Improving communication of post-holmium laser enucleation of the prostate recovery using a surgeon-patient handout

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Abstract

Introduction: To improve surgeon-patient communication of postoperative expectations, a multidisciplinary team created and evaluated a holmium laser enucleation of the prostate (HoLEP) expectations handout. Although an effective benign prostatic hyperplasia (BPH) surgery, it is crucial that patients understand the HoLEP recovery. A quality assessment previously performed at our center revealed 11% of patients were not aware of potential ejaculate volume changes.

Methods: Patients presenting for consultation prior to HoLEP were assessed with post-procedure patient-reported outcomes (PRO) questionnaires before (n=50) and after (n=50) the implementation of a surgeon-patient expectations handout. Patient demographics and perioperative course were examined in the context of responses. Comparisons were made with a Chi-squared test ($p<0.05$).

Results: We observed a response rate of 96% (pre-handout: 46/50 vs. post-handout: 50/50). Overall, 89/96 (93%) patients felt they had a reasonable understanding of HoLEP expectations, with no difference between cohorts (45/46 vs. 48/50, p=0.71). There was no difference in reporting an understanding of post-HoLEP hematuria (p=0.12) or urinary incontinence (UI) (p=0.99). The implementation of the handout improved understanding of retrograde ejaculation (pre-handout: 41/46 vs. post-handout: 50/50, p=0.022) and dysuria (pre-handout: 35/46 vs. post-handout: 46/50, p=0.048). Fifty-five patients experienced any dysuria postoperatively, with 89% reporting less than or equal to what they expected. Close to 30% (28/94) of respondents offering ways to improve communication suggested an educational website.

Conclusions: The implementation of a surgeon-patient handout during HoLEP consultation improved understanding of postoperative retrograde ejaculation and dysuria at our center. We identified areas for future technology-aided improvements in post-HoLEP communication.

Introduction

Holmium laser enucleation of the prostate (HoLEP) is a guideline-supported prostate size-independent treatment for benign prostate hyperplasia (BPH).[1] Durable and effective outcomes have been demonstrated within the literature, with a notable transient recovery period that can be both physically and psychologically difficult for some patients. As a surgical intervention predominately pursued to improve patient quality of life (QoL), a transient period of postoperative recovery that exposes some patients to an impairment in their QoL can be challenging to navigate. Due to this challenge, it is important that patients fully understand the recovery process of HoLEP, particularly with respect to symptoms that are transient (e.g., urgency urinary incontinence) and those that may be permanent (e.g., retrograde ejaculation).

At our single academic center, over 500 patients are evaluated and counselled about HoLEP annually. Unfortunately, multiple publications highlight that there remain multiple barriers to efficient and effective physician-patient communication, with some studies showing as little as 20% long-term information retention.[2,3] Within the U.S., more than one in three people have basic or below-basic health literacy, defined as the ability to obtain, process, and understand basic health information and services required for care. Some studies have identified that one way to improve health literacy is to use printed and video media targeted towards patients;[4-6] however, one study examining readability of patient education materials related to treatment for BPH found that only 7.5% of examined resources met the U.S. Department of Health and Human Services recommendation of a sixth-grade comprehension level.[7]

A recent quality assessment performed at our center revealed 10.9% of patients were not aware that ejaculate volume may change postoperatively, with >25% recommending a patient handout to improve communication.[8] As part of a larger quality initiative to improve physician-patient communication of HoLEP delivery, a multidisciplinary team helped create and implement a HoLEP expectations

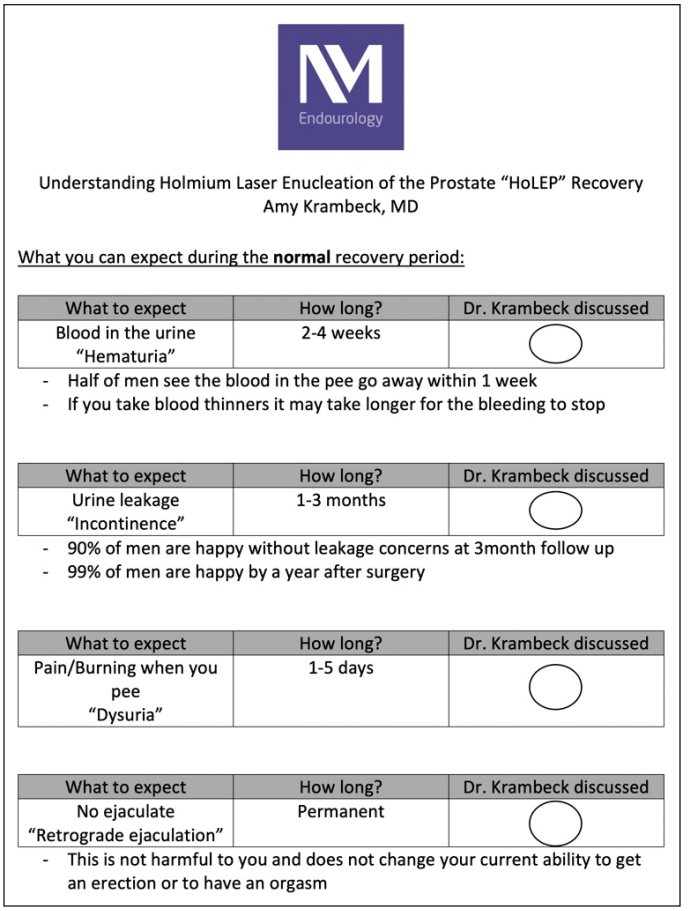
handout to improve surgeon-patient communication. With the creation of the summative handout, we prospectively assessed how it affected patient understanding and expectations. Our objective was to report the result of our local quality improvement project that aimed to create a HoLEP expectations handout to aid in knowledge transfer from the treating surgeon to the patient prior to planned interventions.

Methods

As a quality improvement project aimed at improving HoLEP care delivery at Northwestern University in Chicago, IL, U.S., institutional review board exemption was obtained. Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) were adhered to, which ensures appropriate framework used in writing this article.[9] The first phase of this project involved a baseline quality assessment scan of 50 consecutive eligible HoLEP patients from November 1, 2019, to March 1, 2020.[8] We used a previously published 10-part patient quality assessment (QA) questionnaire that utilized branch logic based on patient responses and their perioperative clinical course in order to assess understanding and patient expectations.[8] Inclusion criteria included English-speaking patients with capacity for medical decision-making. Standard English verbal communication at the time of preoperative consultation was used as a means of communication within this cohort. Patients proceeding to surgical scheduling would meet with ancillary members of our team, who would provide them with a handout on HoLEP and the recovery process.

Using the results of the QA, we then created a quality improvement (QI) handout (Figure 1) that was physically written on by the surgeon throughout the consultation as key points in the recovery were addressed (e.g., retrograde ejaculation, urinary incontinence [UI], hematuria) and at the conclusion of the visit, this handout was personally provided to the patient by the surgeon. The use of the handout occurred in addition to the same standardized verbal communication used during phase 1.

Three urologists were involved in evaluating, editing, and approving the final version of the handout, with input from five patients that underwent HoLEP, one physician assistant, and one nurse. We used Flesch-Kincaid grade level assessment, Flesch Reading Ease, and the Gunning Fog Index to construct the handout. The 10-part QA questionnaire was subsequently provided to 50 consecutive patients that were evaluated for HoLEP after the implementation of the handout during a three-month period (July to October 2021). We selected 50 consecutive post-QI intervention patients to compare at a ratio of 1:1 to the baseline quality assessment cohort. Patients were excluded if they were unwilling to participate, did not speak English, or if cognitive impairment precluded them from completing questionnaires or making their own medical decisions.


Endourology

Understanding Holmium Laser Enucleation of the Prostate "HoLEP" Recovery
Amy Krambeck, MD

What you can expect during the **normal** recovery period:

What to expect	How long?	Dr. Krambeck discussed
Blood in the urine "Hematuria"	2-4 weeks	◯

- Half of men see the blood in the pee go away within 1 week
- If you take blood thinners it may take longer for the bleeding to stop

What to expect	How long?	Dr. Krambeck discussed
Urine leakage "Incontinence"	1-3 months	◯

- 90% of men are happy without leakage concerns at 3month follow up
- 99% of men are happy by a year after surgery

What to expect	How long?	Dr. Krambeck discussed
Pain/Burning when you pee "Dysuria"	1-5 days	◯

What to expect	How long?	Dr. Krambeck discussed
No ejaculate "Retrograde ejaculation"	Permanent	◯

- This is not harmful to you and does not change your current ability to get an erection or to have an orgasm

Figure 1. Summative tool for physician-patient communication of post-holmium laser enucleation of the prostate (HoLEP) recovery expectations.

Phase 2 compared ≥3month post-procedure patient-reported outcome (PRO) questionnaires before (n=50) and after (n=50) the implementation of the surgeon-patient HoLEP expectations handout. Patient demographics and perioperative course was examined in the context of their responses. Continuous variables were expressed as mean and standard deviation, while proportions were used for categorical variables. GraphPad Prism (v6.0) and Stat statistical programs were used for statistical analysis, including Chi-squared test ($p<0.05$). Our primary objective was to improve patient understanding of postoperative retrograde ejaculation and HoLEP recovery expectations.

Results

Patient and perioperative characteristics

A total of 100 patients (50 pre-handout, 50 post-handout) were counselled on the recovery process and outcomes of HoLEP before and after the implementation of the patient handout (Table 1). The average age was 71 years old (range

54–88) with body mass index 28.9 and intraoperative specimen weight of 71 g. There were 27/100 (27%) of patients that had any preoperative UI and 31/100 (31%) had preoperative urinary retention. In total, 7/100 (7%) patients had prostate cancer detected on pathology. There were no significant patient and perioperative characteristic differences between the two cohorts (Table 1) (p>0.05).

Preoperative American Urological Association Symptom Scores (AUASS) and QoL scores improved postoperatively in both cohorts (pre-handout: 24.5 to 5.7 vs. post-handout: 21.8 to 6.4, all p<0.05), with no significant difference between the pre-handout and post-handout cohorts (all p>0.05) (Table 1). Similarly, there was no difference in pre-handout vs. post-handout prostate-specific antigen (PSA) changes, with both cohorts seeing significant reduction (average preoperative PSA 5.23 ng/mL vs. postoperative PSA 0.60, p<0.05). Any UI at ≥3 months followup was detected in 13% of patients, with no difference between the pre-handout and post-handout cohorts (pre: 7/50 [14%] vs. post: 6/50 [12%], p=0.99).

Table 1. Comparison of adult patients who underwent HoLEP and completed a postoperative PRO survey before and after implementation of a surgeon-patient handout

	Pre-handout	Post-handout	p
Number of patients	50	50	–
Completed postoperative survey, n (%)	46 (92)	50 (100)	0.12
Mean age, years (range)	69.4 (55–88)	72.0 (54–88)	0.12
BMI, kg/m^2 (range)	29.5 (22.2–43.3)	28.2 (19.6–46.5)	0.26
Mean ASA score (range)	2.5 (2–4)	2.6 (2–4)	0.38
Enucleation time, minutes (range)	45.2 (14–102)	35.6 (16–89)	**0.015**
Morcellation time, minutes (range)	7.8 (1–20)	10.4 (1–53)	0.10
Energy used, kJ (range)	112.9 (39.7–251.6)	130.0 (43.6–381.0)	0.14
Intraoperative specimen weight, g (range)	68 (7–164)	73 (4–186)	0.61
Preoperative urinary incontinence, n (%)	13 (26)	14 (28)	0.99
Preoperative urinary retention, n (%)	11 (22)	20 (40)	0.08
Antiplatelet/ anticoagulation use, n (%)	6 (12)	8 (16)	0.77
Prostate cancer on pathology, n (%)	3 (6)	4 (8)	0.99
Preoperative AUASS (range)	24.5 (13–35)	21.8 (7–35)	0.10
Postoperative AUASS (range)	5.7 (0–19)	6.4 (0–22)	0.63
Preoperative QoL score (range)	4.5 (2–6)	4.5 (3–6)	0.87
Postoperative QoL score (range)	2.0 (0–7)	1.1 (0–5)	0.18
Preoperative PSA, ng/mL (range)	5.05 (0.096–16.5)	5.41 (0.3–14.5)	0.66
Postoperative PSA, ng/mL (range)	0.55 (0.00–2.10)	0.65 (0–2.27)	0.74
Any UI at 3-month followup, n (%)	7 (14)	6 (12)	0.99

ASA: American Society of Anesthesiology; AUASS: American Urological Association Symptom Score; BMI: body mass index; HoLEP: holmium laser enucleation of the prostate; PRO: patient-reported outcome; PSA: prostate-specific antigen; QoL: quality of life; UI: urinary incontinence.

Assessment of summative handout

We observed a postoperative PRO survey response rate of 96% (46/50 baseline, 50/50 post-handout, p=0.12). The one-page summative handout received a Flesch-Kincaid grade level of 5.5. The Flesch Reading Ease score was 80. The Gunning Fog Index grade level was 7.8.

Overall understanding of HoLEP recovery

Overall, 89/96 (93%) patients that responded to the postoperative PRO survey felt they had a reasonable understanding of HoLEP expectations, with no significant difference between cohorts (pre-handout: 45/46 vs. post-handout: 48/50, p=0.71) (Table 2). There was no difference in proportion of respondents reporting an understanding of post-HoLEP hematuria (p=0.12) or UI (p=0.99). The implementation of the communication handout improved patient understanding of retrograde ejaculation (pre-handout: 41/46 vs. post-handout 50/50, p=0.022) (Figure 2). Patient expectation of post-HoLEP dysuria improved after using the handout (pre-handout: 35/46 vs. post-handout: 46/50, p=0.048). Fifty-five patients experienced any dysuria postoperatively, with 89% reporting less than or equal to what they expected (Table 2). Understanding of transient dysuria improved after the QI intervention (Figure 3).

Of the 96 respondents, 65 (68%) experienced any UI during the post-HoLEP recovery, with 5/96 (5.2%) expecting UI to last >90 days. When seeing hematuria post-HoLEP, 84% of patients reported, "I'm not worried," with only one patient in the pre-handout cohort reporting, "something went wrong," in their surgery. After implementing our physician-patient expectations handout, the proportion of patients that correctly understood all four aspects of the recovery (UI, hematuria, dysuria, retrograde ejaculation) increased from 72% to 90% (pre-handout: 33/46 vs. 45/50, p=0.035).

Patient-reported future improvements

Of the 96 patient who completed their post-HoLEP PRO survey, 94 offered suggestions on how to further improve communication. The proportion of patients that felt a handout would improve communication did decrease from the

Table 2. Patient-reported understanding of HoLEP recovery before and after implementing physician-patient handout

	Pre-handout	Post-handout	p
No. patients responded to survey	46	50	-
No. felt they had a reasonable understanding of the overall healing process (%)	42 (91.3)	48 (96)	0.71
No. aware of transient postoperative UI (%)	45 (97.8)	48 (96)	0.99
No. expected UI duration, days (%)			
<30	22 (47.8)	21 (42)	0.68
30–90	20 (43.6)	28 (56)	0.31
>90	4 (8.6)	1 (2)	0.19
No. aware of transient postoperative hematuria (%)	46 (100)	46 (92)	0.12
Duration of postop hematuria, days, n (%)			
<7	22 (47.8)	26 (55.4)	0.54
7–14	13 (28.3)	8 (17.0)	0.22
15–30	8 (17.4)	5 (10.6)	0.39
>30	3 (6.5)	8 (17.0)	0.20
No. aware of transient postoperative dysuria (%)	35 (76)	46 (92)	**0.048**
No. experienced transient postoperative dysuria (%)	32 (70)	23 (46)	**0.024**
No. with perception of dysuria in those who experienced it (%)			
Less painful	21 (65.6)	9 (39.1)	0.061
As expected	9 (28.1)	10 43.5)	0.26
More painful	2 (6.3)	4 (17.4)	0.38
No. aware of postoperative retrograde ejaculation (%)	41 (89.1)	50 (100)	**0.022**
No. aware of all four factors (UI, hematuria, dysuria, retrograde ejaculation) (%)	33 (71.7)	45 (90.0)	**0.035**

HoLEP: holmium laser enucleation of the prostate; UI: urinary incontinence.

pre-handout cohort to the post-handout cohort but was not significant (pre-handout: 27.2% vs. post-handout: 14%, p=0.13). Close to 30% (28/94) suggested a HoLEP website for more information. The average age of patients reporting that a website could improve communication was lower than the patients who did not feel that a website would help (67.9 years [range 55–82] vs. 72.5 years [range 54–88], p=0.0048).

Discussion

After a quality assessment of HoLEP care at our center revealed that 11% of patients reported not being aware of postoperative retrograde ejaculation, we designed and implemented a surgeon-patient handout that improved patient understanding. With the surgeon physically checking off the four specific topics (UI, hematuria, dysuria, retrograde ejaculation) at the time of preoperative consultation and subsequently personally providing the handout to the patient, we were able to improve the proportion of patients that reported understanding of all four factors together, as well as dysuria and retrograde ejaculation.

Although there is an increase in urologists who can provide prostate enucleation techniques like HoLEP, there remains a large proportion of local/referring urologists that may not be familiar with the unique, transient recovery process after HoLEP. To both improve patient experience of the recovery while reducing office phone calls, it is crucial to ensure adequate physician-patient communication takes place prior to surgery. With the use of the handout, 96% of patients felt they had a reasonable understanding of the healing process and 90% felt they were made aware of the postoperative expectations in all four categories (UI, hematuria, dysuria, and retrograde ejaculation).

Our survey results also provide further insight into the expected recovery process, with 52% of patient's hematuria resolving in <7 days, 74% within two weeks, and 88% within 30 days. Additionally, although 57% of patients reported any postoperative dysuria, 90% felt that the degree of discomfort from the dysuria was as expected or less painful than expected. We did see that patients who provided interest in online/digital educational resources to further improve understanding of surgical expectations were younger than patients who did not recommend these resources. As the proportion of males in the U.S. who have lived their entire adult life with daily access to a computer or mobile device increases, the need for accurate and healthcare-recommended online resources may increase. As the U.S. Department of Health and Human Services recommends, ensuring that endorsed resources are readable for the public is challenging and an effort should be made to screen patient materials through validated grading systems to further improve patient understanding.

Limitations

A limitation of our study is that only English-speaking patients and patients with capacity for medical decision-making were included within our analysis. The patient populations that were excluded represent additional important areas to evaluate and potentially improve communication of surgical expectations and transient recovery symptoms in a future study. Although the generalizability of this specific handout to other centers may be limited, the process of assessing quality of communication and establishing specific improvement tools to help with the understanding of this post-HoLEP period is valuable for other centers to examine. Another limitation is that we did not perform a formal analysis of patient health literacy within our study population; however, a strength of our intervention was creating a handout that received a Flesch-Kincaid grade level of 5.5, which is below the U.S. Department of Health and Human Services recommendation of a sixth-grade comprehension for patient

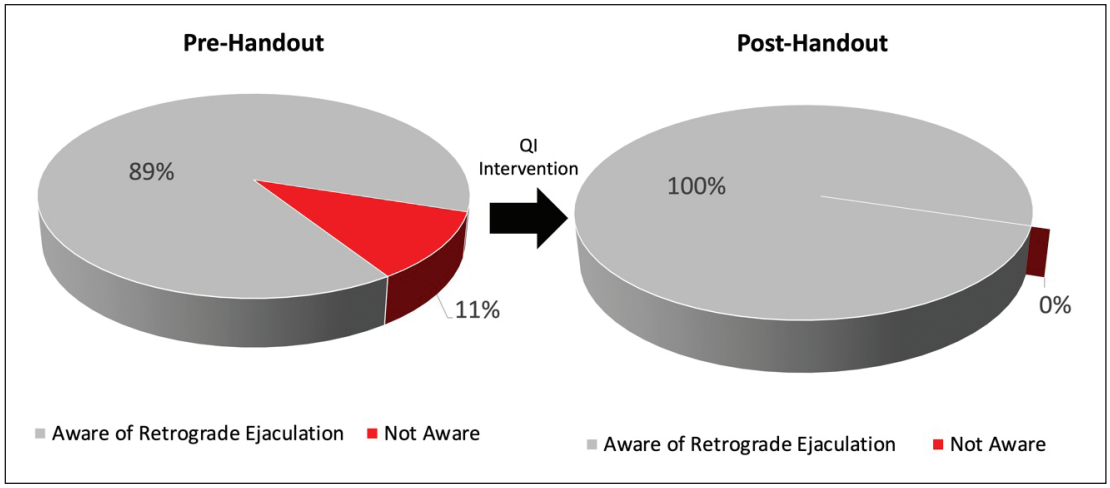


Figure 2. Proportion of patients that were aware of retrograde ejaculation post-holmium laser enucleation of the prostate (HoLEP) before and after implementing a physician-patient handout (p=0.022).

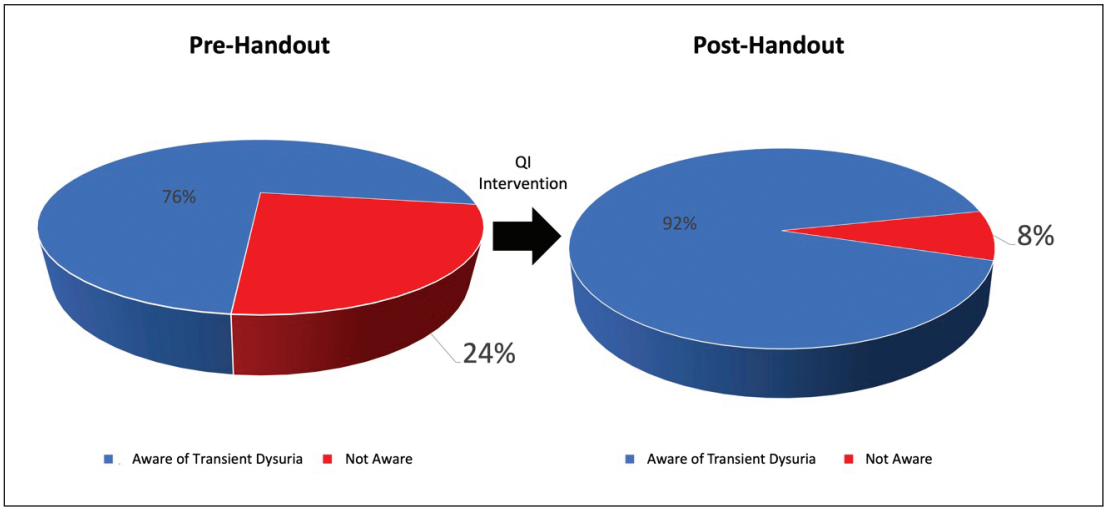


Figure 3. Proportion of patients that were aware of transient dysuria post-holmium laser enucleation of the prostate (HoLEP) before and after implementing a physician-patient handout (p=0.048).

education materials.[7] Finally, our quality assessment PRO survey of patient understanding of post-HoLEP recovery is not a validated survey. An area for future evaluation would be to assess whether postoperative patient-office phone calls before and after implementing the handout were affected.

Conclusions

The implementation of a surgeon-patient communication handout during preoperative HoLEP consultation improved the understanding of postoperative recovery process for both transient (e.g., dysuria) and permanent (e.g., retrograde ejaculation) outcomes following the implementation of a surgeon-provided handout during consultation at our center. We identified additional areas for future technology-aided improvements in post-HoLEP communication.

Competing interests: The authors do not report any competing personal or financial interests related to this work.

This paper has been peer-reviewed.

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