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Research Article

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Why do we Still Perform Hysteroscopies in the Operating Room?

Laura Blanch Fons MD, Marta Simó González* MD PhD, Cristina Vanrell Barbat MD PhD, Pere Parés Baulenas MD PhD, Carlos Dosouto Capel MD, Oriol Porta Roda MD PhD, and Josep Estadella Tarriel MD

Department of Obstetrics and Gynecology, Hospital de la Santa Creu i Sant Pau, Universitat Autònoma de Barcelona, Barcelona, Spain

***Corresponding author:** Marta Simó González, Department of Obstetrics and Gynecology, Hospital de la Santa Creu i Sant Pau, Carrer Mas Casanovas 90, Barcelona Spain.

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Abstract

Study objective: To determine the indications for inpatient hysteroscopy among patients treated in the operating room at our hospital over a 3-year period.

Design: Retrospective, descriptive study based on a review of medical records of all patients who underwent inpatient hysteroscopy at our hospital from January 2016 to December 2018.

Setting: Hysteroscopy Unit at a tertiary care hospital in Barcelona, Spain.

Patients: All women who underwent inpatient hysteroscopy at our center during the study period were included (n=186).

Interventions: The indications for inpatient hysteroscopy where classified into four groups: 1) clinical condition, 2) another type of gynecological surgery planned (laparoscopy or laparotomy), 3) primary anesthesia, and 4) secondary anesthesia.

Measurements and Main Results: During the study period 186 patients underwent inpatient hysteroscopy in the operating room. The most common indications for inpatient gynecological surgery were clinical condition (58%), other gynecological surgery planned (10%), primary anesthesia (9%), and secondary anesthesia (23%). In most cases (127/186, 68.3%), the procedure was performed in the operating room due to the patient's specific clinical condition or because the patient was scheduled to undergo another gynecological surgery. In the remaining 31.7% of cases (59 patients), the hysteroscopy was performed in the operating room for pain management.

Conclusions: The main clinical indication for inpatient hysteroscopy was the clinical condition. However, nearly one-third of inpatient procedures were performed in the operating room to ensure adequate pain management. These findings suggest that the proportion of patients undergoing outpatient hysteroscopy could be increased by improving pain management in the office setting in selected patients.

Keywords: Anesthesia; Hysteroscopy; Indication; Inpatient; Outpatient; Office

Introduction

The development of narrow caliber endoscopic instruments has enabled clinicians to perform minimally-invasive in-office hysteroscopy, thus permitting the utilization of a "see and treat" technique in the outpatient setting for the most common benign intrauterine disorders [1]. Most benign intrauterine disorders can be managed in this setting, thus avoiding the need to perform hysteroscopy in the operating room. Outpatient office hysteroscopy is associated with lower morbidity rates, shorter surgical waiting lists, and reduced medical and social costs, with the consequent benefits for both the patient and the healthcare system [2-5]. Office hysteroscopy is a safe, feasible, acceptable, and effective procedure for the management of most benign intrauterine pathologies, which is why it is currently considered the gold-standard technique for these conditions [2,6].

For pain control in patients undergoing in-office procedures, oral anxiolytics and analgesics or local anesthesia (paracervical or intrauterine) are commonly used. Nevertheless, certain factors (e.g., nulliparity, postmenopausal status, dysmenorrhea, or anxiety)

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could increase the likelihood that patients will experience greater pain and thus require other pain management strategies [7].

Inpatient hysteroscopies are associated with a greater risk of adverse events related to dilatation of the cervix, wider surgical instruments, general or loco regional anesthesia, and hospitalization [1,8]. Consequently, hysteroscopies performed in the surgical setting should be limited, whenever possible to selected cases. Given the many advantages of in-office hysteroscopy; it would be highly beneficial to maximize the proportion of patients who are eligible for this approach.

In many hospitals, including ours, hysteroscopies can be performed in an ambulatory setting (e.g., at the office hysteroscopy unit) or in a conventional operating room. During the three-year period described in the present study, a total of 1000 explorations were performed in our high-resolution Outpatient Hysteroscopy Unit. Of these outpatient explorations, 90% were definitively resolved in the outpatient unit, with only 10% referred to the surgical setting. We perform office hysteroscopies with several 5mm devices: mechanical scissors and forceps, bipolar electrodes and mechanical morcellator.

In this context, the aim of the present study was to determine the indications for inpatient hysteroscopies performed in our department in recent years in order to develop strategies to increase the proportion of office hysteroscopies performed at our institution. To our knowledge, this is the first study to evaluate how to decrease the number of inpatient hysteroscopies.

Material and Methods

Study design

This was a retrospective, observational study of 186 patients who underwent surgical hysteroscopy at our hospital from January 2016 through December 2018. The indications for surgical hysteroscopy were determined for each patient. All patients who underwent surgical hysteroscopy in the operating room during the study period were included. No exclusion criteria were applied.

All study data were obtained from the patients' electronic medical records and exported to an anonymous database. We examined each patient's medical record to determine the indication for surgical hysteroscopy. The study has been approved by our institution's ethics committee (IIBSP-HIS-2019-69).

We classified the indications for inpatient hysteroscopy into four groups, as follows:

- **Group 1:** clinical conditions that, in the surgeon's judgment, required a surgical environment. These conditions included: myoma, large polyps, Asherman's syndrome, and uterine malformation.
- **Group 2:** patients who required another type of gynecological surgery (laparoscopy or laparotomy) in addition to hysteroscopy.
- **Group 3:** primary anesthesia: patients who, after being informed about the office hysteroscopy procedure, refused to undergo an outpatient procedure under local anesthesia, preferring instead to receive regional or general anesthesia.
- **Group 4:** secondary anesthesia: patients in whom office hysteroscopy under local anesthesia was unsuccessful due to cervical stenosis, discomfort, or pain.

Inpatient hysteroscopy

All procedures were performed in the operating room under general or regional anesthesia. The type of anesthesia is selected jointly by the patient and the anesthesiologist during a preoperative visit. Previous dilatation of the cervix with a Hegar cervical dilator (up to 9 mm) is performed. In most cases, 6- or 9-mm bipolar electrodes are used. Premenopausal women were asked to take desogestrel 30 days prior to the surgery; if the patient was unwilling to take the medication, the procedure was performed during the early follicular phase. Cervical preparation with misoprostol 400mg administered vaginally 4 hours before the procedure was performed in all cases (Figure 1).

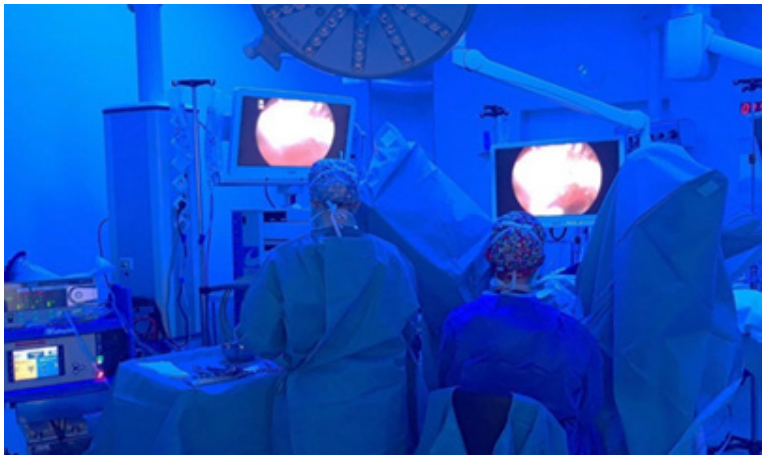

Figure 1: Inpatient hysteroscopy setting.

Outpatient hysteroscopy

For in-office procedures, several 5 mm devices are used. Cervical preparation is used only in selected cases that present difficult cervix passage. Endometrial preparation is managed in the same way as done in the inpatient setting. Thirty minutes before the procedure, a pain-killer and an anxiolytic are dispensed. Para-cervical anesthesia is administered in selected cases with poor pain tolerance.

Results

A total of 186 inpatient hysteroscopy procedures were performed at our hospital during the study period. All demographic and clinically relevant data are summarized in Table 1.

Table 2 shows the indications for the 186 inpatient hysteroscopies classified by groups according to the specific indication. As that table shows, the most common indication (58.1% of cases) was related to the clinical diagnosis (group 1): primarily submucous myoma, large endometrial polyps, uterine malformation, and Asherman's syndrome. The second most common indication was secondary anesthesia (group 4, 22.6%) for pain management or stenosis, followed by another gynecological surgery (group 2, 10.1%), and finally primary anesthesia (group 3, 9.1%).

Table 1: Main characteristics of the enrolled patients.

Characteristics	Value
Mean age years +-SD	45.62 ± 12.85
Nulliparous N (%)	70 (37.63)
Menopause N (%)	44 (23.65)

Table 2: Indications for hysteroscopies performed in the operating room.

Group	Indication	N (%)	N (%)	Type
1	Clinical diagnosis	108 (58.1)	127 (68.3)	Surgery in the operating room mandatory
	Myoma	69 (37.1)		
	Polyp	21 (11.3)		
	Asherman syndrome	3 (1.6)		
	Uterine malformation	15 (8.0)		
2	Other gynecological surgery scheduled	19 (10.2)		
3	Primary anesthesia	17 (9.1)	59 (31.7)	Pain management
4	Secondary anesthesia	42 (22.6)		
	Pain	27 (14.5)		
	Stenosis	15 (8.0)		

Discussion

During the three-year study period, a total of 186 patients underwent inpatient hysteroscopy at our institution. The most common indications for inpatient surgery were the clinical condition (58.1%), secondary anesthesia (22.6%), another surgical procedure scheduled (laparoscopy or laparotomy) (10.2%), and primary anesthesia (9.1%). As the table shows, in most cases (68.3%), the operating room was considered the most appropriate setting for the hysteroscopy due to the patient's clinical condition or because another gynecological surgery was planned (together with the hysteroscopy). However, in the remaining 31.7% cases, the hysteroscopy was performed in the operating room for pain management purposes (primary or secondary anesthesia). These findings suggest that it may be possible to further increase the proportion of patients who undergo office hysteroscopy by targeting the variables (i.e., anesthesia) amenable to change.

As our results show, pain management (primary or secondary general anesthesia) accounted for nearly one-third of the 186 patients treated in the operating room. This finding suggests that a better pain management policy for in-office hysteroscopy could potentially reduce the need to perform nearly one third of the hysteroscopies currently performed in the operating room. The proportion of patients requesting general or loco regional anesthesia, which is available only in the operating room in our setting, could be reduced by providing other pain management strategies to patients in the office procedure. As Schneider et al. observed, several different pain management strategies can be used in the office setting for hysteroscopy explorations, including nitrous oxide, sedation, and even general anesthesia in selected cases [9].

Advantages of office hysteroscopy

Office hysteroscopy for women with benign intracavitary dysfunction give many safety advantages associated with outpatient, office-based procedures [1]. The World Health Organization (WHO) estimates that approximately one in 10 hospitalized patients will suffer an adverse event or injury related to medical management. In this regard, office-based hysteroscopy, which does not require

the use of an operating room, hospital admission, or general or loco regional anesthesia, is consider a safer approach to treat benign disorders [1]. Moreover, the increase of patients treated on an outpatient setting, would reduce surgical waiting lists, thus benefitting other patients and the health care system as a whole.

Although adding anesthetic procedures in the Outpatient Hysteroscopy Unit might slightly increase the total cost of the procedure, overall costs for the institution and the health care system would likely be reduced by avoiding the need to perform most of these procedures in the operating room [5,10-12]. Thus, in-office procedures are more cost-effective.

Expanding the pain management options available in office hysteroscopy

Some international guidelines recommend office hysteroscopies be performed without general (i.e., neuroleptanalgesia or conscious sedation) or regional anesthesia [13,14], as patients do not generally perceive any significant pain during office hysteroscopy. However, if the procedure is unsuccessful, or if there is significant pain without anesthesia, then local, regional, or general anesthesia should be considered.

Sedation is widely administered in other endoscopic procedures, such as colonoscopy and gastroscopy, either by the surgeon or the anesthesiologist. Importantly, sedation is considered to be a safe and feasible type of anesthesia for endoscopic procedures [10]. Given the proven success and safety of sedation in other endoscopic procedures, a similar approach could be used in gynecology, allowing physicians to offer sedation to selected patients who might otherwise be treated in the operating room.

Study strengths and limitations

The main limitation of this study is that our results are only extrapolatable to centers that have a similar organization, especially with regard to pain management strategies for hysteroscopy. Another limitation is the retrospective study design.

The main strength of this study is that it is, to our knowledge, the first study to specifically evaluate indications for inpatient hysteroscopies in order to identify strategies to increase the percentage of patients who undergo office hysteroscopy.

Conclusion

In this patient series, most inpatient hysteroscopies were performed on an inpatient basis in the operating room due to the clinical diagnosis or the need to perform another gynecological procedure. However, nearly one-third of inpatient hysteroscopies were performed in the operating room to ensure adequate pain control. These findings suggest the number of inpatient hysteroscopies could be reduced by offering the patients a wider range of pain management strategies in the office setting.

These findings are relevant to other hospitals and suggest ways to increase the proportion of patients who undergo office hysteroscopy. This would, in turn, improve clinical outcomes, reduce surgical waiting lists, and lower the overall costs of managing common benign intrauterine conditions.

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Conflict of Interest

JET reports receiving personal fees from Gedeon Richter and Bayer, outside the submitted work. The other authors declare no conflicts of interest.

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