviewers familiarized themselves with the PEMAT and DISCERN tools. Any conflicts in the grading of material were discussed between reviewers and a decision made. Statistical analysis was performed using R software version 3.6.3 (R Foundation, Vienna, Austria). Univariate analysis was performed using a Mann–Whitney U-test to assess correlation of PEMAT and DISCERN scores with the characteristics of video content such as number of listings on the internet and content produced by validated medical institutions. A P value of <0.05 was taken to indicate statistical significance.

The first 50 videos listed by YouTube when searching ‘Is surgical mesh safe?’ were produced from January 2011 to April 2021. Their characteristics are outlined in Fig. 1. It was found that 60% of the videos were produced by a recognized medical institution. A total of 22% of video content had advertising material referring viewers to medical or legal services in case they had experienced complications from surgical mesh. The median (range) number of total views per video was 19157 (42–16732114) and the median (range) number of views per month was 620 (1–539746). Viewers overall seemed engaged with the content presented, with a median of 97 likes compared to a median of 5 dislikes per video. Viewer engagement was encouraged across the content, with 76% of videos allowing viewers to write comments and questions, to which video producers often responded.

Despite the median PEMAT understandability score of the content being 77% (range 23–100%), there was limited actionability of content, reflected by a PEMAT score of 23% (range 0–100%). The DISCERN criteria reflect the quality and relevance of information provided to viewers. The overall quality of information provided was poor and failed to adequately address the safety of surgical mesh, reflected by a median (range) relevance score of 1 (1–4), a median (range) bias assessment score of 2 (1–5) and a median (range) overall score of 2 (1–4). There were significant shortcomings in referenced material and evidence-based information provided to patients.
Concerningly, only 6% of video content addressed the safety and efficacy of surgical mesh in stress urinary incontinence and hernia repair, with the majority of content focusing instead on complications related to mesh in abdominal surgery and for pelvic organ prolapse. There was particular emphasis on mesh erosion and the development of chronic pain syndrome. Further, on univariate analysis, there was no association for video content produced by a medical institution with a higher overall PEMAT or DISCERN score ($P = 0.859$). Nor was there an association of the numbered listing ($P = 0.893$) or number of views ($P = 0.993$) with higher PEMAT or DISCERN scores.

Online video content is one of the most readily accessible, cost-effective and popular media for patients to search health conditions [7]. This is one of the first studies to assess the quality of information disseminated by online videos relating to the use of mesh in surgery. Overall, online videos have been shown to be a poor source of information for patients to gain an understanding of the safety, utility and efficacy of surgical mesh. Whilst video content was well presented, the quality of information was significantly biased, with limited citations of sources of information reported and limited discussion addressing the current use of mesh in surgery. There was an overwhelming focus on individuals’ own

### Figure 1

Summary of online video content addressing the question, ‘Is Surgical Mesh Safe?’. PEMAT, Patient Materials Assessment Tool.
complications associated with transvaginal mesh, which has
the potential to obscure patients’ opinions on the use of mesh
in other forms of surgery. Concerningly, there was no
association between the quality or validity of information
with the number of views of video content or the order in
which content was listed on the search engine results page.
Similar results have been reported in other topical areas in
medicine pertaining to online videos as a source of health
information [7]. While there is no doubt that audio-visual
content can be effective in conveying information to patients,
the lack of regulation of content is a significant limitation of
this platform. The most influential factor in increasing video
content accessibility online remains the number of total views
[8].

Clinicians need to be aware of these limitations, as patients
may have viewed online videos prior to a consultation and
therefore may have already formed preconceptions of the use
of mesh (Fig. 1). Clinicians need to explore and address the
concerns of patients and ensure that they are educated with
appropriately sourced information, which can include
appropriately selected online content. Clinicians should keep
in mind that the most appropriate online video content may
not be the top listed video on the search engine results page
[7]. Further, specifically for patients considering surgery,
surgeons should consider multiple consultations so that
patients can come to an appropriate informed decision before
proceeding.

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References

1 Li A, Lee P. The effect of medical consultation on patients’ concerns
regarding vaginal mesh use in pelvic reconstructive surgery. J Obstet
Gynaecol Can 2019; 41: 174–9
2 Chapple C, Cruz F, Deffieux X et al. Consensus statement of the
european urology association and the european urogynaecological
association on the use of implanted materials for treating pelvic organ
prolapse and stress urinary incontinence. Eur Urol 2017; 72: 424–31
3 Fox S, Duggan M. Health Online 2013: One in three American adults have
gone online to figure out a medical condition. [Internet] 2013. Available at:
http://www.pewinternet.org/2013/01/15/health-online-2013/. Accessed 2021
September 5
4 Lawrentschuk N. Telehealth, virtual meetings and conferences in urology:
‘good’ COVID side effects. BJU Int 2021; 127(S1): 4–5
5 Agency for Healthcare Research and Quality. PEMAT Tool for
Audiovisual Materials (PEMAT-A/V). [Internet] 2013. [updated 2020
November]. Available at: https://www.ahrq.gov/health-literacy/patient-
education/peumat-av.html. Accessed 2021 June 5
6 Charnock D, Shepperd S, Needham G et al. DISCERN: an instrument for
judging the quality of written consumer health information on treatment
choices. J Epidemiol Community Health 1999; 53: 105–11
7 Haslam K, Doucette H, Hachey S et al. YouTube videos as health decision
aids for the public: An integrative review. Can J Den Hyg 2019; 53: 53–66
8 Zhou R, Khemmarat S, Gao L et al. How YouTube videos are discovered
and its impact on video views. Multimed Tools Appl 2016; 75: 6035–58

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Abbreviation: PEMAT, Patient Materials Assessment Tool.