

Comparison of the Efficacy of Three Different Methods of Explaining the Surgical Procedure of Hemithyroidectomy

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Abstract

Background: For patients indicated for surgical treatment, adequate information about the procedure and its complications is a prerequisite for consent, reassures the patient, and allows them to make a well-informed decision. This prospective randomized study aimed to compare the outcomes of three different methods of explaining the procedure of hemithyroidectomy to patients' satisfaction. **Material and Methods:** The three different methods for explaining the surgical procedure included a conventional diagram, three-dimensional (3D) thyroid model, and 2-minute animated video. A modified Patient Satisfaction Questionnaire was used to evaluate the efficacy of the methods and assess overall patient experience; 20 patients were randomized to each group. An endocrine surgeon performed the operative procedure using a sutureless technique. The procedure was explained to the patient a week before surgery in the outpatient department. **Results:** Majority of the patients were female. The most common indication for surgery was a solitary thyroid nodule. Patients who watched the animated video demonstrated significantly higher satisfaction levels and significantly lower anxiety levels than those in the other groups ($P < 0.01$). Patients who watched the video or who received instructions using the 3D model also reported that their information needs were met. Overall experience with the procedure and hospital stay was not significantly different between the groups. **Conclusion:** Overall patient satisfaction for the surgical procedure was similar across the three groups. However, the animated video appeared to be a better model to explain the procedure to the patient, resulting in enhanced knowledge acquisition, reduced anxiety, and improved patient satisfaction.

Keywords: Animated video, hemithyroidectomy, patient satisfaction

INTRODUCTION

For patients scheduled for surgery, appropriate information regarding the procedure is required to make a decision. The decision-making process is complex and may involve acquiring information from the internet and discussion with a referral physician or other patients who have undergone the same procedure.^[1] However, this decision making mainly occurs during the procurement of informed consent by the surgeon, during which he/she explains the risks and benefits of the procedure.^[2] Successful and effective informed consent depends on the ability of the surgeon to first explain the procedure and then the relevant risks, benefits, and uncertainties to the patients and their relatives. The incidence of complications varies according to the procedure as well as the experience and qualification of the surgeon. Postoperative complications remain the most commonly used surrogate marker of surgical quality.^[3]

A patient who has been explained the details of the procedure well would also be able to handle the complications well, since the patient is already prepared for it. There are different methods that a surgeon can use to explain the operative procedures to a patient. However, no single comprehensive technique exists; moreover, ethical issues may emerge if photographs or similar patients are used as examples for counselling.^[4]

Verbal communication may be adequate in cases of simple procedures. However, for surgical procedures such as those involving endocrine organs, which are internal and have complex anatomy, diagrams, three-dimensional (3D) models, and animation videos may be used to explain the structure and the procedure more effectively. Hemithyroidectomy, is

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an optimal and definitive surgical approach for patients with benign solitary thyroid nodules, and is also applicable as an initial procedure for patients with an indeterminate diagnosis from fine-needle aspiration biopsy.^[5,6] Therefore, the aim of this study was to evaluate the efficiency of three different methods for explaining the procedure of hemithyroidectomy.

MATERIALS AND METHODS

Participants

The present randomized control study was conducted at Vydehi Institute of Medical Sciences and Research Centre, Bangalore between January 2013 and December 2014. Informed consent was obtained from all participants. The study population consisted of 60 patients who underwent hemithyroidectomy for benign thyroid disease. Patients with thyroid malignancy; those aged <18 and >65 years; and those with comorbid conditions such as ischemic heart disease, type 2 diabetes, and chronic obstructive airway disease were excluded from the study. For the purpose of this study, hemithyroidectomy was defined as the removal of the ipsilateral lobe, isthmus, and a cuff of the contralateral lobe. Hemithyroidectomy was performed by an endocrine surgeon using a sutureless technique with a harmonic scalpel. Three methods were used to explain the procedure: a diagram in which two colored images were used to explain hemithyroidectomy (Group I), a 3D model (Group II) of the thyroid made of the plastic and rubber [Figure 1], and a 2-minute animated video [Video 1 and Group III]. Thus, the 60 patients were assigned to three groups of twenty patients each by simple randomization.

The three different methods, entire hospital experience, and surgical procedure were evaluated by using a modified Patient Satisfaction Questionnaire [Questionnaire: 1]. Information on other aspects of hospital experience was sought to gather feedback and improve our services. Patients completed this questionnaire a week before the surgery in the outpatient department and again on the day of discharge; 16 questions concerning different aspects of admission including the efficiency of the methods were used. The questionnaires were translated and explained to patients in their own language. Each question was rated as follows: 0, bad; 1, average; 2, good; and 3, very good. In addition, the patients were asked to discuss the impact of each of the three techniques on anxiety and unmet educational needs.

Statistical analysis

The data are presented as mean ± SD for continuous variables and percentages for categorical variables. The data analysis was conducted using SPSS for Windows, version 17.0 (SPSS Inc., Chicago, IL, USA). A two-way analysis of variance (ANOVA) was used to compare the results between the three groups. A P value of <0.05 indicated statistical significance.

RESULTS

The baseline study characteristics are summarized in Table 1. In all three groups, majority of the patients were female, with

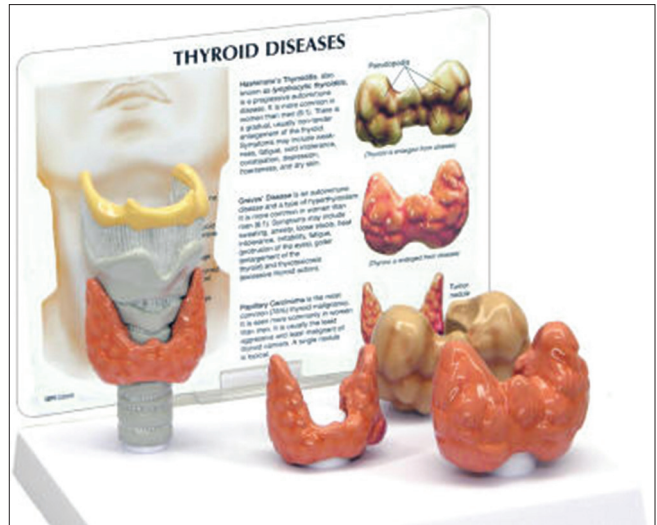


Figure 1: 3D model of the thyroid gland depicting various thyroid disorders

Table 1: Baseline characteristics of the three groups

Parameter	Group 1	Group 2	Group 3
Age, years	31.2±13.3	35.4±12.8	36.6±11.8
Sex (M/F)	3/17	5/15	7/13
Location of nodule (L/R)	18/2	12/8	11/9
FNAC results (N)	C-12 F-3 I-5	C-10 F-5 I-5	C-17 F-2 I-1
Weight, kg (mean±SD)	46.3±45.9	40.8±29.7	48.2±37.9
Histopathologic findings (n)	C-15 A-4 H-1	C-7 A-11 L-2	C-13 A-4 L-3

C: Colloid goiter, F: Follicular neoplasm, I: Indeterminate, A: Adenoma, L: Lymphocytic thyroiditis, FNAC: Fine-needle aspiration cytology

a male-to-female ratio of 1:3. The most common indication for surgery, solitary thyroid nodule, was recorded in 52 patients. Other indications were unilateral multinodular goiter, solitary hyperfunctioning thyroid nodule, and cysts. Left-sided lesions were present in 41 (68.3%) patients. Colloid goiter was the most common fine-needle aspiration cytology-based diagnosis, with a prevalence of 65%, and was confirmed histopathologically in 58.3% of patients. Table 2 provides a comparison of responses to the modified Patient Satisfaction Questionnaire between the three groups. The patients who watched the animated videos reported significantly higher scores than those in the other two groups (P < 0.01). Overall, 15 patients who watched the animated video and 13 patients who received instructions using the 3D model reported that their unmet informational needs were addressed by this preoperative information technique. However, only 10 patients who looked at the diagram felt that their doubts were addressed by the explanation provided. Moreover, 75% of patients who watched the animated video reported feeling less anxious about the procedure after watching the video. The corresponding rates for the diagram and 3D model groups were 50% and 65%,

Table 2: Results of the responses to the modified Patient Satisfaction Questionnaire

	Group 1	Group 2	Group 3	P
Satisfied with initial admission	2.2±0.6	2.4±0.8	1.9±0.6	0.070
Welcomed on arrival in the ward	2.1±1.3	1.8±1.0	1.7±0.8	0.463
Staff identified themselves	1.8±0.8	2.4±0.7	2.0±0.5	0.023
Briefing about surgery	2.1±0.7	2.3±0.6	2.1±0.6	0.520
Experience with the model	1.8±0.4	1.7±0.6	2.5±0.4	<0.01
Time to prepare for surgery	1.7±1.0	1.8±0.9	2.1±0.8	0.353
Informed about pre-surgery fasting	1.8±0.9	1.8±1.0	2±1.3	0.796
Oriented to the location of the ward	1.9±0.7	1.7±1.1	1.6±0.6	0.511
Plan about stay explained	2.1±1.2	2.0±0.9	1.7±0.8	0.412
Encouraged to ask questions about discharge	1.7±0.5	2.2±0.7	1.6±0.7	0.010
Suitable visiting times	1.2±1.4	1.4±1.0	1.6±1.1	0.566
Staff behavior	2.0±0.6	1.6±0.8	1.5±1.3	0.219
Regular visits by doctor	2.1±0.9	1.9±0.7	1.9±0.6	0.620
Postoperative care	2±0.8	1.7±0.6	2±1.1	0.448
Information prior to discharge	1.5±0.7	1.8±0.7	2.0±0.9	0.129
Overall experience	2.1±1.1	1.9±1.0	2.0±0.7	0.801

Scoring system: 0, bad; 1, average; 2, good; and 3, very good; $P < 0.05$ indicated statistical significance

respectively. Overall experience with hospital stay and the procedure was not different between the three groups. There were no significant differences between the three groups with respect to other aspects of the questionnaire.

DISCUSSION

The results of our study suggest that the animated video appears to be superior to the 3D model and image for explaining the procedure of thyroidectomy to patients. Dedicated surgical procedure, such as hemithyroidectomy, have specific risks that should be appropriately conveyed to the patient in a lucid manner while obtaining informed consent. A well-informed patient will have a better understanding of the events that can be anticipated during the perioperative period and will experience less anxiety. It is imperative that the patient demonstrates adequate knowledge with respect to the expected outcomes of the operative procedure and understands the expectations of his/her participation in the post-operative recovery period. Effective engagement between the surgeon and patient adds value to the final outcome.^[7,8]

Hemithyroidectomy is a procedure for benign thyroid nodules and patients with fine-needle aspiration cytology findings of either benign or inconclusive cytology. Hemithyroidectomy is currently also performed on an outpatient basis to reduce expenditure and hospital-stay duration, with good success rates.^[9,10] Hemithyroidectomy has been found to be more cost-effective than active surveillance for a sub-set of patients with micropapillary thyroid cancer.^[11] When performed by an experienced surgeon, the procedure is safe and associated with low complication rates. However, the incidence of postoperative hypothyroidism is often underestimated.^[12-15]

Physical as well as psychological factors (anxiety, low mood, perceived helplessness, and low self-esteem) can impact the outcome of surgery. Comprehensive information about the

procedure can alleviate some of the emotional distress and actively engage the patient in the process of decision making. Some studies have used previous photographs, operative videos, and even previous case reports for counselling prospective patients, but the overall efficacy of such educational efforts remains poorly understood.^[16-18]

The results of our study are in concordance with findings from previous studies. In a previous study of radiation therapy patients, 98% of patients felt that the information video was useful and met their learning objective and 49% of patients reported a reduction in anxiety levels after watching the video.^[19] In another study involving radiation therapy patients, high levels of satisfaction with the video content was reported among patients whose informational needs were previously unmet by standard educational measures.^[20] In another integrated literature review, the use of video modelling was found to be helpful in facilitating knowledge acquirement, reducing preparative anxiety, and advancing self-care among patients.^[21] Systematic preoperative instructions have been previously shown to reduce post-operative anxiety scores in patients scheduled for surgery.^[22] In a systematic review of 25 trials, video modelling for patient education was found to reduce patient anxiety and pain, while increasing cooperation and coping ability.^[23] Well-informed patients are likely to have a more realistic expectation regarding the surgical procedure and its associated risks. They are also more likely to be satisfied with fewer legal claims.^[24] The use of interactive video tutorials provides opportunities to improve the surgical informed consent process.

CONCLUSION

In conclusion, animated videos are effective tools for educating patients undergoing hemithyroidectomy. They are valuable assets for facilitating knowledge acquisition, reducing anxiety,

and enhancing patient satisfaction. Further research is needed to identify the most effective means of designing these complex animation videos, as well as the optimal time to introduce these videos and the duration. Enhancing the information delivery method in terms of the operative procedure can enable patients to make informed, active decisions about their treatment plans.

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Conflicts of interest

There are no conflicts of interest.

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MODIFIED PATIENT SATISFACTION QUESTIONNAIRE

1. Were you satisfied with your initial admission process prior to arrival on the ward?
Bad 0 Average 1 Good 2 Very good 3
2. On arrival to the ward were all the staff welcoming to you?
Bad 0 Average 1 Good 2 Very good 3
3. Did the staff clearly identify themselves to you?
Bad 0 Average 1 Good 2 Very good 3
4. Were you orientated to the ward?
Bad 0 Average 1 Good 2 Very good 3
5. Was a brief plan of your stay explained to you at this time?
Bad 0 Average 1 Good 2 Very good 3
6. Were you encouraged to ask questions about your stay during this meeting?
Bad 0 Average 1 Good 2 Very good 3
7. Were you encouraged to ask questions about your discharge during this meeting?
Bad 0 Average 1 Good 2 Very good 3
8. Were you briefed about the surgery by the operating Surgeon including complications?
Bad 0 Average 1 Good 2 Very good 3
9. How would you rate the experience of the model Used?
Bad 0 Average 1 Good 2 Very good 3
10. Were you given enough information to prepare you for your theatre experience?
Bad 0 Average 1 Good 2 Very good 3
11. How would you rate your theatre experience?
Bad 0 Average 1 Good 2 Very good 3
12. Were you adequately informed with regard to the fasting procedure pre-surgery (nothing to eat or drink)?
Bad 0 Average 1 Good 2 Very good 3
13. Were visiting times suitable?
Bad 0 Average 1 Good 2 Very good 3
14. Were the staff courteous, polite, friendly and helpful during your stay?
Bad 0 Average 1 Good 2 Very good 3
15. Did you receive enough information about your discharge prior to leaving the hospital?
Bad 0 Average 1 Good 2 Very good 3
16. Overall how would you rate your overall experience?
Bad 0 Average 1 Good 2 Very good 3