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Comparative Study of Clinical and Laparoscopic Examination in Evaluation of Chronic Pelvic Pain

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Abstract

Background: *Chronic pelvic pain is defined as pain localized to pelvis or lower abdomen below the line joining the two anterior superior iliac spines of at least 6months duration .Chronic pelvic pain is a common medical problem affecting men and women .The causes are often obscure ,too often physical signs are not specific.*

Aims and Objectives

1. To evaluate various causes of chronic pelvic pain.
2. To find out the correlation and compare the efficacy of clinical examination and diagnostic laparoscopy
3. To make intervention as well if possible.

Materials and Methods: *This prospective study was conducted in Lalla Ded Hospital, a 500 bedded Associated Hospital of The Government Medical College, Srinagar, The study was conducted over a period of one year and total number of 100 patients were enrolled of age group 20-50yrs with pelvic pain of >6months duration.*

Results: *Maximum number of cases with chronic pelvic pain belonged to age group of 31-40yrs.Mean age of patients was 34.2+69 yrs. Mean duration of pain was 30.3+_25.67(7,120) months. The associate complaints were dysmenorrheal (50%), menorrhagia (24%)and infertility(10%).Among the 87 patients with abnormal findings on laparoscopic examinations 58 had abnormal clinical findings .Laparoscopy was more predictive in evaluation causes of CPP such as pelvic inflammatory disease(36%),pelvic adhesions (27%), endometriosis (29%), and pelvic congestions(13%).*

Conclusion: *Diagnostic laparoscopy is more sensitive method for evaluation of chronic pelvic pain.*

Keyword: *Chronic pelvic pain, clinical examination, laparoscopy.*

INTRODUCTION

Chronic pelvic pain is defined as pain localized to pelvis or lower abdomen below the line joining the two anterior superior iliac spines of at least 6 months duration[1].Although no universally accepted definition of chronic pelvic pain exists more clinicians agree that chronic pelvic pain is characterized by pain that is menstrual or non-menstrual in nature, lasting 6 months or more, localized below the umbilicus or in pelvis, severe enough to cause functional disability or require medical or surgical treatment[2]. Chronic pelvic pain is a more of constant or intermittent, cyclic or acyclic pelvic pain .[3,4] Chronic pelvic pain is best classified as a symptom and not a disease.[1]

Prevalence of chronic pelvic pain has been reported as 3.8% in women aged 15-73 years.[5,6] Prevalence rate increased with age from 18.2/1000 in 15-20 years old to 27.6/1000 women >60 years

of age.[7,8,9]Symptoms persist longer in older age group.[8,9]

The causes of chronic pelvic pain may be somatic or non-somatic (psychogenic).[10]The causes of chronic pelvic pain can be broadly divided into gynecological and non-gynecological causes.[11]

GYNAECOLOGICAL CAUSES

Gynecological causes account for 90% of chronic pelvic pain when there is specific diagnosis.[9]

(i) UTERINE CAUSES

(a) Adenomyosis.[2] The incidence of adenomyosis ranges from 5% to 70%.[12]

(b) Leomyomas[2,13] Uterine fibroids have been detected in 5.2% to 8.9% in women who had undergone laparoscopy for chronic pelvic pain.[13]

(c) Chronic endometritis.[14]

(d) Chronic cervicitis[14]

(e) Prolapse[11]

(f) Retroverted uterus[2,11]

(g) Intrauterine contraceptive device[14]

(ii) EXTRA-UTERINE CAUSES

OVARY

Benign ovarian cyst.[2]

Polycystic ovarian disease.[2]

Endometrioma: is most common morbidities associated with chronic pelvic pain approximately 70%.[15,16,17]

Ovarian remnant syndrome Cyclic pain is associated with development of ovarian follicles within hormonally active ovarian tissue.[18,19]

Ovarian retention syndrome (residual ovarian syndrome) occurs in a patient who has undergone hysterectomy with ovarian conservation.[18,19]

PELVIS

Endometriosis[2,17]

Pelvic congestion syndrome Pelvic varicosities causing chronic pelvic pain were first described by Richet in 1857 and elaborated by Beard in 1884[20].

Pelvic adhesive disease is the result of previous surgery or infection.[21] Adhesions are diagnosed in approximately 25% of women with chronic pelvic pain..[4,14]

Chronic pelvic inflammatory disease Caused by the gonorrhea, Chlamydia, mycobacterium tuberculosis and IUCD.[14]

OTHER CAUSES

(a) Valvular vestibulitis[22,23]

(b) Vulvodynia[23]

(c) Malignancies of female genital tract.[2]

NON-GYNAECOPLOGICAL

(i) UROLOGICAL CAUSES

(a) Chronic urinary tract infection is one of the most common causes of irritative voiding syndrome in women.[24]

(b) Interstitial Cystitis is a chronic inflammatory condition of the bladder presenting as lower abdominal pain.[24,23]

(c) Subureteral diverticulitis the classic triad of symptoms is dysuria, dysparenia and post void dribbling.[24]

(d) Urethral symptoms are a symptom complex that can include dysuria, urinary frequency, urgency, suprapubic discomfort and straguria.[2,23]

(e) Malignancy.

(ii) GASTROINTESTINAL CAUSES

(a) Chronic Appendicitis: Presented with localized right lower quadrant pain unresponsive to conservative treatment.[11]

(b) Diverticular Disease: Commonly found in sigmoid colon. Infection of diverticuli and micro-abscess formation present as abdominal pain and tenderness.[2,11]

(c) Inflammatory bowel disease: Due to ulcerative colitis and Cohn's disease may be associated with chronic pelvic pain.[25]

(d) Irritable bowel syndrome: characterized by a complex of symptoms associated with abnormal gastrointestinal motility. Symptoms of IBS may be seen in 50% to 80% of patients with chronic pelvic pain.[26,27]

(e) Neoplasia: Carcinoma colon or rectum should be included in differential diagnosis of chronic pelvic pain.[11]

(iii) MUSCULOSKELETAL CAUSES:

(a) Coccydynia a fall or any trauma to coccyx can cause coccygeal pain.[22]

(b) Levatorani syndrome can be diagnosed when a patient has chronic pelvic pain in absence of another explanation of pain caused by spastic pelvic floor muscle.[11,22]

(c) Myofacial pain syndrome it is a disorder of muscle characterized by the presence of trigger points that when stimulated gives rise to localized pain.[22]

(d) Prolapsed intravertebral disc[11]

(e) Tumors of pelvic bones and muscles[11]

(iv) Psychogenic[11,28]

(v) Idiopathic[2,11]

MATERIAL AND METHOD

This prospective study was conducted in Lalla Ded Hospital; an associated hospital of Government Medical College Srinagar Jammu &Kashmir. The duration of study was from March 2011-September 2012 with sample size of 100 patients. Aim and objectives: To evaluate various causes of chronic pelvic pain. To find out the correlation between clinical and laparoscopic examination. To compare the efficacy of clinical examination and diagnostic laparoscopy and to make a medical or surgical intervention as well if possible.

Inclusion Criteria

Women in age group of 20-50 years.

Women presenting with history of pelvic pain of 6 months or more.

Exclusion Criteria

Women with < 20 years or > 50 years of age.

Women with non-gynecological etiology.

The following data were recorded.

General characteristics of patients.

Demographic data

Detailed history was taken including onset, progression, location, characteristics of pain, duration of pain, radiation of pain, factors aggravating and relieving pain, association of pain with posture relation, menstrual periods and dyspareunia. Associated symptoms like nausea, vomiting, constipation, decreased appetite, fatigue and fever will be noted. History of previous surgery and infections was recorded. Obstetrical history and menstrual history was also recorded.

A thorough physical examination was done including: General physical examination, vitals, and systemic examination. Laboratory measures such as complete haemogram, KFT and LFT, urine examination, stool examination, ECG all leads, Chest X-ray and ultrasonography of pelvic and abdominal organ was done and was recorded.

After history taking, clinical examination and investigations, patients with obvious non-gynecological etiology was excluded. The remaining patients were investigated by performing diagnostic laparoscopy to determine type of pathology existing and if deemed neces-sary surgical or medical treatment were done.

Diagnostic laparoscopic examination was performed under general anesthesia, pelvic and abdominal organ was visualized and pathology in any organ was noted.

The result was presented as descriptive statistics, Kappa statistics[31] was used to estimate the extent of correlation between clinical examination and diagnostic laparoscopic findings.

We plan this study to detect the potentially treatable pathology by use of laparoscopy that was not detailed and detectable by other types of evaluation such as clinical examination. While subjecting patient to diagnostic laparoscopy various interventions were done where ever possible, i.e. adhesiolysis, drainage of chocolate cyst, cystectomy, drilling of polycystic ovaries, and aspiration of fluid in POD. In patients of infertility while subjected to diagnostic laparoscopy, chromotubation was done to assess the patency of tubes, and their further management was planned accordingly.

RESULT AND OBSERVATION

The results and observations obtained are depicted in the following tables and graphs.

Table – 1: Depicting the age distribution of enrolled patients

Age (Years)	N	%
20 to 30	24.0	24.0
31 to 40	63.0	63.0
41 to 50	13.0	13.0

Majority of patients belonged to the age group of 31-40 years (63%) followed by 24% to the age of

24-30 years and 13% were in the age group of 31-50 years old.

Table 2: Depicting duration of pain lower abdomen (month) in the study group.

Duration of Pain (months)	n	%
≤ 12	32	32.0
13 to 24	16	16.0
25 to 36	19	19.0
37 to 48	14	14.0
> 48	19	19.0
Mean±SD	30.3±25.6 months (6, 120)	

The mean duration of pain is 30.3 months with a standard deviation of 25.6 months (range 6 months to 10 years).

Table 3 Depicting relation of duration of pain with age of study group

Age (month)	Mean ± SE	p value
20 to 30	19.0 ±2.9 (7,60)	< 0.002 (Sig)
31 to 40	36.9 ± 3.3 (7, 120)	
41 to 50	46.4 ± 8.1 (7, 108)	

Pain significantly increase with the age of patients ($p < 0.001$) from the mean of 19 months with the SD of 2.9 months (range 6 months – 5 years) in 20-30 years to 39.5 months with SD of 8.67 months (range 6 months – 8 years) in 41-50 years.

Table 4 Depicting Associated Symptoms in enrolled patients

Associated Symptoms	n	%
Dysmenorrhea	50	50.0
Menorrhagia	24	24.0
Infertility	10	10.0
Surgical Intervention	8	8.0

Shows that dysmenorrhea was commonest associated symptom in 50% followed by menorrhagia in 24%, infertility in 10% and surgical intervention in 8%.

Table 5: Depicting per speculum examination findings in the enrolled patients

Per Speculum examination	n	%
Unhealthy Discharge	8	8.0
Hypertrophy	6	6.0
Congested	4	4.0
Excessive Discharge	2	2.0

Majority of patients had unhealthy discharge (8%), followed by hypertrophied cervix (6%), congested cervix (4%) and excessive discharge (2%).

Table 6: Depicting per vaginal examination findings of study group

Structure	Abnormality	n	%
Uterus	Enlarged	22	22.0
	Retroverted	15	15.0
	Restricted Mobility	14	14.0
Fornices	Thickened	18	18.0
	Mass	25	25.0
POD	Mass	6	6.0
	Thickened	3	3.0

As depicted by table, 25% of patients had mass felt in fornices, 22% had enlarged uterus, 18% had thickened fornices, 15% had retroverted uterus with restricted mobility of uterus in 14%, 6% had mass in POD and 3% had thickened POD.

Table 7: Depicting ultrasonographic findings in the study group

Structure	Abnormality	n	%
Uterus	Enlarged	41	41.0
Ovarian Mass	Tubo-Ovarian Mass	17	17.0
	Cyst	16	16.0
Fallopian Tubes	Hydrosalpinx	7	7.0
POD	Mass	8	8.0
	Fluid	3	3.0

Majority of patients with enlarged uterus 41%, 17% had tubo-ovarian mass, 16% ovarian cyst, 7% had hydrosalpinx, 8% had mass seen in POD and 3% had significant fluid in POD.

Table 8: Depicting laparoscopic abnormalities in the study group

Structure	Abnormality	n	%
Uterus	Enlarged	13	13.0
	Endometriosis	3	3.0
	Adhesions	5	5.0
	Fibroid	6	6.0
Ovaries	Functional Cyst	8	8.0
	Endrometroma	19	19.0
	Tubo-Ovarian Mass	22	22.0
	Polycystic Ovary	6	6.0
	Adhesions	10	10.0
Fallopian Tubes	Tortuous	17	17.0
	Adhesions	13	13.0
	Hydrosalpinx	8	8.0
POD	Endometriosis	21	21.0
	Adhesions	32	32.0
	Fluid	22	22.0
	Congestion	17	17.0

Majority of the patients had adhesions 32%, 22% had fluid in POD and tubo-ovarian mass, 21% had endometriosis followed by 17% with pelvic

congestion, 13% had hydrosalpinx and 13% had enlarged uterus out of which 6% had fibroid uterus.

Table 9: Comparing Laparoscopic examination in relation with clinical examination in the study group

	Laparoscopy	Clinical Findings	
		Abnormal	Normal
Abnormal	80	58 (72.5)	22 (27.5)
Normal	20	0	20

The table shows that 80% of women had abnormal findings on laparoscopic examination, 58% of women had abnormal pelvic examination.

Table11: Showing Comparison of Laparoscopic and Clinical Examination in the Enrolled Patients

	Clinical	Laparoscopic
PID	22	36
Myoma	5	16
Cyst	7	15
Endometriosis	6	29
Congestion	0	15
Adhesions	0	27

As shown in table that diagnostic laparoscopy is more predictive in diagnosing PID36%, endometriosis 29%, adhesions 27% and pelvic congestion in 15%.

Table 10: Depicting laparoscopic examination in relation to clinical findings in the study group.

	Sensitivity	Specificity	PPV	NPV	Accuracy
Clinical Findings	72.5	100	100	47.6	78

Table shows that clinical examination had sensitivity of 72%, negative predictive value of 47.6% with accuracy of 78%.

Table 12: Depicting correlation between laparoscopic and clinical examination findings in the study group.

Laparoscopic Findings				
Clinical Findings	Abnormal		Normal	
	n	%	n	%
Abnormal	58	72.5	0	0.0
Normal	42	27.5	13	100.0

As shown in table there is better correlation between clinical and laparoscopic examination of 72.5%.Thus there is better correlation between laparoscopic examination and clinical examination

DISCUSSION

In the study, majority of the patients were in the age group of 31-40 years (63%), followed by 20-30 years (24%) and 13% of patients were in the age group of 41-50 years. The age wise distribution of patients in our study were in congruence with the study of Kamilya Gourisankar et al[1] where 54% patients belonged to the age group of 31-40 years, 32% patients belonged to the age group of 21-30 years and 14% to the age group of above 40 years. The mean duration of pain in the studied subjects was 30.3 months with a standard deviation of 25.6 months (range from 6 months to 10 years).

In our study, duration of pain significantly increased with the age of patients ($p < 0.002$) from the mean of 19 months with the standard deviation of 2.9 months (range 6 months – 5 years) in 20-30 years to 39.5 months with standard deviation of 8.67 months (range 6 months – 8 years) in 41-50 years. There was statistically significant association between duration of pain with age of patients. This is similar to the results of Zonderva KT et al[32] study where duration of symptoms increases with age ($p < 0.001$) from the mean of 13.7 months in 13-20 years old to 20.2 months in age over 60 years, as symptoms persist longer in the older women. Similar results were found in Kamilya Gourisanker et al[1] study where duration of symptoms increased with age.

The commonest associated symptom was dysmenorrhea (50%) in the enrolled patients. Our results are in conformity with the study of Shripad Hebbaret al[32], Kamilya Gourisanker et al[1], and Zonderva KT et al[31], where 55.3%, 56% and 45% had dysmenorrhea respectively. In the enrolled patients, other complaints were menorrhagia 24% and infertility 11%. Our observations were in conformity with the observations of the study by Kanilya Gonasanker et al[1].On performing clinical examination, 42% of patients showed normal pelvic findings, our observations were in conformity with the observation in the studies of Shripard Hebbar et al[33] , Vercellini et al[34], HK Ho et al[22] and Kamilya Gourisanker et al[1] where 42%, 40.4% , 44% and 47% of patients had normal

clinical examination respectively. Similar observations were found in studies of HK Ho et al[22] and Kamilya Gourisanker et al[1] where 44% and 47% of patients had normal clinical findings. In the study group, 58% of enrolled patients had abnormal clinical finding, which was in congruence with the study of Kamilya Gourisanker et al[1], where 53% of patients had abnormal clinical examination.

In the studied group, on performing clinical examination on enrolled patients, 22% had enlarged uterus (out of this 6 had fibroid uterus), 15% had retroverted uterus, 14% had restricted mobility of uterus, followed by 25% who had mass felt through fornices, 18% had thickened fornices, 6% mass in pouch of douglas and 3% had thickened pouch of Douglas. Our observations were similar to the study conducted by Kamilya Gourisankeret al[1], where 22% had enlarged uterus, 25% had retroverted and restricted mobility of uterus, 33% had mass felt through fornices, 20% had thickened fornices and 9% had nodules pouch of Douglas.

The enrolled patients when subjected to diagnostic laparoscopy, 20% had no visible pathology. Our observations are in conformity with the observations of the studies conducted by Murphy and Fliengeret al[35], Jacobson and Westron et al[36], Fear et al[37] and Goldstein et al[38] where 20%, 23%, 26% and 14% had normal diagnostic laparoscopy respectively.

On performing diagnostic laparoscopy on the study group, 80% had abnormal laparoscopic findings. Our observations are in conformity with the observations reported in studies of Shallaya Chetteri et al[11], Mara et al[39], Goldstein et al[40] and Chatmen and Ward et al[41], where 80%, 82%, 86% and 88% had visible pathology on laparoscopic examination respectively. The commonest laparoscopic diagnostic pathology in the enrolled patients was chronic PID 36% that is in conformity with the study of Kamilya Gourisanker et al[1] where 36% had chronic PID.. In the study group pelvic adhesions were second most common abnormality on diagnostic laparoscopy 32%, similar to the study of Drozyyik et al[14]and Kamilya Gourisanker et al[1] where 32.5% and 30% had adhesions on laparoscopic examination respectivily. In the study group, endometriosis was found in 47% of patients by laparoscopic examination (out of which 19 had chocolate cysts), that is in conformity with the study of Carter et al[42], Newham et al and Vereline et al[8] where endometriosis was diagnosed in 48%, 40% and 40.4% on diagnostic laparoscopy respectively. In the enrolled patients, pelvic congestion (diagnosed by diagnostic laparoscopy as a generalized hyperemia and large dilated pelvic vessels on broad ligament or infundibulo pelvic ligament), was diagnosed in (17%) of patients on diagnostic laparoscopy. That was in conformity with the study of Kamilya Gourisanker et al[1] and Shrippad Hebbar et al[34] where 13% and 18.6% had pelvic congestion respectively.

The study showed that, on comparing the diagnostic laparoscopy with the clinical examination, diagnostic laparoscopy was more predictive in diagnosing PID 36%, pelvic adhesion 22% pelvic congestion, 17% and endometriosis in 47%. Similar observations were reported in the study of Kamilya Gourisanker et al[1].

Our study showed that on comparing the laparoscopic examination with the clinical examination. The sensitivity of clinical examination was 72.5%, this was in conformity with the study of Kamiliya Gourisanker et al[1] were the sensitivity of clinical examination was 71.6%.The negative predictive value of clinical examination was 47.6%, that was in conformity with study of Kamilya Gourisanker et al[1] and Ozaksit et al[28] who had reported negative predictive value of 55.3% and 42.8% respectively. On comparing diagnostic laparoscopy with clinical examination, the accuracy was 71.6%.

Our study showed that by applying Kappa statistics[32] there is fairly good correlation between number of normal and abnormal cases diagnosed by laparoscopy verses clinical examination Kappa=0.51. This study showed that laparoscopic examination is an excellent tool in evaluation of patients with pelvic pain. There was a better

correlation between an abnormal clinical examination and abnormal laparoscopic examination 72.5% that is in congruence with the study of Fear[38], Jacobsen , Kamiliya Gourisanker et al[1], and Weston et al[37] and Lundberg et al[45] who had observed 74%,77% and 59%correlation respectively

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