Evaluation of the learning curve of stapled hemorrhoidopexy

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ABSTRACT

Introduction: There is limited evidence regarding the learning curve of stapled hemorrhoidopexy (PPH). The objective of this study is to understand the learning curve of PPH and its impact on outcomes.
Materials and Methods: A retrospective multicenter study was conducted. Patients undergoing PPH surgery between 2013 and 2021 at three surgical centers were included. Data were collected from medical records and telephone or electronic surveys. Each surgery was assigned an order number on the learning curve. Pre-, intra-, and postoperative variables were evaluated. Analysis was performed using the splitting method to determine the point of stabilization of the variables. The sample was divided into two groups, "initial" and "advanced" according to the determined order number. The variables between both groups were compared.
Results: A total of 75 patients were included. A significant difference in operative time was found between the first 20 cases and the subsequent ones, which was used to divide the sample into an initial group (26 patients) and an advanced group (49 patients). The average operative time was 46.9 minutes in the initial group vs. 27.6 minutes in the advanced group (p<0.001). The average duration of analgesic use was 6.7 vs. 8.6 days (p=0.28), complication rate 7.7 vs. 8.2% (p=1), symptom recurrence 34.6 vs. 26.5% (p=0.46), and high satisfaction 96.2 vs. 91.8% (p=0.43) in the initial and advanced groups, respectively.
Conclusion: Operative time for PPH surgery stabilized after surgery 20. Outcomes such as morbidity, satisfaction, and symptom recurrence were similar between the initial and advanced groups.
Key words: *PPH, hemorrhoids, stapled hemorrhoidopexy, learning curve.*

INTRODUCTION

Hemorrhoidal disease is very common and around 10% of patients may require surgical treatment to resolve their symptoms.[1] One of the therapeutic options currently used for internal hemorrhoids is stapled hemorrhoidopexy or procedure for prolapse and hemorrhoids (PPH) described by Longo in 1998.[2]
This technique uses a circular stapler to perform a circumferential mucosectomy 2-4 cm above the dentate line and the corresponding mucocutaneous anastomosis, achieving prolapse reduction and dearterialization of the hemorrhoidal bundles.[3] It is indicated in patients with three-bundle or circumferential prolapse, grade II, III and in selected cases, grade IV. This technique has demonstrated good results and a high level of satisfaction, with less postoperative pain and faster recovery than conventional hemorrhoidectomy.[3-5]
Despite wide acceptance of the technique, there is little evidence in the literature regarding the learning curve or the number of surgeries a surgeon should perform to achieve acceptable results. 1 In a survey of 42 Latin American experts on the minimum number of surgeries conducted for this study, 17% responded less than 10, 39% between 10 and 19, 34% responded 20, and 10% more than 20. At the extremes of the sample, two experts said the minimum number of surgeries was 3 and two experts said the minimum was 50 cases.

The learning curve refers to the fact that as experience with a motor act increases, it is performed more efficiently. This concept is extrapolated from industry and can be applied to medical procedures such as surgery.[6-8] Measuring the learning curve in surgical skills is challenging because many variables influence a particular surgery. These variables involve the surgeon (knowledge, practice, cognitive variables, emotional variables, etc.), the patient (tissue quality, physical constitution, anatomical variants, bleeding, etc.), and the environment (operation in the operating room, lighting, variables related to support staff, time of day, etc.). The measurement should include operational variables, technical variables (surgical time, etc.), and patient outcome variables (complications, mortality, patient satisfaction, etc.). Different variables have advantages and disadvantages. Operative variables are objective and easy to measure but have no known clinical implication, whereas outcome variables, such as postoperative pain or degree of satisfaction, usually have greater clinical significance but tend to be subjective.[7] The analysis of these measurements can be done by arbitrarily dividing the sample into groups (e.g., first year versus subsequent years, first 100 cases, etc.), or by statistical methods such as the splitting method, moving average, cumulative sums, among others, in which changes in the variables during the experience are observed on the timeline.
The objective of this study was to evaluate whether there are differences in the operative variables or patient outcome variables throughout successive PPH surgeries performed by three surgeons and to determine whether there is a minimum number of surgeries after which the variables stabilize.

MATERIALS AND METHODS

A multicenter, retrospective, analytical study was conducted. Data were collected from a prospective database, hospital records, and a telephone or electronic survey. All patients who underwent stapled hemorrhoidopexy (PPH) performed by one of three surgeons participating in the study (surgeon A, B, and C) from 2013 to 2021 were included. All surgeons were experienced in anal surgery at the start of the PPH learning curve. Surgeon A was a coloproctology specialist at the start of his learning curve, while surgeons B and C were fellows. Surgeries in which the primary surgeon did not reach a minimum of 20 procedures were excluded. Patients who did not complete the survey or those with incorrect or missing contact information were also excluded. Patients were contacted by telephone and asked to complete a survey verbally or electronically via the Google Forms ® platform (Appendix 1).
Each patient was assigned a consecutive chronological number within the experience of each of the 3 participating surgeons.

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The degree of preoperative prolapse was defined according to the Goligher classification.[9] To simplify the survey and achieve greater patient adherence, abbreviated versions of validated scales for fecal incontinence (Cleveland Clinic Florida Incontinence Score – Wexner or CCFIS) and constipation (Wexner Constipation Score or WCS) were used.[10,11] A 4-grade subjective score was used to assess continence, where 0 represents normal continence, 1 gas incontinence (CCFIS approximately 4), 2 liquid incontinence (CCFIS approximately 8), and 3 solid incontinence (CCFIS close to 12). To assess constipation, a subjective 4-grade scale was used, where 0 is the absence of constipation, 1 is mild constipation (WCS approximately 5), 2 is moderate (WCS approximately 10), and 3 is severe (WCS approximately 20 or more). The only technical or operative variable analyzed was surgical time, which was obtained from the surgical protocol and considered from the beginning of anesthesia to the end of healing. The outcome variables analyzed were hospitalization time, postoperative pain, type and days of analgesics, complications, reoperations, continence and postoperative constipation, recurrence of symptoms, satisfaction, etc. To assess pain, a 4-point ordinal scale (no, mild, moderate, severe) was used. The degree of resolution of symptoms and the degree of satisfaction were evaluated with scales from 1 to 5, where 1 was the worst value. To assess recurrence, patients were asked whether the same symptoms that prompted surgery recurred, the degree of these symptoms on a scale of 1 to 5, and the occurrence of anal symptoms different from those at baseline. To quantify the postoperative change in continence, a new variable was calculated by subtracting the preoperative value of the above-mentioned scale from the postoperative value. For example, if a patient had a preoperative score of 0 and a postoperative score of 3, the value of the subtraction would be 3, i.e., the patient's continence worsened by 3 points. The same applied to the constipation score. Patients whose scores worsened were considered for analysis. Patients were asked whether they had current symptoms at the time of the survey and whether they were receiving medical treatment. Complications were classified according to the Clavien-Dindo classification.[12]

Operative technique

The PPH technique was indicated for patients with 3-bundle or circumferential grade III or IV hemorrhoidal prolapse. It was also used in patients with bleeding grade II hemorrhoids with or without prolapse that did not respond to medical and non-operative treatment. No mechanical preparation was used. Prophylaxis was performed 30 minutes before induction with 200 mg of ciprofloxacin and 500 mg of metronidazole intravenously. The procedures were performed under regional or general anesthesia, in the lithotomy position. PPH-03® (Ethicon, Inc., Cincinnati, OH) and EEA Hemorrhoidal (Medtronic Inc., Minneapolis, MN) stapling devices were used. The technique described by Longo[2] in 1998 was performed. The purse-string was placed 2-4 cm from the dentate line depending on the size of the prolapse, with a 2-0 polypropylene monofilament suture. Hemostasis was controlled at the suture line with 9-10 interrupted polyglactin sutures as needed.

Discharge home was granted within the first few hours, depending on the patient's condition and wishes. The first cases were supervised by surgeons experienced in the technique until approximately case number 20.

The primary objective of the study was to find the number of surgeries after which the operative or outcome variables improve and stabilize. The secondary objective was to compare postoperative variables such as morbidity, satisfaction, and recurrence of symptoms between initial and advanced surgeries.

Statistical analysis

Data were analyzed using IBM SPSS Statistics (version 26 for Windows; SPSS Inc, Chicago, IL). Continuous variables are described in terms of mean ± standard deviation, categorical variables as absolute numbers and percentages. The splitting method was used to determine the surgical order number after which there were changes in the postoperative variables, performing successive bivariate analyses by increasing the number of surgeries by 5. Normality tests were performed. Bivariate analyses were performed using the chi-square test, Fisher's test, Student's t test, and Mann-Whitney U test for independent samples, in polytomous variables, dichotomous variables with low values, quantitative variables with normal distribution, and quantitative variables without normal distribution, respectively. Multivariate analyses were performed using one-way ANOVA, multiple linear regression models, or binomial logistics as appropriate. Confidence intervals (CI) of 95% were used. A p value <0.05 was considered significant.

Ethical considerations

Ethics committee approval was obtained and patients gave written consent.

RESULTS

As shown in Fig. 1, out of 185 patients initially identified, 110 were excluded, leaving 75 patients for analysis. The sample was divided according to the order number of the surgery into 5 groups that were compared regarding operative time and patient outcome variables (complications, satisfaction, recurrence, etc.). The only significant difference was found in the operative time between the group of 1-20 cases and the following ones, which was 46.9 vs. 27.6 min, respectively (p<0.001) (Fig. 2). Therefore, the sample was divided into two groups: initial (order number from 1 to 20, n=26) and advanced (order number from 21 to 75, n=49). The demographic and clinical characteristics of the sample and the two groups can be seen in Table 1. To rule out the influence of other variables on the operating time (surgeon, degree of prolapse, etc.) a multivariate analysis was performed using a binary logistic regression model and it was observed that the only coefficient with statistical significance was the order number (Table 2).

Both groups were comparable for age, sex, and preoperative continence. There were statistically significant differences in surgeon (surgeon B performed 65% of initial PPHs) and preoperative constipation (65.4% in the initial group vs. 34.7% in the advanced group, p=0.018). Multivariate analysis was performed to determine the influence of constipation on patient outcome variables and only postoperative constipation had an impact. There was a significant difference in the duration of follow-up (44.2 months in the initial group vs. 21.9 months in the advanced group, p<0.001). In the advanced group, there were 22.4% of patients with grade II prolapse compared to 7.7% in the initial group, p=NS.

Table 3 shows the outcome variables in both groups. Operative time was significantly longer in the initial group (46.9 vs. 27.6 min, p<0.001). The mean length of hospital stay was more than twice as long in the initial group (0.62 vs. 0.29 days, p=0.011). Multivariate analysis revealed that the attending surgeon was the only variable that significantly influenced length of hospital stay (Table 4).

The presence of severe pain (level 4 and 5) in the first 24 hours and in the first bowel movements was higher in the advanced group, although without statistical significance. Opioids were used in 56.5% of patients in the advanced group vs. 34.8% of those in the initial group (p=0.09). Patients in the advanced group also reported more days of use of analgesics although without statistical significance (8.6 vs. 6.7 days, p=0.28). The mean number of days off work was equivalent in both groups (14.1, p=0.88)

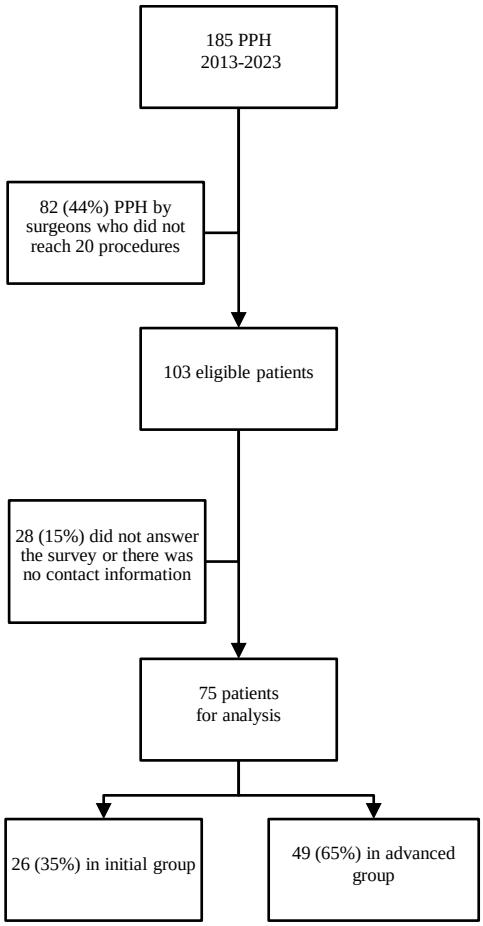

Figure 1. *CONSORT flowchart of the study.*

A total of 6 patients (8%) presented complications. The most frequent complications were hemorrhoidal thrombosis (n=2, 2.7%) and bleeding (n=2, 2.7%). One patient with hemorrhoidal thrombosis and one with bleeding required reoperation with sedation (Clavien-Dindo IIIb), and the remaining patients were treated with medical treatment (CD II). The remaining complications were urinary retention (n=1, 1.3%) and fecaloma (n=1, 1.3%), both CD II. The complication rate was similar between groups (7.7 vs. 8.2%, p=1.0). The severity of complications according to the CD classification was also comparable between both groups (CD III initial 50%, advanced 25%; p=0.54). The proportion of early reoperations did not show any difference between both groups (initial 3.8% vs. advanced 2%, p=0.64). There were no late reoperations (after 3 months of the initial surgery), in either group.

The follow-up time of the sample was 28.2 ± 23.8 months and was significantly longer in the initial group (44.2 vs. 21.9 months; p<0.001).

Thirty-four percent of patients in the initial group presented recurrence of symptoms similar to those prior to surgery, compared with 26.5% of patients in the advanced group (OR=1.5, 95% CI 0.5-4.1, p=0.46). The mean time until recurrence of symptoms was 21.5 ± 20.7 months in the initial group and 9.21 ± 11.9 months in the advanced group, with no statistical significance (p=0.13). The advanced group presented a higher frequency of new anal symptoms different from those of the initial stage (28.6 vs. 15.4%) although this was not statistically significant (p=0.20). In the advanced group, 8.2% of patients had a worsening of continence score after surgery vs. none in the initial group (p=0.13). The proportion of patients with worsening of constipation score was 15.4% in the initial group and 12.2% in the advanced group (OR=1.3, 95% CI=0.3–5.1, p=0.7). More than 1/3 of patients in the advanced group and ¼ of patients in the early group were symptomatic at the time of survey (p=0.49). In the initial group, only 1 patient (3.8%) had a low satisfaction score (3 or less) vs. 2 patients (4.1%) in the advanced group (p=1.0).

In multivariate analysis, the surgeon was the only variable that significantly influenced length of stay (Table 4).

DISCUSSION

This is a retrospective observational study, in which the first PPH procedures performed by three surgeons were chronologically ordered and comparative analysis was performed on all variables in two groups, “initial” and “advanced”, increasing the cut-off point for the number of surgeries by 5, a technique known as the “split method”.

One operative variable (surgical time) and several patient outcome variables (complications, satisfaction, pain, etc.) were measured. It was observed that from the 20th PPH procedure onwards, surgical time decreased significantly and stabilized (46.9 vs. 27.6 min). Using the 20th surgery as a cut-off point, the sample was divided into “initial” and “advanced” cases. The immediate postoperative results, such as pain rates, time and type of analgesics, morbidity and severity of complications, were similar between both groups. The length of stay in days was longer in the initial surgeries (0.62 vs. 0.29 days) in the bivariate analysis, but not in the multivariate analysis (p=0.10).

The recurrence of symptoms, the appearance of different symptoms and the need for current medical treatment were comparable between both groups. No difference was observed in the worsening of continence or constipation between groups.

It has been postulated that in PPH surgery technical defects could have a direct relationship with the results.[13,14] For example, high placement of the purse-string could increase the recurrence rate by not achieving a complete reduction of the redundant mucosa. The same could occur in case of spiralization of the purse-string or lack of uniformity in the depth of the stiches. On the other hand, the placement of the purse-string very close to the dentate line could cause an increase in postoperative pain by stimulation of the somatic nociceptive fibers of this region.[3]

It is striking that in such a regulated surgery, where the technical details mentioned can have a negative impact, there is not much evidence about the learning curve.

In a study by Pérez-Vicente et al.,[14] 100 patients who underwent PPH were divided chronologically into two groups of 50, and comparatively analyzed regarding operative and outcome variables. Surgical time was similar in both groups. Patients in the initial group had a shorter distance from the purse-string to the dentate line and greater postoperative pain, as well as a tendency to greater bleeding.

Jongen et al.[15] divided their 654 patients with PPH into the first 151 (first two years of work) and the subsequent ones, finding a higher frequency of fecal impaction and bleeding in the initial group, as well as greater dehiscence and reoperations. They found no differences in surgical time between both groups. In our series, the only variable that was modified throughout the cases ordered chronologically was the operative time, while the rest of the variables such as pain, bleeding or complications were similar between the initial and the advanced group.

More recently, in a letter to the editor by Yen et al.,[1] a moving average analysis was performed to detect the specific site of the learning curve where changes appear, evaluating the operative time and the muscle/mucosa ratio of the mucosectomy specimen. As in the present study, an optimization of the operative time was found starting from the 20th surgery, while the muscle/mucosa ratio stabilized near the 40th surgery. Although it can be theorized that a higher

muscle/mucosa ratio could negatively impact continence or other anorectal physiological parameters, by not including patient outcome variables the real clinical value of this finding cannot be known. In our analysis, no changes were found in the variables after the 40th surgery.

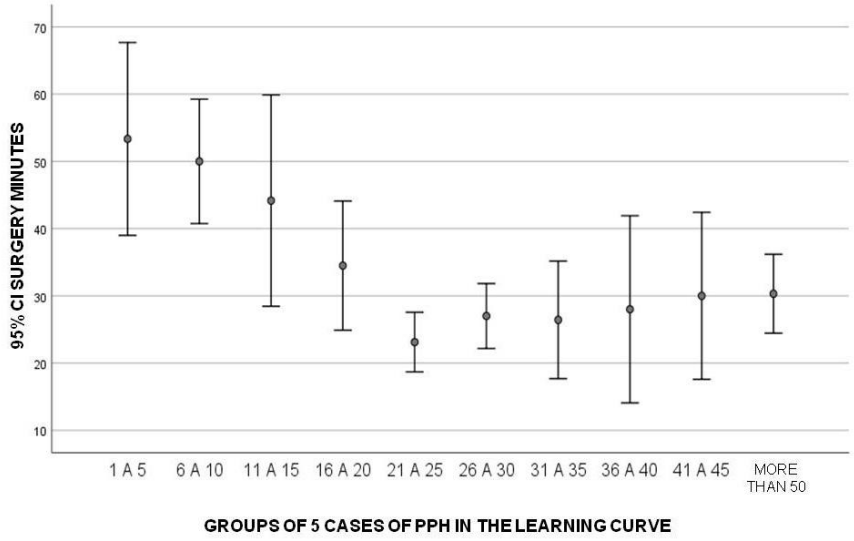

Figure 2. *Operative time. Mean ± 2 standard deviations of each of the 5-by-5 subgroups of the number of surgical order (one-way ANOVA). The subset of 1 to 20 cases had a significant difference with respect to the following ones (46.9 ± 11.77 vs. 27.59 ± 8.96 min; p<0.001. 95% CI).*

Table 1. Clinical and demographic characteristics of patients.

Variable	Initial n=26 (%)	Avanced n=49 (%)	Total n=75	*p* Value
Sex (female)	16 (61.5)	26 (53.1)	42	0.48
Age	47 (9)	48.9 (12.6)	48.4	0.53
ASA				0.50
I	15 (57.7)	24 (49)	39	
II	11 (42.3)	23 (46.9)	34	
III	0	2 (4.1)	2	
Surgeon				0.014
A	5 (19.2)	21 (42.9)	26	
B	17 (65.4)	15 (30.6)	32	
C	4 (15.4)	13 (26.5)	17	
Preoperative symptoms				0.15
Bleeding	3 (11.5)	11 (22.4)	14	
Prolapse G II	2 (7.7)	11 (22.4)	13	
Prolapse G III	12 (46.2)	13 (26.5)	25	
Prolapse G IV	9 (34.6)	14 (28.6)	23	
Preoperative continence				0.48
Normal	20 (76.9)	41 (83.7)	61	
Gas incontinence	4 (15.4)	7 (14.3)	11	
Liquid incontinence	2 (7.7)	3 (4)	3	
Solid incontinence	0	0	0	
Preoperative constipation				0.018
No	9 (34.6)	32 (65.3)	41	
Mild	14 (53.8)	17 (34.7)	31	
Moderate	1 (3.8)	0	1	
Severe	2 (7.7)	0	2	
Months of follow-up (Mean ± SD)	44.2 ± 24.2	21.9 ± 20.6	28.2 ± 23.8	<0.001

SD: standard deviation. G: grade. ASA: American Association of Anesthesiologists Physical Status Classification.

In this study, a difference was found in the length of hospitalization between the initial and advanced groups (0.62 vs. 0.29 days, respectively; p=0.011). However, in multivariate analysis the only variable that significantly impacted length of stay was the surgeon in charge (Table 4). It is important to note that the groups had a significant difference in the surgeon in charge: surgeon B performed 17/26 procedures in the initial group and had a longer mean length of hospitalization (0.69 vs. 0.19 days, p<0.001). This is explained because surgeon B performed the procedures in a center with inpatient care, so some patients operated on in the afternoon stayed overnight. Another interesting finding was that some outcome variables were worse in the advanced group, e.g., severe pain in the first 24 hours (10.2 vs. 0), severe pain at first bowel movements (8.2 vs. 0), opioids use (56.5 vs. 34.8%) and low satisfaction (8.2 vs. 3.8), however, no difference was statistically significant. This was probably due to the larger sample size in the advanced group or to a greater liberality in the indication as mentioned above.

To our knowledge, the present study is the first to evaluate the learning curve of PPH using statistical methodology to find the minimum number of surgeries necessary to perform it efficiently, analizing both operative and outcome variables. The study found that the only variable that improved throughout the learning curve of PPH surgery was surgical time, while the rate of complications, pain, hospital stay, recurrence and satisfaction were similar between the first 20 and subsequent surgeries. This may be because the first surgeries in the curve were performed under the supervision of a more qualified professional, achieving a good quality technique although with more delay.

This study has some limitations. Firstly, it is retrospective, which generates data loss for not being able to contact the patients. On the other hand, the sample size is small and it has been seen that the more patients are analyzed, the longer the learning curve.[16] In addition, it has not been possible to measure other intraoperative variables apart from time, such as suture height, muscle/mucosa ratio, number of hemostatic stitches, etc., which could have contributed to improving accuracy of the estimated minimum number of surgeries necessary to learn the technique. Finally, the study is based on a survey, where the data comes from a subjective interpretation by the patient of their symptoms and their satisfaction.

Table 2. Multivariate analysis of factors that could prolong surgical time.

Variable	*p* Value
Order < 20	0.002
Sex	0.99
Age	0.21
ASA	0.40
Preoperative symptoms	0.52
Surgeon	0.83

CONCLUSIONS

The operative time of PPH surgery decreased significantly starting with surgery number 20. The initial cases in the learning curve did not have higher morbidity or lower patient satisfaction rates, nor did they have a negative impact on the rate of symptom recurrence.

It is important that surgeons receive prior training in the technique, both on simulators and by observing surgeries, and that they are supervised by professionals with more advanced skills.

Prospective studies are needed that more objectively analyze a greater number of operative variables (muscle/mucosa ratio, number of hemostatic stitches, distance to the dentate line, time to perform the purse-string) and of patient outcome variables.

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Table 3. Operative time and postoperative results in both groups. Bivariate analysis.

Variable	Initial n=26 (%)	Avanced n=49 (%)	OR (95% CI)	*p* Value
Operative time (min)	46.9	27.6	NA	<0.001
Length of hospital stay (days)	0.62 ± 0.57	0.29 ± 0.46	NA	0.011
Severe pain during the first 24 hours	0	5 ± 10.2	0.9 (0.8 - 0.9)	0.157
Severe pain during the first bowel movements	0	4 ± 8.2	0.9 (0.8 - 1)	0.130
Use of opioids	8 ± 34.8	26 ± 56.5	0.4 (0.1 - 1.2)	0.089
Time on analgesics (days)	6.7 ± 3.7	8.6 ± 5.8	NA	0.280
Time off work (days)	14.1 ± 8.9	14.1± 10.3	NA	0.879
Complications CD II CD IIIb	2 ± 7.7 1 (50) 1 (50)	4 (8.2) 3 (75) 1 (25)	0.9 (0.2 - 5.5) 3.0 (0.1-111)	1.000 0.540
Early reoperation (<1 month)	1 (3.8)	1 (2)	1.9 (0.1 - 3.2)	0.640
Late reoperation (>1 month)	0	0	1	1
Symptom recurrence	9 (34.6)	13 (26.5)	1.5 (0.5 - 4.1)	0.460
Time to recurrence (months)	21.5 ± 20.7	9.21 (11.9)	NA	0.132
Symptom recurrence more severe than at baseline	2 (7.7)	4 (8.2)	0.9 (0.2 - 5.5)	1.000
Emergence of different symptoms	4 (15.4)	14 (28.6)	0.5 (0.1 - 1.6)	0.203
Time to different symptoms (months)	8.7 (8.0)	6.9 (6.2)	NA	0.747
Worse post-preop continence*	0	4 (8.2)	NA	0.134
Worse post-preop constipation*	4 (15.4)	6 (12.2)	1.3 (0.3 - 5.1)	0.703
Current medical treatment	4 (15.4)	3 (6.1)	2.8 (0.6 - 13.5)	0.190
Current symptoms	7 (26.9)	17 (34.7)	0.7 (0.2 - 1.9)	0.490
Satisfaction 1-3†	1 (3.8)	4 (8.2)	0.5 (0.1 - 4.0)	0.43
Degree of symptom resolution 1-3†	1 (3.8)	2 (4.1)	0.9 (0.1 - 10.9)	1.000

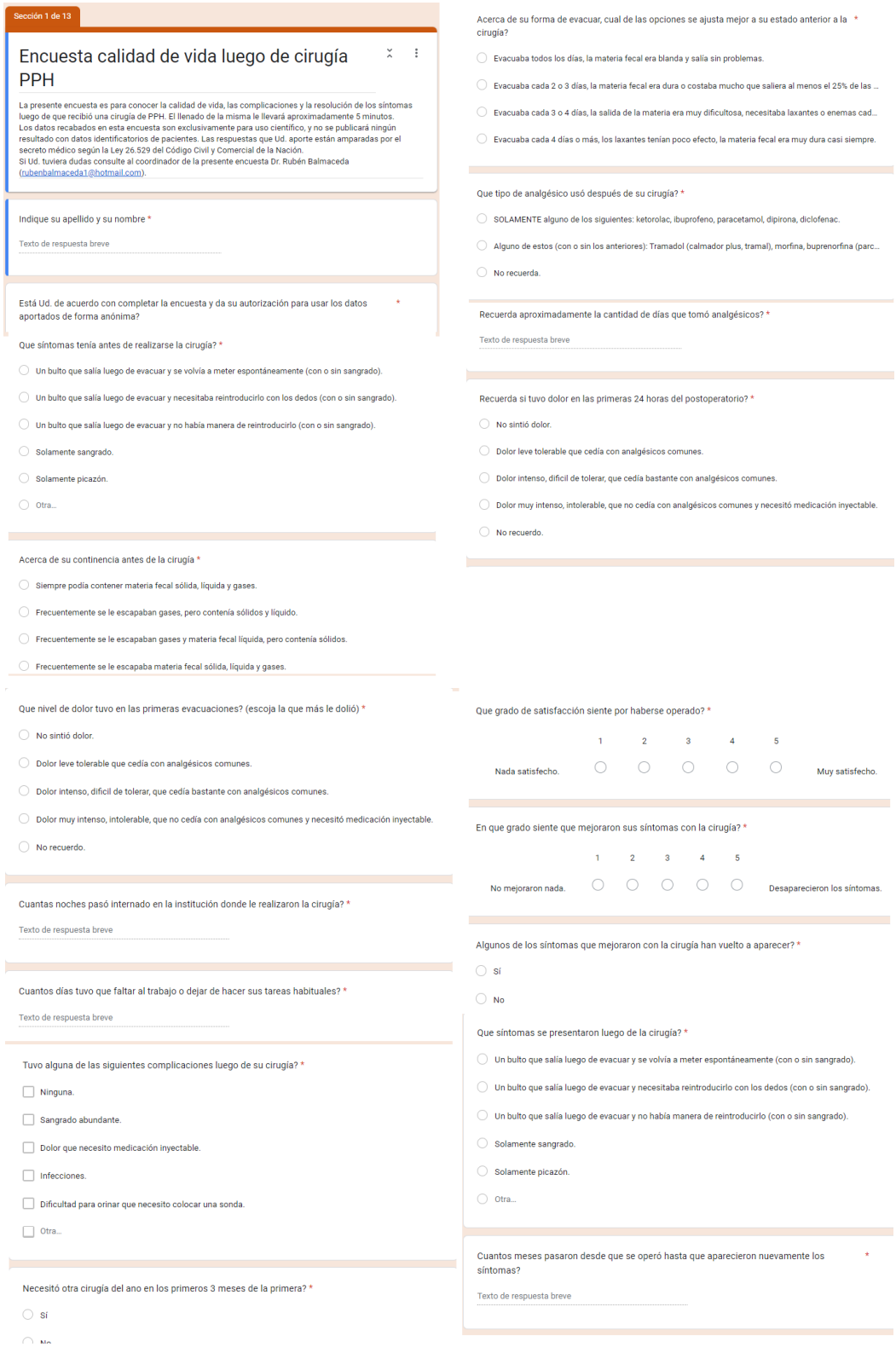
Values are expressed as mean ± standard deviation. * Subtraction of the postoperative score from the preoperative score to determine the variation in each patient. † Score of 1-3 (poor and average results) within a score of 1-5. OR: odds-ratio. NA: not applicable. CD: Clavien-Dindo.

Table 4. Multivariate analysis to detect variables that could modify the length of hospital stay.

Variable	*p* Value
Order number	.101
Age	.061
Sex	.202
Preoperative constipation	.931
Preoperative continence	.978
Preoperative symptoms	.277
Surgeon	.003

APPENDIX 1

Survey conducted with patients electronically or by telephone.



Sección 1 de 13

Encuesta calidad de vida luego de cirugía PPH

La presente encuesta es para conocer la calidad de vida, las complicaciones y la resolución de los síntomas luego de que recibió una cirugía de PPH. El llenado de la misma le llevará aproximadamente 5 minutos. Los datos recabados en esta encuesta son exclusivamente para uso científico, y no se publicará ningún resultado con datos identificatorios de pacientes. Las respuestas que Ud. aporte están amparadas por el secreto médico según la Ley 26.529 del Código Civil y Comercial de la Nación.
Si Ud. tuviera dudas consulte al coordinador de la presente encuesta Dr. Rubén Balmaceda (rubenbalmaceda1@hotmail.com).

Indique su apellido y su nombre *

Texto de respuesta breve

Está Ud. de acuerdo con completar la encuesta y da su autorización para usar los datos aportados de forma anónima? *

Que síntomas tenía antes de realizarse la cirugía? *

- Un bulto que salía luego de evacuar y se volvía a meter espontáneamente (con o sin sangrado).
- Un bulto que salía luego de evacuar y necesitaba reintroducirlo con los dedos (con o sin sangrado).
- Un bulto que salía luego de evacuar y no había manera de reintroducirlo (con o sin sangrado).
- Solamente sangrado.
- Solamente picazón.
- Otra...

Acerca de su continencia antes de la cirugía *

- Siempre podía contener materia fecal sólida, líquida y gases.
- Frecuentemente se le escapaban gases, pero contenía sólidos y líquido.
- Frecuentemente se le escapaban gases y materia fecal líquida, pero contenía sólidos.
- Frecuentemente se le escapaba materia fecal sólida, líquida y gases.

Que nivel de dolor tuvo en las primeras evacuaciones? (escoja la que más le dolió) *

- No sintió dolor.
- Dolor leve tolerable que cedía con analgésicos comunes.
- Dolor intenso, difícil de tolerar, que cedía bastante con analgésicos comunes.
- Dolor muy intenso, intolerable, que no cedía con analgésicos comunes y necesitó medicación inyectable.
- No recuerdo.

Cuantas noches pasó internado en la institución donde le realizaron la cirugía? *

Texto de respuesta breve

Cuantos días tuvo que faltar al trabajo o dejar de hacer sus tareas habituales? *

Texto de respuesta breve

Tuvo alguna de las siguientes complicaciones luego de su cirugía? *

- [ ] Ninguna.
- [ ] Sangrado abundante.
- [ ] Dolor que necesito medicación inyectable.
- [ ] Infecciones.
- [ ] Dificultad para orinar que necesito colocar una sonda.
- [ ] Otra...

Necesitó otra cirugía del ano en los primeros 3 meses de la primera? *

- Sí
- No

Acerca de su forma de evacuar, cual de las opciones se ajusta mejor a su estado anterior a la cirugía? *

- Evacuaba todos los días, la materia fecal era blanda y salía sin problemas.
- Evacuaba cada 2 o 3 días, la materia fecal era dura o costaba mucho que saliera al menos el 25% de las ...
- Evacuaba cada 3 o 4 días, la salida de la materia era muy dificultosa, necesitaba laxantes o enemas cad...
- Evacuaba cada 4 días o más, los laxantes tenían poco efecto, la materia fecal era muy dura casi siempre.

Que tipo de analgésico usó después de su cirugía? *

- SOLAMENTE alguno de los siguientes: ketorolac, ibuprofeno, paracetamol, dipirona, diclofenac.
- Alguno de estos (con o sin los anteriores): Tramadol (calmador plus, tramal), morfina, buprenorfina (parc...
- No recuerda.

Recuerda aproximadamente la cantidad de días que tomó analgésicos? *

Texto de respuesta breve

Recuerda si tuvo dolor en las primeras 24 horas del postoperatorio? *

- No sintió dolor.
- Dolor leve tolerable que cedía con analgésicos comunes.
- Dolor intenso, difícil de tolerar, que cedía bastante con analgésicos comunes.
- Dolor muy intenso, intolerable, que no cedía con analgésicos comunes y necesitó medicación inyectable.
- No recuerdo.

Que grado de satisfacción siente por haberse operado? *

	1	2	3	4	5	
Nada satisfecho.	○	○	○	○	○	Muy satisfecho.

En que grado siente que mejoraron sus síntomas con la cirugía? *

	1	2	3	4	5	
No mejoraron nada.	○	○	○	○	○	Desaparecieron los síntomas.

Algunos de los síntomas que mejoraron con la cirugía han vuelto a aparecer? *

- Sí
- No

Que síntomas se presentaron luego de la cirugía? *

- Un bulto que salía luego de evacuar y se volvía a meter espontáneamente (con o sin sangrado).
- Un bulto que salía luego de evacuar y necesitaba reintroducirlo con los dedos (con o sin sangrado).
- Un bulto que salía luego de evacuar y no había manera de reintroducirlo (con o sin sangrado).
- Solamente sangrado.
- Solamente picazón.
- Otra...

Cuantos meses pasaron desde que se operó hasta que aparecieron nuevamente los síntomas? *

Texto de respuesta breve

Han aparecido síntomas anales DIFERENTES a los que sentía antes de operarse? *

- No aparecieron nuevos síntomas.
- Un bulto que sale luego de evacuar y se vuelve a meter espontáneamente.
- Un bulto que sale luego de evacuar y necesita reintroducirlo con los dedos.
- Un bulto que sale luego de evacuar y no hay manera de reintroducirlo.
- Sangrado.
- Picazón.
- Dolor anal.
- Sensación de obstrucción cuando evacúa.
- Pérdida de la capacidad de retener los gases o la materia fecal.
- Otra...

Acerca de su continencia DESPUÉS de la cirugía *

- Siempre puede contener materia fecal sólida, líquida y gases.
- Frecuentemente se le escapan gases, pero contiene sólidos y líquido.
- Frecuentemente se le escapan gases y materia fecal líquida, pero contiene sólidos.
- Frecuentemente se le escapa materia fecal sólida, líquida y gases.

Acerca de su forma de evacuar, cual de las opciones se ajusta mejor a su estado DESPUÉS de la cirugía? *

- Evacúa todos los días, la materia fecal es blanda y sale sin problemas.
- Evacúa cada 2 o 3 días, la materia fecal es dura o cuesta mucho que salga al menos el 25% de las veces.
- Evacúa cada 3 o 4 días, la salida de la materia es muy dificultosa, necesita laxantes o enemas cada 1 o 2...
- Evacúa cada 4 días o más, los laxantes tienen poco efecto, la materia fecal es muy dura casi siempre.

Recuerda la causa de la segunda cirugía? *

Texto de respuesta breve

Cuantos meses pasaron desde la primera cirugía hasta que lo operaron por segunda vez? *

Texto de respuesta breve

Actualmente necesita de forma frecuente tratamiento para sus hemorroides como cremas o comprimidos? *

- Si.
- No

Actualmente tiene alguno de los siguientes síntomas? *

- Actualmente no hay síntomas.
- Un bulto que sale luego de evacuar y se vuelve a meter espontáneamente.
- Un bulto que sale luego de evacuar y necesita reintroducirlo con los dedos.
- Un bulto que sale luego de evacuar y no hay manera de reintroducirlo.
- Sangrado.
- Picazón.
- Dolor anal.
- Sensación de obstrucción cuando evacúa.
- Pérdida de la capacidad de retener los gases o la materia fecal.
- Otra...