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Research Article

Pilot Study: Descriptive-comparative Analysis of Anterior Vaginal Hysteropexies *versus* Vaginal Hysterectomies for the Treatment of Stage III-IV Uterine Prolapse

Paula Caballero Reyes[1]*, María Gil López[1], Miguel Calero Rojas[2], Beatriz Pineda Reyes[2] and Ana Ortiz Minuesa[3]

[1]Gynaecology and Obstetrics Department, Reina Sofía University Hospital, Córdoba, Spain

[2]Gynaecology and Obstetrics Department, Pelvic Floor Unit, Reina Sofía University Hospital, Córdoba, Spain

[3]Head of Gynaecology and Obstetrics Department, Reina Sofía University Hospital, Córdoba, Spain

Abstract

Objective: To describe and compare the outcomes of patients undergoing anterior hysteropexy via vaginal approach without mesh versus vaginal hysterectomy for the treatment of uterine prolapse.

Methods: Seventeen patients underwent anterior hysteropexy via vaginal approach without mesh over the course of two years to treat uterine prolapse. Several variables were analysed and compared with a similar cohort of patients who underwent vaginal hysterectomy for the same indication.

Results: Both techniques are effective for the treatment of uterine prolapse, with no statistically significant difference, except for the length of hospital stay, which was shorter for the hysteropexy group ($p < 0.001$).

Conclusion: our study shows a slight tendency in favour of vaginal hysteropexy, as it demonstrates similar success rates with a shorter average length of hospital stay compared to vaginal hysterectomy.

More Information

***Address for correspondence:** Caballero Reyes P, Department of Pelvic Floor, Reina Sofía University Hospital, Córdoba, Spain,
Email: paulacaballero.r@gmail.com

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Keywords: Anterior hysteropexy; Uterine prolapse; Vaginal hysterectomy; Hospital stay duration

Introduction

Pelvic Organ Prolapse (POP) is defined as the descent of one or more pelvic organs, including the uterus, vagina, urethra, bladder, sigmoid colon, or small intestine, from their normal anatomical position due to failure of the supporting structures [1,2]. On gynaecological examination, it manifests as the presence of these organs within the vagina, causing pressure and pain. It is a prevalent condition with a 12.6% lifetime risk of requiring surgical intervention [3].

The Pelvic Organ Prolapse Quantification (POPQ) System (1996) was used for the classification of Pelvic Organ Prolapse (POP). This system allows for a precise description of the female pelvic floor, identifies specific sites of stability or progression of prolapse over time by the same or different observers, and provides objective measures for assessing surgical repair outcomes.

It includes nine vaginal localization points: two in the anterior compartment, two in the posterior compartment, two superiorly, two anteriorly, and total vaginal length. The hymenal line serves as the reference, with points proximal to this line represented as negative numbers and distal points as positive numbers. Four stages are established:

Stage I: The most distal part of the prolapse does not reach the hymen.

Stage II: The most distal part of the prolapse is between 1 cm above and 1 cm below the hymen.

Stage III: The most distal part of the prolapse is more than 1 cm below the hymen but no more than 2 cm less than the total vaginal length.

Stage IV: The most distal part of the prolapse protrudes at least total vaginal length minus 2 cm.[2]

Anterior hysteropexy via vaginal approach without mesh is

a POP correction technique that allows uterine preservation, leading to shorter surgical time and reduced associated morbidity when compared to vaginal hysterectomy, according to some authors [4].

Technique

After positioning the patient in lithotomy, surgical field asepsis, and bladder catheterization are performed.

Our technique for anterior hysteropexy via vaginal approach without mesh consists of creating an inverted T-shaped incision extending medially up to 3 cm suburethral, starting near the anterior cervical border.

Vesicovaginal-vesicouterine dissection is carried out using Metzembaum scissors, maintaining tension to locate the correct plane.

Digital expansion of the right endopelvic fascia is performed until reaching the right sacrospinous ligament, where two biocompatible PEEK material anchors from the Anchorsure device (Neomedic Laboratories) are placed. Subsequently, the hysteropexy sutures of non-absorbable synthetic material made of polypropylene (PROLENE) are anchored to the cervical stroma at the 2 o'clock position (the deepest point in the right sacrospinous ligament) and at the 10 o'clock position (the point closest to the ischial spine).

Anterior colporrhaphy is performed with Vicryl 2 vaselinated sutures in patients with concomitant cystocele, using Vicryl 0 sutures in the vagina. There is also the possibility of performing this technique via a posterior approach through the pararectal fascia.

Methods

Study design

Retrospective, descriptive-comparative observational study of outcomes in patients who underwent anterior hysteropexy via vaginal approach without mesh for the treatment of uterine prolapse *versus* a similar sample of patients who underwent vaginal hysterectomy for the same indication.

Objectives

To analyse the technique and outcomes of anterior hysteropexy via vaginal approach and compare them with those of vaginal hysterectomy.

Data collection

We analysed the medical records of patients who underwent anterior hysteropexy via vaginal approach without mesh (HPX) from January 2022 to September 2024 as a conservative surgical alternative to vaginal hysterectomy (HTV) for the treatment of female genital prolapse. Both surgeries were performed by surgeons from the Pelvic Floor Department at the Reina Sofía University Hospital (Córdoba). A total of 17 vaginal hysteropexies were performed during this period, and the outcomes were compared with a similar sample of 15 patients who underwent vaginal hysterectomy.

Statistical analysis

Descriptive and comparative analysis between both groups was performed using the SPSS statistical software (Version 20.0 for Windows), employing the T-Student test for quantitative variables with homogeneity of variances, the Welch test for quantitative variables with heterogeneity of variances, and Chi-square analysis for qualitative variables. A p - value of less than 0.05 was considered statistically significant.

The following variables were studied (Table 1): age, Body Mass Index (BMI), comorbidities, prior pelvic surgeries, smoking status, number of deliveries, surgical indication, anaesthesia technique used, blood loss, length of hospital stay, complications, residual pain, pre-and post-operative urinary incontinence, anatomical outcomes achieved, and recurrence.

Results

Surgical indications were made according to the POPQ system classification for uterine prolapse with or without prolapse of the anterior compartment in stage II or higher.

The average number of deliveries in both groups was 3. The mean BMI for patients undergoing HPX was 26.74, compared to 27.67 for those undergoing HTV. However, no statistically significant differences were found between the two groups for either variable (Table 1).

Patients in both groups exhibited similar characteristics regarding age, prior pelvic surgeries, and smoking, so the comparative analysis between the two groups did not yield statistically significant results.

Anaesthesia was predominantly locoregional in both groups, with no significant difference when compared to the combined use of local anaesthesia (p = 0.122).

The average length of stay for patients undergoing hysteropexy was 27 hours, compared to 42 hours for those undergoing HTV. The comparative statistical analysis yielded a p = 0.000, making it the only variable in the study with statistically significant differences (Table 1).

Two patients in the HTV group experienced post-surgical complications, such as the opening of the anterior colporrhaphy and infected hematoma at the surgical site, while no complications were observed in the HPX group. However, no statistically significant differences were found (p = 0.131), likely due to the small sample size.

There were no significant differences in residual pain at one month post-surgery, with only one HPX patient reporting pain compared to three HTV patients (p = 0.283).

Table 1: Quantitative and qualitative variables assessed in the 32 patients distributed between the control group (vaginal hysterectomy) and the case group (vaginal approach anterior hysteropexy).

Variable	HTV (n = 15) Mean (SD)	HPX (n = 17) Mean (SD)	p	Test
Age (years)	64 (± 6.82)	62 (± 7.59)	0.459	T
BMI (kg/m^2)	27.67 (± 3.87)	26.72 (± 2.65)	0.503	T
Parity (number)	3 (± 1.14)	3 (± 1.47)	0.863	T
Previous pelvic surgeries Yes No	 3 (20%) 12 (80%)	 2 (11.76%) 15 (88.24%)	0.409	χ^2
Toxic habits Smoker Non-smoker	 1 (6.67%) 14 (93.33%)	 1 (5.88%) 16 (94.12%)	1.000	χ^2
Type of anaesthesia Regional Regional + Local	 11 (73.33%) 4 (26.67%)	 16 (94.12%) 1 (5.88%)	0.122	χ^2
Haemoglobin loss (g/dl)	1.59 (± 0.72)	1.69 (± 0.48)	0.679	T
Length of stay (hours)	42 (± 10.01)	27 (± 8.20)	0.000	T
Complications Yes No	 2 (13.33%) 13 (86.67%)	 - 17 (100%)	0.131	χ^2
Pain at one month Yes No	 3 (20%) 12 (80%)	 1 (5.88%) 16 (94.12%)	0.283	χ^2
De Novo Postoperative UI Yes No	 1 (6.67%) 14 (93.33%)	 1 (5.88%) 16 (94.12%)	0.962	χ^2
Post-surgical anatomical result Good Poor	 14 (93.33%) 1 (6.67%)	 17 (100%) -	0.962	χ^2
General practitioner/Emergency visits Yes No	 3 (20%) 12 (80%)	 4 (23.53%) 13 (76.47%)	0.930	χ^2
Recurrence Yes No	 - 15 (100%)	 2 (11.76%) 15 (88.24%)	0.143	χ^2

Only two patients developed de novo urinary incontinence after the intervention, one from each group, with symptom improvement in follow-up visits (p = 0.962).

Both techniques were found to be effective for uterine prolapse correction, with optimal anatomical outcomes achieved in all 17 patients undergoing HPX, with similar results in those undergoing HTV. No statistically significant differences were found regarding recurrence rates between the two groups (p = 0.143) (Table 1).

Discussion

The most common risk factor for POP is parity. Obesity (BMI above 25) is the most common modifiable risk factor [2].

Vaginal hysterectomy is commonly performed for uterine prolapse correction, although hysteropexy could be an alternative surgical procedure for this issue [5]. In recent years, uterine preserving hysteropexy has become a more popular and optimal cost-effective strategy for the treatment of uterine prolapse [6,7]. In fact, an analysis at five years showed no differences between both interventions [8].

Our results are consistent with the most recent Cochrane review on surgical treatment of uterine prolapse or vaginal vault prolapse in hysterectomized patients, which included various surgical techniques and randomized clinical trials and found no statistically significant differences between patients treated with vaginal hysteropexy and those who underwent vaginal hysterectomy [9].

Some authors report lower blood loss with vaginal hysteropexy, although this result was not found in our study, where haemoglobin levels before and after surgery were evaluated, likely due to the small sample size (p = 0.679) [10].

Romero, et al. [10] also did not report significant differences regarding complications between the two techniques that were found to be effective for uterine prolapse correction [10]. Nevertheless, Serati, et al. [11] have found that a preoperative point C > 0 cm and BMI ≥ 25 kg/m^2 could be potential risk factors associated with the recurrence of prolapse [11]. Bowen, et al. [12] also have demonstrated that vaginal angulation and position related to surgical technique could be associated with prolapse recurrence. Therefore, women with recurrence after hysteropexy had a more laterally deviated upper vagina whereas women with recurrence after hysterectomy had a more inferiorly positioned vaginal apex and mid-vagina compared to patients with successful surgery [12].

Limitations

The small sample size of hysteropexies performed vaginally in our hospital during the study period hinders the analysis in which no statistically significant differences are found in variables described in the literature such as decreased bleeding. However, a statistically significant shorter hospital stay could be an advantage in favour of the use of hysteropexy. For this reason, it would be advisable to re-evaluate the same variables in the future with a larger number of patients and consider other aspects not included in the study, such as the exact surgical time used in each technique.

Conclusion

Our study shows a slight tendency in favour of vaginal hysteropexy, as it results in similar success rates to vaginal hysterectomy for the treatment of genital prolapse, while significantly reducing the length of hospital stay.

Our results are consistent with the most recent Cochrane review on the surgical treatment of uterine prolapse or vaginal vault prolapse in hysterectomised patients.

However, further studies with a larger patient sample are required to confirm these findings and draw additional conclusions regarding other variables.

Conflicts of interest bias and ethics

All authors declare that they have no conflicts of interest and that there are no financial interests to report. We also certify that this article is an original work and has the approval of the head of the Obstetrics and Gynaecology Department of the Hospital Universitario Reina Sofía de Córdoba. Each patient signed an informed consent form in accordance with Spanish Law 41/2002 allowing the use of medical information for research purposes.

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