ORIGINAL ARTICLE

Hysteroscopy, an Essential Adjunct to Laparoscopy, in Evaluation of Women with Chronic Pelvic Pain

Vinita Sarbhai[1], Preeti[2]

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Abstract

Introduction: Chronic pelvic pain (CPP) is a significant contributor to morbidity in women, accounting for 10–20% of all visits to gynecology outpatient department (OPD). Evaluating CPP remains a challenge due to its broad and multifactorial etiology. While laparoscopy is considered the gold standard for diagnosing CPP, it may overlook intrauterine causes. Hysteroscopy, on the other hand, provides an internal view for diagnosing intrauterine pathologies.

Aim and objectives: This study aims to assess the role of hysteroscopy as a complementary procedure with laparoscopy in the evaluation of women with CPP.

Materials and methods: This study was conducted at the Department of Obstetrics and Gynaecology in Kasturba Hospital, New Delhi, India. From January 2017 to March 2020, 50 women with CPP lasting more than six months underwent hysteroscopy in conjunction with laparoscopy. They were assessed for the causes of CPP and potential treatment options.

Results: Hysteroscopy identified abnormalities in 24 (48%) of the patients. Among them, 9 (18%) had intrauterine adhesions, 6 (12%) had a partial septum, 4 (8%) had internal os stenosis, 4 (8%) had fibroids, 3 (6%) had polyps, and 2 (4%) had chronic pelvic inflammatory disease (PID) (with overlapping findings). These pathologies went undetected during laparoscopy. However, laparoscopy successfully diagnosed other intra-abdominal causes of CPP, including adhesions in 34%, endometriosis in 28%, chronic PID in 24%, fibroids in 12%, genital/abdominal Koch's in 6%, dermoid cysts, and other ovarian cysts in 4% each, and paraovarian cysts in 2%. In the same procedure, concurrent therapeutic interventions such as adhesiolysis (18%), cervical dilatation (8%), septal resection (6%), and polypectomy (4%) were performed using an operative hysteroscope.

Conclusion: Hysteroscopy proved effective in identifying various intrauterine causes of CPP. It serves as a valuable adjunct to laparoscopy for diagnosing conditions affecting the cervix and uterine cavity, which can often coexist with the underlying causes of CPP.

Keywords: Chronic pelvic pain, Diagnostic laparoscopy, Hysterectomy, Hysterolaparoscopy, Hysteroscopy, Laparoscopic surgery, Polyp, Uterine abnormality.

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Introduction

Chronic pelvic pain (CPP) is a significant source of morbidity among women, especially in the reproductive age-group. The American College of Obstetricians and Gynecologists (ACOG) defines CPP as noncyclical pain in the pelvic region, severe enough to require medical attention, and located below the umbilicus. This pain can manifest in the anterior abdominal wall, lumbosacral back, or buttocks, and last for a minimum of six months.[1] Also, CPP is associated with a reduced quality of life, fatigue, depression, anxiety, and marital and sexual dysfunction.[2] It accounts for 10–20% of all visits to gynecology outpatient department (OPD).[3]

Evaluating CPP remains challenging due to its wide and multifactorial etiology. Common gynecological pathologies that may present with CPP include endometriosis, adenomyosis, ovarian cysts, pelvic inflammatory disease (PID), polyps, adhesions, fibroids, genital tuberculosis, pelvic congestion, paraovarian masses, and hydrosalpinx, among others. While laparoscopy is considered the gold standard for diagnosing CPP, it may not always detect intrauterine causes like polyps and adhesions.

Hysteroscopy enables direct visualization of the uterus and can uncover various abnormalities such as polyps, leiomyomas [the International Federation of Gynecology and Obstetrics (FIGO class 0–3], uterine adhesions, a stenotic cervix, and abnormal uterine formations, all of which can be underlying causes of CPP. These findings are often overlooked during transvaginal sonography (TVS) and laparoscopy. Moreover, hysteroscopy offers the possibility of obtaining histological specimens and, in some cases, provides a means to treat the underlying cause. Due to the limited available data on the utility of hysteroscopy as a diagnostic tool for CPP, this study was conducted to assess its role as a complementary modality alongside laparoscopy in the evaluation of women suffering from CPP.

[1]Department of Gynaecology and Obstetrics, Kasturba Hospital, New Delhi, India

[2]Department of Gynaecology and Obstetrics, Lok Nayak Hospital, New Delhi, India

Corresponding Author: Vinita Sarbhai, Department of Gynaecology and Obstetrics, Kasturba Hospital, New Delhi, India, Phone: +91 9810359546, e-mail: vinitasarbhai@gmail.com

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Table 1: Diagnosis on the basis of laparoscopic findings*

Diagnosis	*Frequency*	*Percentage*	*Operation performed*
Adhesions	17	34	Adhesiolysis (34%)
Endometriosis	14	28	Ablation of endometriotic spots with cystectomy (22%)
Chronic PID	12	24	Drainage of pyosalpinx
Fibroid	6	12	Nil
Koch's pathology	3	6	Antitubercular treatment (ATT) started
Dermoid cyst	2	4	Cystectomy (4%)
Ovarian cyst	2	4	Cystectomy (4%)
Paraovarian cyst	1	2	Cystectomy (2%)
No cause	13	26	Nil

*With overlapping pathologies

Materials and Methods

This study was carried out at the Department of Obstetrics and Gynaecology in Kasturba Hospital, New Delhi, India after approval from the Institutional Ethics Committee. We enrolled 50 women who presented with CPP lasting more than six months, between January 2017 and March 2020.

We meticulously documented the clinical symptoms, presentations, and pelvic examination findings of these patients. Subsequently, these patients underwent hysteroscopy in conjunction with laparoscopy after undergoing detailed Transvaginal ultrasonography. We recorded the operative findings during hysteroscopy and laparoscopy, as well as the follow-up data.

Results

The mean age of the 50 patients presenting with CPP was 28.18 years. The majority of them reported experiencing dull aching pain (74%). Infertility was the most frequently associated complaint, observed in 46% of cases. Other accompanying complaints included menstrual disorders (30%), vaginal discharge (28%), dyspareunia (22%), and dysmenorrhea (28%). Ultrasonography was performed on all of the patients, revealing anatomical factors in the uterus that could lead to CPP in 11 individuals (22%). Among them, 8 (16%) had fibroids, and 1 (2%) had polyps. Additionally, 2 (4%) patients displayed congenital uterine abnormalities on TVS, with 1 having a partial septum and the other having an arcuate uterus. Regarding tubal or ovarian factors, 15 patients (30%) exhibited ovarian cysts, 3 (6%) had hydrosalpinx, and 4 (8%) had tubo-ovarian masses detected through ultrasound.

Laparoscopy successfully diagnosed the intra-abdominal causes of CPP, including adhesions in 34%, endometriosis in 28%, chronic PID in 24%, fibroids in 12%, genital/abdominal Koch's in 6%, dermoid cysts, and other ovarian cysts in 4% each, and paraovarian cysts in 2% (Table 1).

On hysteroscopy, intrauterine adhesions were seen in 9 (18%) patients, fibroids in 4 (8%) patients, internal os stenosis in 4 (8%) cases, polyps in 3 (6%) patients, and bilateral ostia were not visualized in 6 (12%), Atrophic epithelium in 3 (6%) and hyperplastic epithelium in 2 (4%) patients. Congenital malformations of the uterus were seen in 7 (14%) patients among whom 6 (12%) presented with partial septum and 1 (2%) had an arcuate uterus. Endometrial curettage was performed for patients with hyperplastic epithelium.

Table 2: Provisional diagnosis and treatment imparted on hysteroscopy*

Diagnosis	*Frequency*	*Percentage*	*Operation*
Intrauterine adhesions	9	18	Adhesiolysis (9)
Partial septum	6	12	Resection of septum (3)
Internal os stenosis	4	8	Sharp dissection (4)
Fibroid	4	8	No intervention (4)
Polyp	3	6	Polypectomy (2)
Chronic PID	2	4	No intervention (2)
No cause	26	52	No intervention (26)

*Many findings were overlapping

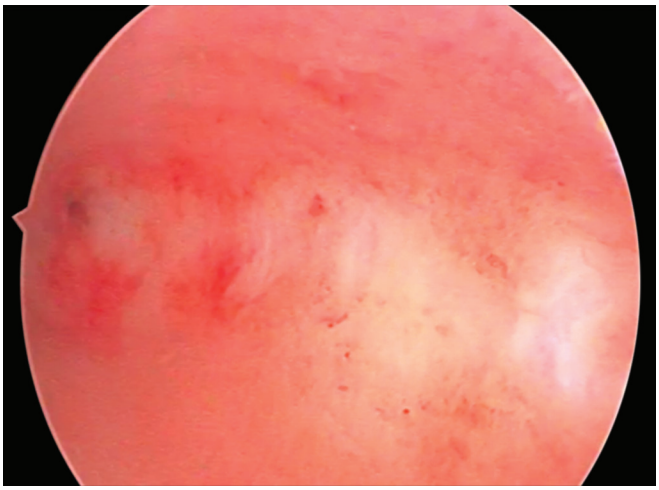

Fig. 1: Cornual phimosis with fundal adhesions

Inflammatory cells in the endometrium were indicative of chronic PID in 4% of patients. No pathology was detected in 52% of patients. (Table 2).

Intrauterine adhesions were observed in nine cases (18%). Among these, fine-thin adhesions were found in five patients, while four patients had dense adhesions. Notably, one patient with dense adhesions had previously undergone a hysteroscopic myomectomy. Out of the nine patients with intrauterine adhesions, two had a tubular cavity due to the presence of dense adhesions. Internal os stenosis was identified by the difficulty in introducing the hysteroscope due to adhesions and was encountered in four patients.

These adhesions also caused the obliteration of the ostia (Fig. 1). In six patients (12%), bilateral ostia could not be visualized. Among them, four patients (8%) had fibrosed ostia with adhesions covering them, and two patients had ostia that couldn't be visualized due to a partial septum.

Adhesiolysis was performed in all these patients using sharp dissections with hysteroscopic scissors until the pinkish underlying endometrium, which bleeds, was reached (Fig. 2). In one patient, an intrauterine Foley catheter was kept in place for four days. All patients received estrogen therapy.

Partial septum was observed in six patients (12%), protruding from the fundus (Fig. 3). Among them, three patients had septa measuring around 3 cm, and three patients had small septa (<2 cm) protruding from the fundus. One patient had an arcuate uterus,

which was identified by an indentation of the fundus. Resection of the partial septum was performed in 3 patients (6%) with septa larger than 3 cm, while it was not carried out in women with small septa measuring less than 2 cm.

Uterine polyps were detected in three patients (6%). One small polyp, measuring 1 cm, was found near the posterior cornua in one patient, and fundal polyps (2 cm) were observed in two patients. Polypectomy was performed in two patients with larger polyps.

Fibroids, which presented as firm bulges protruding into the cavity, were identified in four patients (8%). Endometrial curettage was performed in 4% of patients with hyperplastic endometrium, and the samples were sent for histopathological examination. The reports confirmed the presence of inflammation. Fortunately, none of the patients experienced any complications during hysteroscopy or operative procedures.

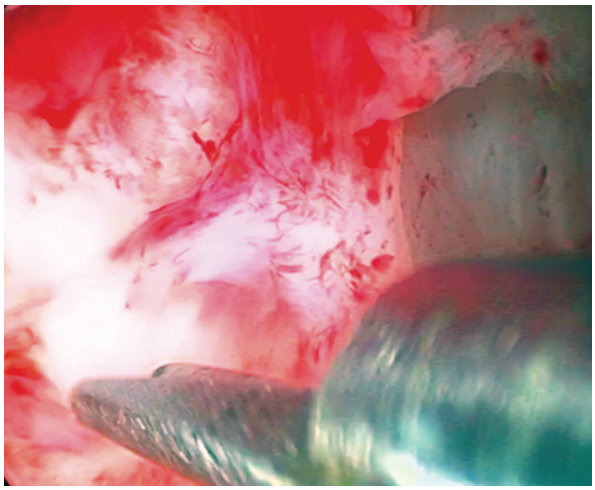

Fig 2: Adhesiolysis of intrauterine adhesions

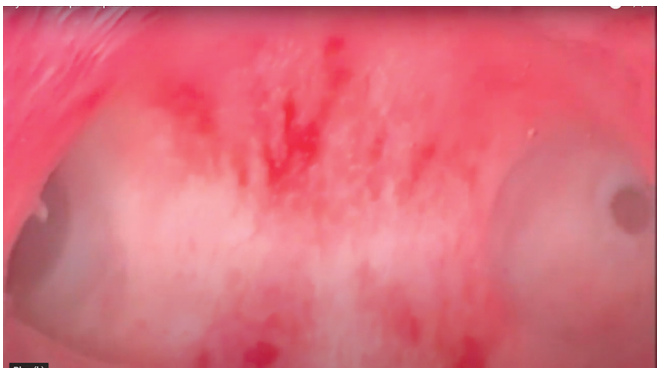

Fig. 3: Partial septum in uterine cavity

Discussion

Chronic pelvic pain is a major contributor to morbidity among women, significantly affecting their well-being and causing distress and disability. Identifying the precise cause of CPP is crucial to prevent patients from undergoing unnecessary treatments and enduring endless referrals. While laparoscopy is a standard part of the protocol for evaluating CPP, hysteroscopy is often overlooked. Intrauterine pathologies, such as polyps, mullerian anomalies, submucous fibroids, and intrauterine adhesions, can be challenging to diagnose using TVS and laparoscopy, leading to their frequent omission.

In the present study, hysteroscopy revealed various pathologies in patients with CPP. Intrauterine adhesions were the most common, seen in 18% of patients, followed by fibroids in 8%, internal os stenosis in another 8%, polyps in 6%, the absence of bilateral ostia visualization in 12%, atrophic epithelium in 6%, and hyperplastic epithelium in 4% of patients. Additionally, congenital uterine malformations were identified in 14% of patients, with 12% having a partial septum and 2% having an arcuate uterus. Hysteroscopy successfully identified pathologies that were missed during TVS, including internal os stenosis, polyps, mullerian anomalies, bilateral ostial block, atrophic epithelium, and intrauterine adhesions. Furthermore, it revealed cases with overlapping pathologies that were not detected by laparoscopy or TVS (Table 3).

The findings in our study closely parallel those of Boruah S and Phukan P,[4] where out of 61 patients, 15% had polyps, 12% had fibroids, 10% had intrauterine adhesions, 7% had atrophic endometrium, 19% had adenomyosis, and 8% had uterine malformations. Their study concluded that hysteroscopy plays a significant role in identifying the causes of CPP.

Table 3: Comparison of clinical, TVS, and final diagnosis

Diagnosis	*TVS*	*Hysteroscopy*	*Laparoscopy*	*Final diagnosis on hysterolaparoscopy*
Adhesions	0	9 (18%)	17 (34%)	17 (34%)
Endometriosis	6 (12%)	0	14 (28%)	14 (28%)
Chronic PID	7 (14%)	2 (4%)	12 (24%)	12 (24%)
Fibroid	8 (16%)	4 (8%)	6 (12%)	9 (18%)
Koch's pathology	0	0	3 (6%)	3 (6%)
Polyp	1 (2%)	3 (6%)	0	3 (6%)
Internal os stenosis	0	4 (2%)	0	4 (8%)
Dermoid cyst	2 (4%)	0	2 (4%)	2 (4%)
Ovarian cyst	10 (20%)	0	2 (4%)	2 (4%)
Paraovarian cyst	0%	0	1(2%)	1 (2%)
No cause	18 (36%)	26 (52%)	13 (26%)	11 (22%)

Similar results were observed in a study by Carter JE,[5] which documented abnormal findings during hysterolaparoscopy in 140 patients. In this study, fibroids were seen in 18% of patients, intrauterine polyps in 6.4%, cervical stenosis in 2.9%, intrauterine scarring in 2.1%, and a bicornuate uterus in 0.7%. Combining hysterolaparoscopy helped identify overlapping pathologies contributing to CPP, such as endometriosis and adhesions in 13%, endometriosis and fibroid in 15%, and fibroid and adhesions in 3%. Therefore, combined hysterolaparoscopy offers significant advantages over laparoscopy alone in identifying the causes of pelvic pain. The study also highlighted the role of submucous leiomyomas and polyps (24.4%) in causing chronic pain by distorting the endometrial cavity chronically. Consequently, the conclusion was that hysteroscopy should be routinely performed in women with CPP, as abnormalities are present in 30% of these patients.

Similar findings were observed in a study conducted by Dias BHM et al.,[6] where out of 191 patients, 51.8% were diagnosed with some form of pathology during hysteroscopy. Among them, 23% had cervical stenosis, 15% had polyps, 12% had submucosal fibroids, 10% had intrauterine adhesions, 8% had mullerian anomalies, and 7% had atrophic endometrium. In total, pathologies were identified in 51.83% of the patients during hysteroscopy. The study highlighted that cervical stenosis is a significant contributor to CPP and has a strong association with endometriosis and/or PID. Cervical stenosis can lead to retrograde menstrual flow through the fallopian tubes, particularly when it's present. The narrowing of the cervical canal restricts the outflow of menstrual blood during the shedding of the epithelium, leading to blood accumulation in the cavity. This, combined with menstrual cramps, can result in the reflux of material into the abdominal cavity. Cervical stenosis was observed in 4 patients in our present study.

In our study, hysteroscopy revealed fibroids in four patients (8%) and polyps in three patients (6%). Both fibroids and polyps can induce pain by chronically distorting the endometrial cavity. Large polyps and submucosal myomas, in particular, may cause pain, especially when the uterus attempts to expel them through contractions.

The presence of endometrial hyperplasia with micropolyp formation is suggestive of chronic PID, which is a major contributor to CPP in our country. Endometrial sampling can be sent for acid-fast bacilli (AFB) testing and cytology, allowing for the exclusion of tuberculosis-related pathology and endometrial cancer

Atrophic endometrium can suggest damage resulting from chronic PID or repeated dilatation and curettage (D&C) procedures. Intrauterine adhesions may indicate chronic PID, tuberculosis, the aftermath of D&C, or previous surgical interventions. These adhesions can lead to the distortion of the uterine cavity, contributing to CPP.

Although a partial septum itself may not directly cause CPP, its presence can become relevant when associated with endometriosis. Nawroth et al.[7] reported a significantly higher incidence of endometriosis in patients with a septate uterus, suggesting that in such cases, a combined hysteroscopy and laparoscopy should be considered. Further, larger studies could confirm this association, potentially supporting surgical intervention for CPP. In clinical practice, hysteroscopic resection of the uterine septum (even without laparoscopic endometriosis treatment) often leads to a significant improvement or complete resolution of severe dysmenorrhea.

Hysteroscopy proved invaluable in our study by detecting pathologies that were missed by TVS or laparoscopy. Internal os stenosis, a significant cause of CPP, remained entirely undetected by TVS or laparoscopy. Additionally, polyps, mullerian anomalies, bilateral ostial block, atrophic epithelium, and intrauterine adhesions were all overlooked during TVS or laparoscopy.

Another significant advantage of hysteroscopy is its capability to directly sample and treat abnormalities, enabling early diagnosis and simultaneous intervention. In our study involving 50 patients, a substantial portion (74%) did not require any operative intervention during hysteroscopy. However, some patients required multiple procedures due to overlapping findings. The most common procedure performed was adhesiolysis in seven patients (14%), followed by cervical os dilation in four patients (8%). Polypectomy was conducted in 2 patients with polyps measuring 2 cm in size.

In the present study, resection of the partial septum was performed in three patients (6%), while an impressive 74% of patients did not require any operative intervention during hysteroscopy. Some patients needed more than one procedure due to overlapping findings, and importantly, no complications or perforations were noted.

Conducting interventions simultaneously during hysteroscopy leads to reduced morbidity, increased patient satisfaction, and an improved quality of life. Hysteroscopy is not only cost-effective but also carries a low risk of complications when performed by qualified professionals. It provides direct visualization of the uterine cavity, facilitating the detection of abnormalities. As a complementary diagnostic tool for intrauterine pathologies related to CPP, hysteroscopy allows for therapeutic interventions to be performed simultaneously, making it a valuable procedure.

Conclusion

Hysteroscopy proves to be an invaluable complementary methodology in diagnosing intrauterine pathologies associated with CPP. The ability to perform concomitant therapeutic interventions such as adhesiolysis, polypectomy, and septal resection through operative hysteroscopy greatly enhances its utility.

Traditionally, laparoscopy has been the cornerstone for diagnosing CPP. However, based on our findings, we strongly recommend that hysteroscopy be regarded as an extremely useful adjunct to laparoscopy. Combining hysteroscopy and laparoscopy, known as combined hysterolaparoscopy, should be considered the gold standard for the evaluation of CPP, following a comprehensive assessment and screening using TVS.

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