



# Animation Supported Consent Before Elective Laparoscopic Cholecystectomy

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## Abstract

**Background** Patient understanding of surgical procedures is often incomplete at the time they are performed, invalidating consent, and exposing healthcare providers to complaints and claims of failure to inform. Remote consultations, language barriers and patient factors can hinder an effective consent pathway. New approaches are needed to support communication and shared decision-making.

**Methods** Multi-language digital animations explaining laparoscopic cholecystectomy were introduced at The Royal London Hospital for patients who attended for elective surgery ([www.explainmyprocedure.com/lapchole](http://www.explainmyprocedure.com/lapchole)). Patients completed questionnaires on the day of their procedure both before and after introduction of the animations. We assessed patient-reported understanding of the procedure, its intended benefits, the possible risks, and alternatives to treatment in 72 consecutive patients, 37 before (no animation group) and after 35 after introducing the animations into the consent pathway (animation group). Patient understanding in the two groups was compared.

**Results** The two groups were well matched in respect of age, sex and whether English was their first spoken language. The proportions of patients who reported they completely understood the procedure, its benefits, risks, and alternatives in the no animation group were 54, 57, 38 and 24% and in the animation group, 91, 91, 74 and 77%, respectively;  $p < 0.01$  for each comparison.

**Conclusion** The integration of multi-language laparoscopic cholecystectomy video animations into the patient consent pathway was associated with substantial improvement in reported understanding of the procedure, benefits, risks, and alternatives to treatment. This approach can be applied across all surgical disciplines in a standardised manner in an era of accelerated elective work and remote consultations.

## Introduction

Surgical shared decision-making focuses on patient values and preferences combined with clinician expertise to select the best course of management for the individual concerned [1]. This approach is needed to improve patient satisfaction and bolster patient-clinician relationships. Properly informing patients before they consent to treatment is also a legal requirement [2]. To achieve this, surgeons must be satisfied that patients have received and understood appropriate information about their proposed management and alternative options and address any

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specific concerns that matter to the patient [1]. The Royal College of Surgeons and the General Medical Council have published guidance regarding valid consent and tailoring information to the patients' needs. But factors such as time, workload, reduced face-to-face contact and language barriers pose significant challenges to providing the right level of support for each patient [1, 2].

Laparoscopic cholecystectomy is the mainstay management for symptomatic gallstone disease and over 66,000 procedures are performed in the UK each year [3]. Often considered a routine elective operation, serious complications such as bile duct injury can occur, with profound effects on the quality of life for patients. Written information and websites are useful in supporting patient education, but reliability, readability and quality is highly variable and may not focus on shared decision-making and consent [4]. The quality and content of discussion is known to vary according to the grade of surgeon involved in terms of complications discussed, suggesting that the process is not standardised [5]. In addition, delays between the offer and delivery of treatment, exacerbated by the recent pandemic, have led to prolongation of the consent process before surgery, with reduced recall of the clinical discussion [6]. Such factors mean that new approaches to delivering relevant information are needed. Demonstrating satisfactory patient-reported understanding before consent is a key auditable standard that needs to be met in any discipline.

Multimedia resources such as animation-supported consent have been effectively implemented to improve patients' understanding before consent and free up time to focus on material concerns. In angiography and angioplasty, digital animations have been introduced into the elective and urgent patient pathways [7, 8]. The animations describe the procedure, its intended benefits, possible risks, and alternatives to the procedure in multiple languages that patients can choose; and approach consistent with GMC guidance [2]. Implementation of this approach resulted in a threefold increase in reported understanding before consent and a 70% reduction in complaints and serious incidents due to failure to inform [7–9]. Here we describe the use of animation-supported video books to support consent for patients being admitted for elective day case laparoscopic cholecystectomy and report the results of a consecutive patient survey of reported understanding before and after the introduction of the initiative.

## Materials and methods

This project was undertaken between May 2020 and May 2021 at The Royal London Hospital as part of a quality improvement programme aimed at modernising the

consent pathway for patients undergoing elective laparoscopic cholecystectomy. The Standards for Quality Improvement Reporting Excellence guideline for conducting and reporting quality improvement projects were followed [10].

## Digital animation

An animation describing laparoscopic cholecystectomy was created by Explain My Procedure Ltd ([www.explainmyprocedure.com/lapchole](http://www.explainmyprocedure.com/lapchole)) and translated into five languages (Bengali, Polish, Hindi, Turkish and Arabic) besides English; the most spoken languages in our patient population. These multi-language digital animations were loaded onto a video book, providing internet-free access to the information. Each animation was about 5 min long and explained the steps of the procedure, benefits, risks, and alternatives to surgery, including the option to have no surgery at all; the key domains underpinned by GMC guidance [2]. Consecutive patients attending for laparoscopic cholecystectomy were asked to answer questions on the day of their surgery to assess their understanding of their procedure, both before and after introduction of the animations into practice. Figure 1 shows the pathway before and after introduction of the animation initiative.

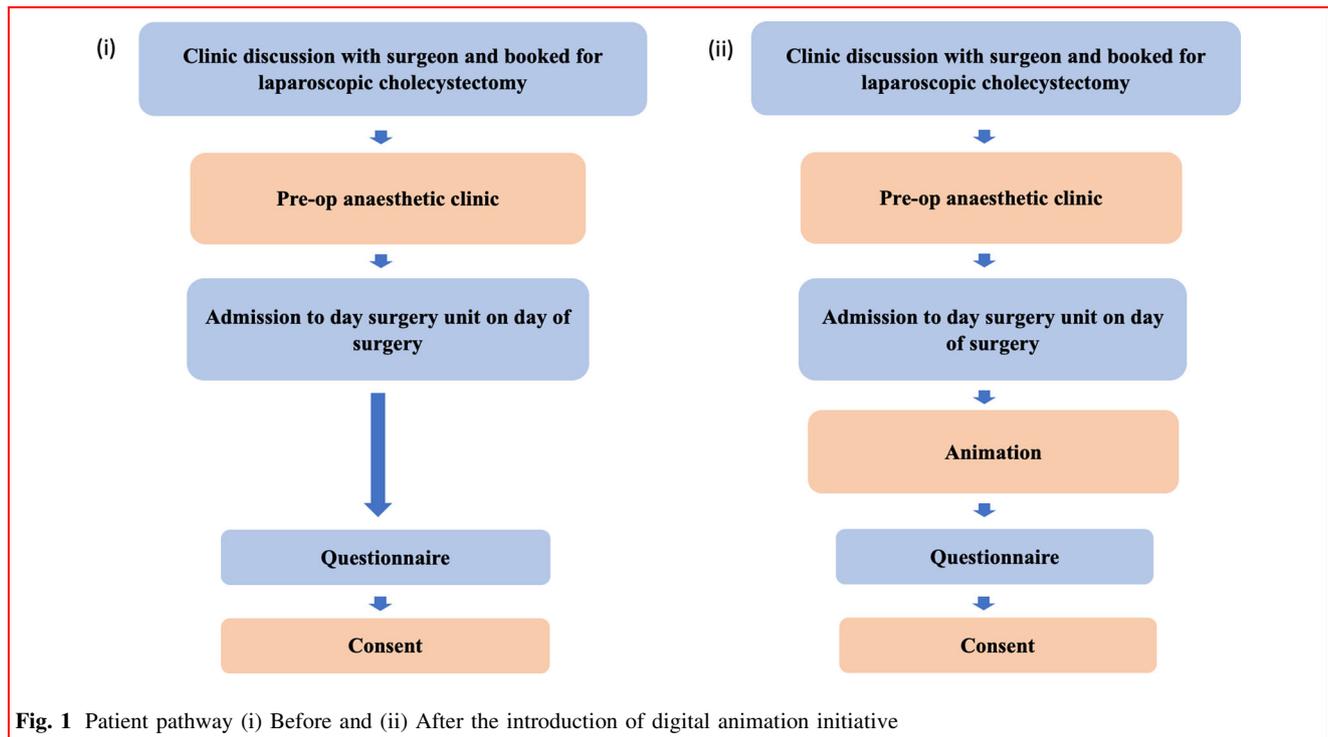
Responses to the questionnaire (online supplementary appendix) were recorded by clinical staff who had no role in creating the animations or analysing the results. Assuming an initial level of understanding of about 30%, based on previous work [7], a sample of 70 patients provided more than 80% power to show a two-fold or greater improvement in reported understanding at a  $p$  value of 0.05.

The analysis was a comparison of the responses from the patients interviewed after introducing the animations (animation group) with the responses from the patients interviewed before their introduction (no animation group). Responses to the questions were analysed categorically (complete understanding vs partial or no understanding).  $P$  values were determined using Fisher's exact test. The Quality Improvement project was an audit that did not require ethical approval and was registered with the Clinical Effectiveness Board at Barts Health NHS Trust.

## Results

72 patients were included: 35 (49%) in the animation group and 37 (51%) in the no animation group. Baseline demographics were similar between the two groups for sex, age and languages spoken (Table 1).

Figure 2 compares patient-reported understanding in the no animation group ( $n = 37$ ) and in the animation group



**Fig. 1** Patient pathway (i) Before and (ii) After the introduction of digital animation initiative

**Table 1** Patient characteristics

	Animation group	No animation group
Total number	35	37
Number of men	9 (26%)	10 (27%)
Age (years)	43 (30–66)	41 (25–64)
Primary language spoken		
English	21 (60%)	24 (64%)
Bengali	8 (23%)	8 (22%)
Hindi	2 (6%)	3 (8%)
Polish	2 (6%)	2 (5%)
Other*	2 (6%)	2 (5%)

\*Bulgarian, Albanian, Romanian

( $n = 35$ ). The proportions of patients who reported they completely understood the procedure, its benefits, risks, and alternatives in the no animation group were 54, 57, 38 and 24% and in the animation group, 91, 91, 74 and 77%, respectively. There was statistically significantly greater understanding across all domains in the animation group ( $p < 0.01$  for each comparison).

## Discussion

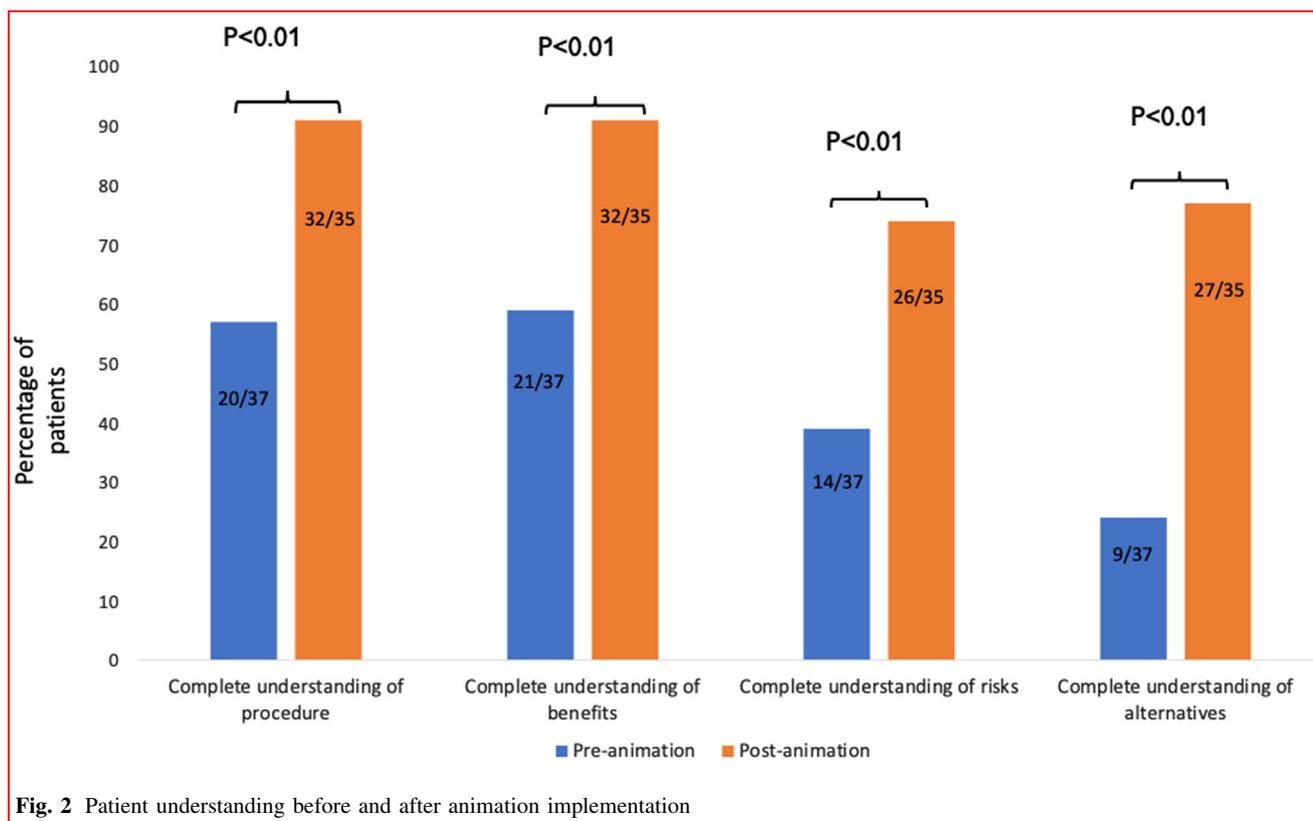
Our results show that patients had a better overall reported understanding of their procedure following the introduction of animations explaining laparoscopic cholecystectomy.

There was a marked improvement in understanding across all consent-relevant domains; the procedure itself, the benefits, risks, and alternative options.

Previous work has shown that use of Explain my Procedure multi-language animations improved patient and relative-reported understanding in other disciplines, including interventional cardiology [7, 8], radiology [11], electrophysiology [12] and intensive care medicine [13]. The present work extends the benefits of this approach into a general surgical setting for one of the most commonly performed surgical procedures.

Information recall is often poor following a surgical consultation; as little as a fifth of information given is retained by patients [6]. There is evidence that visual explanations improve learning and retention of information and support those with poorer literacy skills, estimated to affect about 16% of adults in the UK [14, 15]. The animations are not intended to replace a doctor's duty to inform before consent, but help support explanation of the benefits and risks of the procedure in a consistent way, raising standards and reducing variability. We did not examine the impact of the animations on anxiety levels, however previous work, including use of videos, has shown that improved understanding reduces patient anxiety before surgery [16–18].

The COVID-19 pandemic has introduced significant delays between an offer of treatment and its delivery [19]. The use of animation supported consent on the day of the procedure using video books is one way of overcoming this, but a preferable approach is to introduce the resource



**Fig. 2** Patient understanding before and after animation implementation

online earlier in the patient pathway; ideally at or immediately after the clinic discussion with surgeon when the procedure was first offered (see Fig. 1). Digital animations lend themselves to this approach. They can be communicated by email, SMS text message or embedded in paper or digital forms providing a reviewable resource for patients to support shared decision-making from the time a treatment is offered to the time it is delivered. This allows previously wasted time to be used constructively. This approach is likely to be the future for improving standards across surgery and will help support the transformation work that is ongoing to standardise the consent pathway for high volume low complexity procedures, of which laparoscopic cholecystectomy is one [20]. The integration of video animations into this pathway could drive improvement through remote consultation and electronic consent which were developing slowly prior to the COVID-19 pandemic but have been accelerated by it.

### Limitations

The animations used in this project were available in the five most commonly spoken languages in our catchment area, to widen access and reduce health inequalities. Additional languages would help further, as a small proportion of patients in our sample spoke neither English nor

one of the five translated options available. The comparison between the no-animation and animation groups was not randomised and therefore was prone to confounding by other activities that might have coincided to improve patient understanding. However, the Explain My Procedure animations constituted the only systematic intervention distinguishing the two periods so it is unlikely that any other intervention would have materially influenced the results. Objective assessment of understanding was not assessed; our results, like practice in general, were based on patient-reported understanding of their procedure.

The audit coincided with both the first and second waves of the coronavirus disease pandemic in 2021, extending the time to complete the project because much of the elective work was paused during this time. However, the patients included were consecutive and therefore any selection due to these exceptional circumstances is unlikely. Furthermore, the results relate to a single hospital and thus may not be generalisable but may prompt other centres to undertake similar quality improvement initiatives and their own evaluations.

### Conclusion

Integrating animation supported consent into the patient pathway is well received by patients and frees up time to allow staff to focus on what particularly matters to patients,

improving quality in both a standardised and personalised way. Laparoscopic cholecystectomy is a common elective high volume low complexity procedure but may still be associated with significant complications. Our results show substantially improved understanding of the benefits, risks, and alternative prior to consent for this procedure and provide a model for quality improvement across all surgical disciplines.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s00268-022-06628-4>.

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**Data availability** All available data are included within the submitted manuscript.

**Declarations**

**Conflict of interest** DSW is the Director of Explain my Procedure Ltd which created and owns the animations used in this project. ED, SP and FH have no conflicts of interest to declare.

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