


# Comparative Evaluation of Vaginoscopic vs Traditional Hysteroscopy

Neena Gupta<sup>1</sup>, Uruj Jahan<sup>2</sup>, Anuradha Yadav<sup>3</sup>, Rashmi Kumari<sup>4</sup> 

## ABSTRACT

**Aim:** A randomized case–control study was performed to compare the traditional using a speculum vs vaginoscopic hysteroscopy in terms of pain score and procedure time.

**Materials and methods:** A total of 100 patients aged 20 to 60 years old, including nulliparous, multiparous, and postmenopausal, were randomized in two groups: group A undergoing traditional hysteroscopy with speculum and vulselum (50 patients) and group B undergoing “no-touch” vaginoscopic hysteroscopy.

**Results:** Vaginoscopy was significantly more successful than the traditional hysteroscopy. The total pain was calculated for each group, it was significantly lower in the vaginoscopic technique ( $p = 0.026$ ). The mean time was 5.71 for traditional hysteroscopy and 4.44 for vaginoscopic hysteroscopy. The time taken to perform hysteroscopy was significantly shorter with vaginoscopic hysteroscopy. There was no difference in failure rates.

**Conclusion:** The vaginoscopic approach is better tolerated, quicker to perform, less painful, and therefore, more successful than the traditional hysteroscopy using the speculum. It should be preferred in an outpatient setting.

**Keywords:** Hysteroscopy, Outpatient, Pain score, Procedure time, Traditional, Vaginoscopic.

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## INTRODUCTION

Hysteroscopy word is derived from Latin word “haustera,” i.e., womb. In the present scenario, hysteroscopy has become the gold standard while evaluating the vagina, cervix, cervical canal, and uterine cavity. It is the process of viewing and operating in the endometrial cavity from a transcervical approach, offering the advantage of direct visualization of the uterine cavity while giving the option of collecting histological biopsy samples under visual control. Ambulatory hysteroscopy is a safe, feasible, and accurate procedure for diagnosing intrauterine pathology<sup>1</sup> and treating many intrauterine, endocervical problems. It can be used for the evaluation of the uterine cavity in cases of abnormal uterine bleeding (AUB), infertility, and recurrent pregnancy loss. Diagnostic hysteroscopy was then performed using two different techniques:

- Traditional technique: A Sims speculum was inserted into the vagina to visualize the cervix, and a vulselum was then applied to the anterior lip of uterine cervix to create countertraction to facilitate the insertion of the hysteroscope.
- No-touch technique: Also known as vaginoscopy is an alternative technique where hysteroscope is first introduced into the introitus of the vagina and avoids the use of the speculum<sup>2</sup> and a tenaculum to grasp or steady the cervix.<sup>3</sup> The vagina is then distended with the saline distention medium and hysteroscope directed toward the cervix, the cervical canal, and then into the uterine cavity. This study tries to evaluate the role of hysteroscopy as a diagnostic tool in women with different gynecological problems and compare the two approaches of hysteroscopy—traditional and vaginoscopic.

<sup>1–4</sup>Department of Obstetrics and Gynecology, GSVM Medical College, Kanpur, Uttar Pradesh, India

**Corresponding Author:** Rashmi Kumari, Department of Obstetrics and Gynecology, GSVM Medical College, Kanpur, Uttar Pradesh, India, Phone: +91 09076568314, e-mail: insh6142@gmail.com

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## AIMS AND OBJECTIVES

To compare vaginoscopic hysteroscopy and traditional hysteroscopy in terms of the following:

- Comparative evaluation of pain during an intraoperative period in both procedures.
- An intraoperative complication in both studies (cervical lip tearing, bleeding, and uterine perforation)
- Evaluation of procedure time in both procedures.
- Comparative evaluation of the success of the procedure in both studies.
- Evaluation of causes of the failure in both procedures.

## MATERIALS AND METHODS

This randomized case–control study was carried out in the Obstetrics and Gynecology Department in the GSVM Medical College, Kanpur, during a study period from December 2017 to

May 2019. The study included 100 women aged 20 to 60 years old including nulliparous, multiparous, and postmenopausal. These 100 women were randomly allocated into two groups. Group A had 50 women who had undergone traditional hysteroscopy and group B had 50 women who had undergone vaginoscopic hysteroscopy. Few patients were lost to follow-up. Eventually, 44 patients were included in group A and 42 patients in group B (Fig. 1).

**Selection of Cases**

- All patients of infertility.
- Dysfunctional uterine bleeding (DUB).
- Postmenopausal bleeding.
- Other gynecological complaints in which hysteroscopy indicated.

**Exclusion Criteria**

- Pregnant women.
- Cancer of the cervix.
- Active infection of the genital tract.
- Cardiovascular disease.
- Severe obstructive airway disease.
- Acute generalized peritonitis.
- Blood dyscrasias and coagulopathy.

A thorough history was taken which included menstrual history, obstetrical history, and medical history, including any history of diabetes, hypertension, and cardiovascular disease. Personal history regarding smoking and alcohol intake was taken.

General examination and systemic examination were done. Basic routine blood investigations were done. Transabdominal ultrasound and transvaginal sonography were done where indicated.

A simple hysteroscope with a telescope of rigid 4 mm diameter was used. The timing of the examination was during the proliferative phase of the menstrual cycle. The insertion of hysteroscope through cervical canal was done under direct vision and in vaginocopy without cervical dilatation or passage of sound as a tight cervix acts as a good seal to prevent leakage of the distending media and allow examination of the cervical canal and inspection of undamaged endometrium. Pain score (according to Wong–Baker Faces pain rating scale), procedure time, and complications were noted.

**RESULTS**

The flow of patients and their allocation through the study is shown in Figure 1. Patient characteristics and demography are shown in Table 1. No significant differences in age, parity,

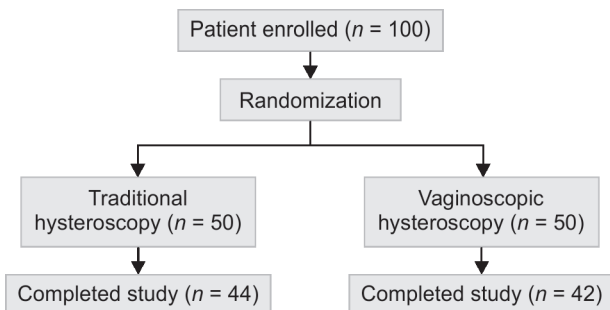


Fig. 1: Study design and patient randomization

and socioeconomic status between patients of groups A and B were observed.

Data on pain score at various stages are shown in Table 2. Analysis showed that the *p* value was 0.026, i.e., a significant difference was found in the pain score. A maximum number of patients (68%) perceived the pain of grade 4 during the grasping of the cervix with vulselum during the traditional hysteroscopy. In vaginoscopic hysteroscopy as there is direct introduction of hysteroscope, pain is perceived only in two steps.

No-touch vaginoscopic hysteroscopy was quicker to perform. Time required in the procedures is summarized in Table 3. In the diagnostic study during vaginoscopic procedure, 32 patients (76.19%) had completed their procedure in between 3 and 5 minutes. In traditional hysteroscopy, procedure time is 5 to 7 minutes in 34 patients (77.27%).

No major side effects were recorded during the procedure performed in any of the groups. The procedure failed in few patients, the most common cause being cervical stenosis.

Table 1: Comparative evaluation of demographic distribution of patients

	Group A (Traditional) N = 44		Group B (Vaginoscopic) N = 42	
<b>Age (years)</b>				
<20	00	0	0	0
20–29	10	22.7%	08	42.8%
30–39	17	38.6%	14	33%
40–49	09	20.4%	10	23.8%
>50	08	18.1%	10	23.8%
<b>Parity</b>				
Nulliparous	7	15.9%	08	19%
Multiparous	21	47.7%	24	57.1%
Postmenopausal	16	36.3%	10	23.8%
<b>Socioeconomic status</b>				
Low	25	56.8%	24	57.1%
Middle	14	31.8%	12	28.5%
Upper	05	11.3%	06	14.2%
<b>Habitat</b>				
Rural	24	54.5%	22	52.3%
Urban	20	45.4%	20	47.6%

Table 2: Evaluation of pain

		Mean	SD	<i>p</i>
1	During speculum placement	Group A 0.186	0.5878	
2	Cervix grasping with vulselum	Group A 2.46	1.0544	
3	Cervical dilatation	Group A 3.44	6.4339	
4	Introduction of hysteroscope	Group A 3.02	1.3360	0.026
		Group B 2.00	0.8944	
5	During hysteroscopy	Group A 2.51	1.1623	
		Group B 1.9	0.8889	
	Postoperative pain	Group A 1.76	0.8954	
		Group B 1.71	0.9975	

Table 3: Comparative evaluation of procedure time in each group

	Mean	SD	Difference	95% CI	<i>p</i> value
1 Group A	5.71	1.209	–1.270	–1.7567 to	<0.0001
2 Group B	4.44	1.050		–0.7833	

**DISCUSSION**

In both groups A and B, a maximum number of patients were in the age-group 30 to 39 years, followed by those in age-group 40 to 49 years. The results are comparable to results in the study which found that the most common age affected with AUB was 31 to 40 years (56%). Menorrhagia (36%) is the most common bleeding pattern. The most common pathology was proliferative endometrium (36%), followed by polyp (10%), secretory (8%), and hyperplastic (6%).<sup>4</sup>

Most of the patients were multiparous (64%), followed by postmenopausal women (30%) and nulliparous women (16%). AUB was seen more in multiparous women (64.8%).<sup>5</sup> Fibroid uterus being the commonest cause comprising 52.7%, 41.2% had DUB and 1.3% uterine malignancy.

Women were asked to rate their degree of pain during the four phases of the procedure: introduction of speculum or hysteroscope. Comparison between corresponding phases of the procedure showed the only significant difference during introduction into the vagina.<sup>6</sup> In our study during traditional hysteroscopy, 68% of patients perceived pain of grade 4 during grasping of the cervix

by vulselum. During cervical dilatation, 22% perceive the pain of grade 4, followed by 4.5% of patients who perceive the pain of grade 6 (Figs 2 and 3).

Pain continues to represent the main limiting factor to a large-scale use of office hysteroscopy.<sup>7</sup> However, although a reduction in pain is clearly advantageous in the outpatient procedures to optimize acceptability to patients, the review does not demonstrate any improvement in procedural feasibility (i.e., the successful completion of hysteroscopy) as a consequence of minimizing discomfort. Vaginoscopic approach to outpatient hysteroscopy is successful and significantly reduces pain experienced<sup>8</sup> (Fig. 4).

Bettocchi and Selvaggi<sup>9,10</sup> reported their experience with more than 11,000 hysteroscopic procedures performed using the vaginoscopic technique, eliminating the use of a speculum and a tenaculum. They found that as many as 99.1% of the patients reported no discomfort related to the procedure. The mean pain score was significantly lower in the group without the use of speculum.<sup>11</sup>

In vaginoscopic hysteroscopy, there is a direct introduction of hysteroscope in the cervix through the vagina. Pain is perceived only during two steps. During introduction, 59% of patients have the pain of grade 2 and 9% have the pain of grade 4 followed by four women of grade 6. During the postoperative period in group A, 72.72% of patients have the pain of grade 2 followed by 11.36% of patients of grade 4. In group B during vaginoscopic hysteroscopy, 65.98% of patients have the pain of grade 2 followed by 7.1% of patients of grade 4. In our study, pain perception was statistically significantly lower in patients who underwent vaginoscopic hysteroscopy.

Technical modifications, especially reduction of the hysteroscope caliber, a rare need for anesthetics and introduction of vaginoscopy, have improved both tolerance and efficacy in retrospective studies and in randomized prospective trials.<sup>12-14</sup> Studies also show that saline is better tolerated than carbon dioxide and does not impair visual quality.<sup>12,15</sup>

In the study by Guida et al.,<sup>6</sup> the results were similar to that in our study, during vaginoscopic procedure, 32 patients (76.19%) had completed their procedure in between 3 and 5 minutes. Rest of the 10 patients (22.72%) completed in 5 and 7 minutes. In traditional hysteroscopy, procedure time is 5 to 7 minutes in 34

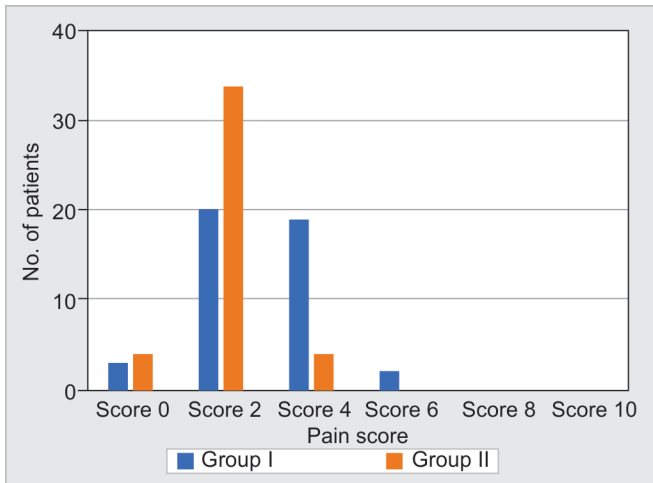


Fig. 2: Pain score distribution during the introduction of hysteroscope

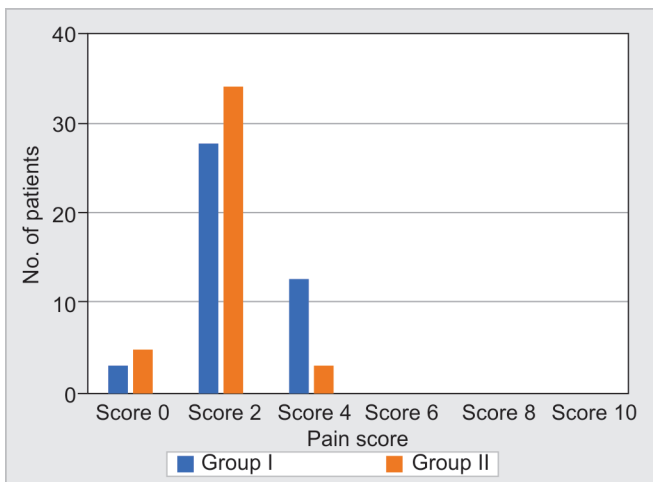


Fig. 3: Pain score distribution during the procedure of hysteroscopy

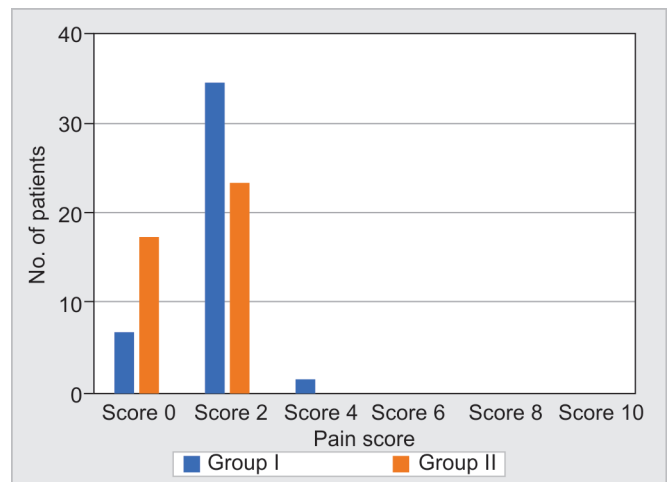


Fig. 4: Comparison of postoperative pain in both the groups

**Table 4:** Intraoperative complications in each group

Complication	Group A (Traditional) N = 44		Group B (Vaginoscopic) N = 42	
	N	%	N	%
1 No complication	43	97.72%	41	97.61%
2 Anesthesia-related				
a. Apnea	—	—	—	—
b. Tachycardia	1	2.27%	—	—
c. Bradycardia	—	—	1	2.38%
3 Distention media				
a. Complication	—	—	—	—
b. CO <sub>2</sub> embolism	—	—	—	—
4 Fluid overload	—	—	—	—
Uterine perforation	—	—	—	—

**Table 5:** Causes of failure

Causes	Group A (Traditional)		Group B (Vaginoscopic)	
	N	%	N	%
1 Cervical stenosis	2	4%	5	10%
2 Cervix high-up	2	4%	1	2%
3 Acutely anteverted or retroverted uterus	1	2%	2	4%
4 Bleeding	1	2%	Nil	0%

patients (77.27%). Rest of the 10 patients (22.72%) completed in 3 and 5 minutes. There is a significant difference in procedure time  $p < 0.05$  during diagnostic hysteroscopy in both the procedures.

Those who underwent “no-touch hysteroscopy” had the lowest requirement of local anesthetic. Also the time taken was significantly shorter with “no-touch” hysteroscopy.<sup>16</sup> A study goes on to conclude that the traditional approach should only be used when vaginoscopy fails or when the need for cervical dilatation is anticipated.<sup>17</sup>

In the study, the percentage of complications is rarely seen. Only one patient (2.27%) had experienced tachycardia during traditional hysteroscopy. While one (2.38%) had bradycardia during vaginoscopic hysteroscopy. Complications of this standard procedure are relatively rare<sup>18</sup> (Table 4).

There was no significant difference in the number of failed procedures between the vaginoscopic and traditional approaches to hysteroscopy. The most common cause of failure of vaginoscopic hysteroscopy is cervical stenosis in five patients<sup>19</sup> (Table 5). In traditional hysteroscopy, causes of failure of procedure are cervical stenosis in two patients (4%) and cervix high-up in two patients (4%), followed by acutely anteverted or retroverted uterus (2%) and bleeding (2%).

With the transvaginal approach, operative hysteroscopy is possible right after or even at the same time as the diagnostic examination, without anesthesia. This would require a surgical hysteroscope, an experienced operator, a cooperative patient, and limited disease. Outpatient hysteroscopy is easy to perform, takes less time, and is cost-efficient, making it a convenient office procedure using local anesthesia.<sup>20</sup>

## CONCLUSION

The study provides evidence that vaginoscopy is more successful than the traditional hysteroscopy as it is quicker to perform and is associated with less pain and low procedure failure. The use

of hysteroscope has eliminated the use of any premedication rendering the procedure faster and less associated complication rate. Narrower hysteroscopes reduce pain while giving a satisfactory view of the endometrial cavity with lower failure rates.

## ORCID

Rashmi Kumari  <https://orcid.org/0000-0001-7844-374X>

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