



## Different methods for evaluation of chronic pelvic pain

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**OBJECTIVE(S) :** To find out the correlation between clinical examination, ultrasonography (USG), and laparoscopy, the three modalities commonly used in the evaluation of chronic pelvic pain (CPP).

**METHOD(S) :** One hundred women with pelvic pain of more than 6 months duration attending gynecological outpatient department were included. They were examined clinically and then subjected to transabdominal sonography and laparoscopy. Kappa statistics was used to estimate the extent of agreement between the three modalities.

**RESULTS :** Among the 74 patients with abnormal findings on laparoscopic examination, 53 had abnormal clinical findings and 61 had positive USG findings. Though USG had a higher sensitivity for ovarian cyst, laparoscopy was more predictive for other positive findings. Excluding functional cyst and myomas, no attributable causes could be found in 26 of the 100 cases.

**CONCLUSION(S) :** Diagnostic laparoscopy is a more sensitive method for evaluation of chronic pelvic pain. Combined clinical and USG findings had a negative predictive value of 66.7%.

**Key words :** pelvic pain, clinical examination, ultrasonography, laparoscopy.

### Introduction

Chronic pelvic pain (CPP) is best defined as pain localized to pelvis or lower abdomen below the line joining the two anterior superior iliac spines, and of at least 6 months duration. CPP encompasses a large proportion of gynecologic complaints.

The causes of CPP are often obscure. Patients with CPP are frequently anxious and depressed. Their marital, social and occupational lives are often disrupted. Various forms of CPP affect 12 to 15% of women and about 12% of hysterectomies are performed for pelvic pain<sup>1</sup>. Though a good gynecologist may obtain considerable information by clinical examination alone, it is not conclusive in many patients. Hence there arises a need for imaging the pelvic organs by USG or for direct

visualization of pelvic organs by laparoscopy. We studied the role of USG and diagnostic laparoscopy in evaluation of CPP.

### Methods

The subjects of the present study were patients, attending gynecological outpatient department complaining of CPP. Detailed history was taken including associated symptoms like abnormal vaginal bleeding or discharge, dysmenorrhea, dyspareunia, infertility, enterocolic symptoms, urologic symptoms, and musculoskeletal symptoms. Apart from history taking and clinical examination, routine investigations on blood, urine and stool were done.

By history taking, clinical examination and routine investigations, patients with obvious non-gynecologic etiology like enterocolic, urologic or musculoskeletal causes were excluded. The remaining patients (n=100) were investigated further by transabdominal sonography and diagnostic laparoscopy. The results have been presented as descriptive statistics. Kappa statistics<sup>2</sup> was used to estimate the extent of agreement between the three diagnostic modalities.

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**Results**

Age-wise distribution of the cases was as follows - 32 patients belonged to the age group of 21-30 years, 54 to 31-40 years and 14 to above 40 years. The mean duration of pain was 3.4 years (range – 6 months to 10 years). Duration of symptoms increased significantly with age. Associated complaints included secondary dysmenorrhea (54 cases), menorrhagia (18 cases), and infertility (16 cases). On clinical examination, 47 patients had no palpable pelvic abnormality. Table 1 shows the abnormal clinical findings. Table 2 shows the abnormal USG findings. Adnexal pathology was found in 51 cases, commonest being tubo-ovarian mass (26 cases, including 3 with enlarged ovary) . Table 3 shows, the abnormal laparoscopic findings. Plevic adhesions were detected in 41 cases and ovarian pathology in 36 cases. In 13 cases, pelvic congestion was diagnosed by laparoscopic findings of generalized hyperemia and large dilated pelvic veins on the back of the broad ligament or infundibulo pelvic ligament by laparoscopy.

**Table 1. Clinical examination findings (n=100).**

Structure	Abnormality	Number
Uterus	Enlarged	22
	Retroverted with restricted mobility	25
Fornices	Tender	49
	Thickened	20
	Mass	33
Pouch of Douglas	Nodules	9

**Table 2. Ultrasonographic findings (n=100).**

Structure	Abnromality	Number
Uterus	Enlarged	24
Ovaries	Enlarged (3 had tubo-ovarian mass)	25
	Tubo-ovarian mass	23
Tubes	Hydrosalpinx	8
Pouch of Douglas	Mass	13

**Table 3. Laparoscopic findings (n=100).**

Structure	Abnormality	Number
Uterus	Enlarged	22
Tubes	Hydrosalpinx	12
	Tortuous	24
	Adhesions	41
Ovary	Functional cyst	9
	Chocolate cyst	11
	Polycystic ovary	4
	Tubo-ovarian mass	21
Pouch of Douglas	Adhesions	30
	Excessive straw-colored fluid	19
	Endometriotic nodule	14
	Dilated pelvic veins	13
	Pelvic congestion	13

Table 4 shows, that these 13 cases of pelvic congestion and 18 cases of adhesions were detected only by laparoscopy. Compared to USG, laparoscopy had a greater sensitivity for positive diagnosis, except in cases of ovarian cyst and myoma.

**Table 4. Correlation among clinical, ultrasonographic and laparoscopic diagnosis (n=100).**

Diagnosis	Clinical	Ultrasound	Laparsocopy
Normal	47	39	26
Chronic PID	26	23	30
Adhesions	-	-	18
Endometriosis	10	14	25
Ovarian cyst	8	18	15
Myoma	9	14	13
Pelvic congestion	-	-	13

PID - Pelvic inflammatory disease

Table 5 shows, that among the 74 women having abnormal findings on laparoscopic examination, 53 could be diagnosed by clinical examination and 61 by USG. The sensitivity of clinical examination and of USG to diagnose the etiology of CPP was 71.6% and 82.4% respectively. All 26 women, with normal findings on laparoscopic examination were normal on clinical and USG examination. The negative predictive values of clinical examination and USG examination were 55.3% and 66.7% respectively. Interestingly, the positive predictive value of both clinical and USG examination were 100%. Applying Kappa statistics, there is fairly good agreement between the number of normal and abnormal cases by laparoscopy vs USG examination (Kappa = 0.71). This can be compared to Kappa = 0.57 for laparoscopic examination vs clinical examination and Kappa = 0.68 for clinical vs USG examination. Thus the strongest agreement is between laparoscopy and USG, and the weakest between clinical examination and laparoscopy. Laparoscopy is most sensitive in detecting an abnormality.

**Table 5. Correlation between laparoscopic, clinical and ultrasonographic examination (n=100).**

	Laparoscopy <sup>a,b</sup>	Clinical <sup>b,c</sup>		Ultrasound <sup>a,c</sup>	
		Normal	Abnormal	Normal	Abnormal
Abnormal	74	21	53	13	61
Normal	26	26	0	26	0

<sup>a</sup> Kappa = 0.71

<sup>b</sup> Kappa = 0.57

<sup>c</sup> Kappa = 0.68

**Discussion**

In the present study, maximum number of cases of CPP belonged to the age group of 31-40 years. Duration of

symptoms increased significantly with age, similar to the findings of Zondervan et al <sup>3</sup>. Commonest associated symptom was dysmenorrhea (56%) similar to the findings of UK community based study (45%) by Zondervan et al <sup>4</sup>.

On clinical examination, retroverted uterus with restricted mobility was found in 25% cases, mainly resulting from adhesions due to chronic pelvic inflammatory disease (PID) or endometriosis. Parametrial thickening suggestive of chronic PID was noted in 20% cases. On laparoscopy, in 26% cases no visible pathology was detected, in comparison to 24% reported by Kontoravdis et al <sup>5</sup> and 30% by Newham et al <sup>6</sup>. The commonest laparoscopic diagnosis was chronic PID in 30% in comparison to 51% reported by Krolikowski et al <sup>7</sup>. It was manifested by tubo-ovarian mass, congested edematous adnexa or abnormal discharge from tubes. The second most common abnormality was endometriosis in 25%, in comparison to 25% reported by Kontoravdis et al <sup>8</sup>, 16% by Newham et al <sup>6</sup>, and 80% by Carter JE <sup>9</sup>. Another important laparoscopic finding was adhesions in 18% in comparison to 12% reported by Krolikowski et al <sup>7</sup>, 48% by Carter <sup>10</sup>, and 40% by Newham et al <sup>6</sup>.

The sensitivity of clinical and USG examination to find the etiology of CPP was 71.6% and 82.4% respectively. The negative predictive value of clinical examination was 55.3%, comparable to 42.8% reported by Ozaksit et al <sup>10</sup>. The negative predictive value of USG was 66.7%, in comparison to 60% reported by Ozaksit et al <sup>10</sup>.

History taking, detailed clinical examination, and routine investigations are of paramount importance in evaluation of CPP. The predictive values of abnormal clinical or USG findings are high but the sensitivity of these two is low, in

comparison to that of laparoscopic evaluation. Laparoscopy is the gold standard investigation to evaluate CPP. It enables, not only confirmation of clinical and USG diagnosis, but also detects causes of pain in many, where these two procedures fail.

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