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**Research Article**

# LAPAROSCOPY AS A DIAGNOSTIC AND THERAPEUTIC TOOL IN THE MANAGEMENT OF CHRONIC PELVIC PAIN

**Vinita Sarbhai[1] and Preeti[2]**

[1]Department of Gynecology and Obstetrics Kasturba Hospital, Delhi
[2]Department of Obstetrics and Gynecology Kasturba Hospital, Daryaganj, Delhi

**A R T I C L E I N F O**

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**A B S T R A C T**

**Introduction-** Chronic pelvic pain (CPP) is a complex, perplexing, disabling and distressing condition and is associated with poor quality of life, fatigue, depression, anxiety, marital and sexual dysfunction. This study aims at evaluating laparoscopy as a diagnostic as well as therapeutic tool in management of chronic pelvic pain.

**Methods-** This Retrospective study was conducted in Kasturba Hospital, Delhi. Medical records of 50 women with Chronic Pelvic pain of greater than 6 months duration, who underwent laparoscopy from January 2017 to March 2020, were reviewed.

**Results-** Laparoscopy revealed adhesions as most common pathology in 17 (34%) patients. Sharp adhesiolysis was done in all cases. Endometriosis was identified in 14 (28%) with variable presentation like chocolate cyst (6%), only endometriotic spots(2%), and both(20%). Endometrioma cystectomy (12%), deroofing and fulguration of cyst (14%) and ablation of endometriotic spots (22%) were the surgeries performed. Chronic PID was diagnosed in 12(24%). Salpingostomy was performed in all the 4 women with hydrosalpinx. Fibroids were seen in 6 (12%) patients. Genital Kochs was diagnosed in 3 (6%) patients, as confirmed by presence of AFB. Ovarian cysts were identified in 5 (10%) patients among whom dermoid cyst in 2(4%), simple ovarian cyst in 2 (4%) and para-ovarian cyst in 1(2%). Cystectomy was done in all 5 patients. 13(26%) patients had no abnormality detected.

**Conclusion-** Laparoscopy is the gold standard in management of chronic pelvic pain. It provides confirmation of diagnosis with surgical treatment by minimally invasive techniques thus it also avoids the morbidity of laparotomy.



## INTRODUCTION

Chronic pelvic pain (CPP) is a major cause of morbidity among women, contributing to 10%-20% of all visits to gynaecology OPD and 40% of all gynaecological laparoscopy procedures[1]. It is a disabling and distressing condition as it diminishes the quality of life of patients with 40% reduction in work productivity[2]. CPP has a considerable impact on the well-being of women. It is associated with poor quality of life, fatigue, depression, anxiety, marital and sexual dysfunction[3]. Patients with CPP tended to spend days in bed due to illness and report poorer physical and mental health compared with the general population and carries a heavy economic and social burden.

The aetiology usually ranges from gynaecological, gastrointestinal, urological, neurological, musculoskeletal, psychological, conditions, thus making the diagnosis and treatment difficult. The evaluation of chronic pelvic pain is still an enigma as it isa multifactorial condition.

**Corresponding author:* **Vinita Sarbhai**
Department of Gynecology and Obstetrics Kasturba Hospital, Delhi

Laparoscopy enables direct inspection of intra-abdominal organs, facilitates taking biopsy and cultures. This also makes therapeutic intervention possible by operative laparoscopy with minimally invasive techniques and avoiding the need of a laparotomy.

With the advent of high diffusion and relatively low-costtransvaginal sonography (TVS), better diagnosis of chronic pelvic pain is possible, which can then be managed by medical therapies hence further reducing the need of laparoscopy for evaluation. The laparoscopy to be used only when definitive surgical intervention is required. Hence the role of laparoscopy in diagnosis and management of CPP needs to be evaluated.

## PATIENTS AND METHODS

This retrospective study was conducted on 50 women with chronic pelvic pain of more than 6-month duration, who underwent laparoscopy in department of Gynaecology, Kasturba hospital, Delhi from January 2017 to March 2020.

The research protocol was approved by the Institutional Ethics Committee.

Medical records were reviewed for 50 women presenting with pain in lower abdomen of at least 6 months duration not associated with menstruation/intercourse/pregnancy (ACOG)[4] and laparoscopy was performed for chronic pelvic pain. The presenting symptoms, detailedhistory, physical examination and report of transvaginal sonography performed, followed by operative findings of laparoscopy were recorded.

The findings of diagnostic laparoscopy were notedlike uterus size, surface and presence of pathology, fallopian tubes pathology, ovarian pathologies like cysts, endometriosis, pelvic adhesions with their location, nature and involvement of organs were recorded. Note was made of therapeutic procedures like adhesiolysis, endometriotic spots ablation by diathermy, fimbrioplasty, and ovarian cystectomy as and when performed. Peritoneal washing and biopsies reports were recorded.

## RESULTS

Mean age of the patient was 28 years, ranging from 21 to 38 years, with most of patients (72%) from the age group 20-30 years. 30% of the patients were nulliparous while most of the patients (54%) were of parity 1or 2. A definite history of abortion was also seen in 48% of patients. Majority of patients (37) presented with dull aching pain in lower abdomen (74%) while13 (26%) patients also had associated sharp shooting pain.

Infertility was the most common associatedsymptom seen in 23 women (46%).The other associated symptoms were menstrual disorders in 15 (30%), vaginal discharge in 14 (28%), Dyspareunia in 10 (22%), and Dysmenorrhea in 9 women (28%).(Fig. 1)

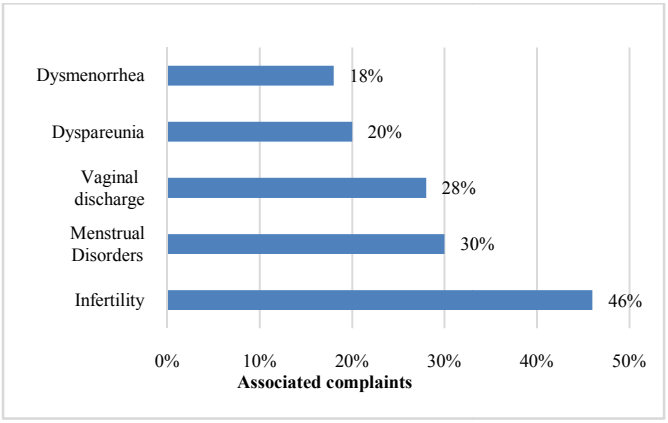


**Fig No 1** Associated Symptoms of women presenting with CPP

Clinical pelvic examination revealed adnexal mass as the most common detectable abnormality in 11 (22%) patients. Chronic Pelvic Inflammatory disease (PID) was seen in 7 women as suspected by discharge per vaginum, cervical tenderness, fixed uterus, Fornix thickness and tenderness. Tubo-ovarian mass and suspected adhesion (due to presence of history of surgery) as the cause of CPP was suspected in 2 women each. Endometriosis was diagnosed clinically in one patient. No detectable cause was seen in 54% of patients presenting with CPP by clinical examination.(Fig No. 2)

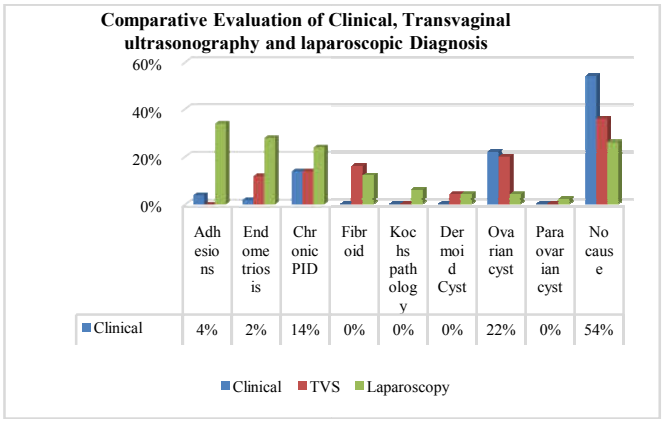


**Fig No 2** Comparative Evaluation of Clinical, ultrasonography and laparoscopic Diagnosis

Ultrasonography revealed ovarian cysts (22%) as the most common cause of CPP, Endometriosis in 6 (12%) patients, Fibroid in 8 (16%), Chronic PID in 6 (12%) patients, dermoid cyst (4%), Polyp (2%) and Partial septum in 2% patients. and no pathology was diagnosed in 32% patients.(Fig No. 2)

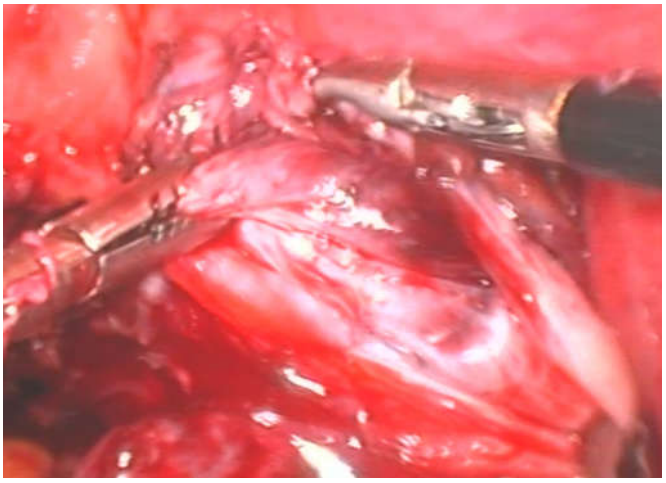

**Figure 3** Stripping of Endometriotic cyst

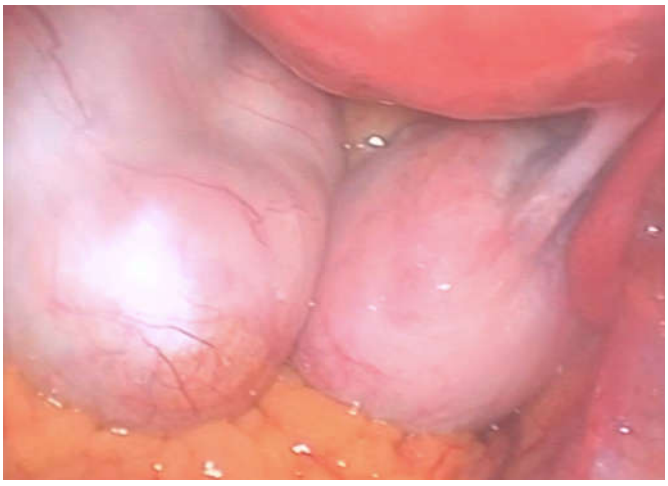

**Figure No. 4** Bilateral Dermoid Cyst on Laparoscopy

There were overlapping findings like adhesions, endometriosis PID, ovarian cyst etc. on laparoscopy (Table No. 1). The most common finding was adhesions seen in 34% patients. The other pathologies also coexisted with adhesions. 8 (16%) patients had chronic PID, 3 (6%) had associated Kochs, and 4 (8%) had endometriosis. Only 2 (4%) patients had adhesions as a single identifiable pathology.

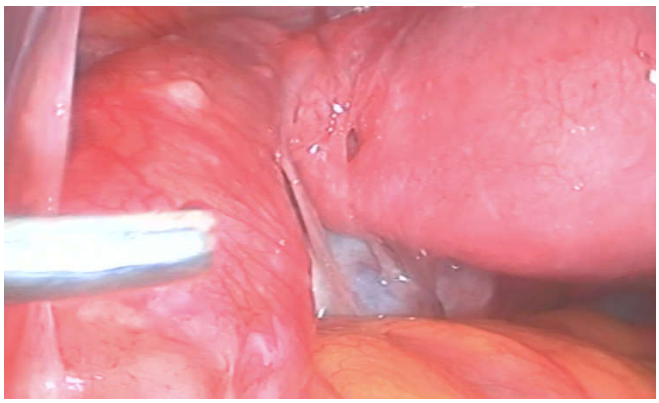

**Fig.No.5** Laparoscopic view showing Hydrosalpinx with tubercles

1patient had adhesions secondary to surgery (2%) and in one patient no cause of adhesions could be ascertained (2%).Adhesions varied from dense to thin and involved varied structures. Fitz Hugh Curtis syndrome was identified in 4 (8%) patients. Adhesiolysis was performed in all these women using sharp dissection or harmonic, and the anatomy was restored. Tubes and ovaries were freed of adhesions as much as possible in women with infertility.

Endometriosis was identified in 14 (28%) patients, with presentation like only endometrioma in 6%, only endometriotic spots in 2%, endometrioma with endometriotic spotsin20%. Bilateral endometrioma was found in 4% patients. De-roofing or stripping of endometriotic cyst with fulguration at base was done if cyst were too small, superficial, and adherent to ovary (Figure No.3). Ablation of endometriotic spots was done in all the cases of endometriosis as much as possible. Cystectomy was performed in all the 6 patients with chocolate cysts.

Simple ovarian cyst was observed in 2 (4%) patients, of size 8-10cm. 2 cases (4%) had Dermoid Cyst. One of them had bilateral dermoid cysts (Figure No. 4).Para-ovarian cystwas seen in 1 (2%) case. In all Cystectomy was done in 22% cases including 6 Endometrioma, 2 Dermoid Cysts, 2 Simple serous cysts and 1 Para-ovarian Cyst. Their diagnosis was confirmed by histopathology. Fibroidswere seen in 6 (12%) patients, 4 (8%) had intramural and 2 (4%) had subserosal. No intervention was performed in these.

12 (24%) patients had Chronic PID which was identified by presence of Tuboovarian masses, hydrosalpinx, tobacco pouch appearance, beaded tubes, pyosalpinx, dense adhesions. In 4 (8%) patients chronic PID was associated with tubal pathology (hydrosalpinx, pyosalpinx, tuboovarian mass) while in 8 (16%) patients chronic PID was associated with dense adhesions. Salpingostomy orfimbrioplasty was done in 6 patients in cases of pyosalpinx(2), hydrosalpinx(2) and tubo-ovarian mass(2). Straw colour fluid was drained in patients with hydrosalpinx in 4 patients. Sample of fluid drained, was sent for AFB examination and cytology. Local instillation of injection meropenem after drainage was done in both patientsof pyosalpinx. Tuberculosis was confirmed by presence of Miliary tubercles over fallopian tubes, tubo-ovarian mass, hydrosalpinx, pyosalpinx, beaded tubes in 3 patients (6%). Biopsy was also positive for AFB in these women (Fig No.5). No intervention was required in 13(26%) cases (Table No.1). Multiple procedures were required in many patients. No complication was noted in any patient. There was no need of conversion to laparotomy in any patient.

**Table No. 1** Laparoscopic Diagnosis and Laparoscopic Procedure performed for treatment

| Diagnosis | Frequency (Percentage) | Procedure Performed |
|---|---|---|
| Adhesions | 17 (34%) | |
| Adhesions due to Chronic PID | 8 (16%) | |
| Adhesions due to Kochs pathology | 3 (6% | Adhesiolysis in 17 |
| Adhesions due to endometriosis | 5 (10%) | |
| Endometriosis | 14 (28%) | |
| Endometriotic spots + Chocolate cyst | 10 (20%) | Ablation of endometriotic spots + Deroofing of cyst (7)+Stripping /Cystectomy (3) |
| Only Chocolate cyst | 3 (6%) | Cystectomy |
| Only Endometriotic spots | 1 (2%) | Ablation of endometriotic spots Salpingostomy (6) |
| Chronic PID | 12 (24%) | Drainage of pyosalpinx with local instillation of injection meropenem (2) |
| Fibroid | 6 (12%) | No intervention |
| Kochs pathology | 3(6%) | Sample taken for AFB |
| Dermoid Cyst | 2 (4%) | Cystectomy |
| Ovarian cyst | 2 (4%) | Cystectomy |
| Para-ovarian cyst | 1 (2%) | Cystectomy |
| No cause | 13(26%) | No intervention |

Out of 50 patients who presented with chronic pelvic pain 13 (26%) had normal findings on laparoscopy, 17(54%) patients had normal findings on clinical examination, 18(36%) had normal findings on TVS (p value<0.05) (Fig. No. 2).

## DISCUSSION

Chronic pelvic pain is a major cause of morbidity among women of reproductive age group as majority of patients included in the study belonged to 20-30 years of age (72%) and the mean age was 28.18 $\pm$ 4 years as is seen in most of studies[5,6].

Most women with chronic pelvic pain have associated other complaints. Infertility (46% in our study) is most common complaint associated with chronic pelvic pain as reported by many studies[6,7]. This is due to the fact that pathologies causing chronic pelvic pain mostly involve the reproductive organs and hence causing infertility also. Pathologies like endometriosis, Koch's, PID with tubal pathology, adhesions causing tubal block, polyps, fibroids can cause infertility with chronic pelvic pain.

The other associated complaintswere menstrual disorders in 30%, vaginal discharge in 28%, dyspareunia in 20%anddysmenorrhea in18%. Pathologies like endometriosis, polyps, fibroids, cervical stenosis, are often associated with dysmenorrhea. Dyspareunia can be seen in pathologies like endometriosis, dense adhesions, large ovarian cysts, hence is an associated complaint with chronic pelvic pain. Vaginal discharge is usually seen in women with PID.

It is essential to ascertain associated symptoms as theymay beindicative of the primary cause of the pain and may point the clinician towards the organ of involvement. For example, urinary frequency, dysuria, and strangury are symptoms usually associated with lesions of the urogenital tract. Pain that originates in the gastrointestinal tract may cause anorexia, vomiting, diarrhoea, tenesmus, or painful defecation.

TVS was able to diagnose dermoid cysts, ovarian cysts and fibroids easily, while adhesions, endometriosis and chronic PID were the most commonly missed diagnosis.

Laparoscopy was able to diagnose abnormalities in 74% of cases, and adhesions was the most common pathology diagnosed in 34%. No definitive diagnosis can be made

preoperatively by ultrasonography and adhesions can only be suspected if there is history of surgery or infections, as also reported by various studies[8]. Adhesiolysis was performed in all of them and normal anatomy was restored after freeing the tubes and ovaries of adhesions as much as possible.

Endometriosis was seen in 28% on laparoscopy, being a very common cause of CPP in reproductive age with incidence varying between 18% to 31%[9-10]. Endometrioma cystectomy, endometriotic spot ablation, De-roofing of endometriotic cyst with fulguration at base were the procedures done in patients with endometriosis. Hence all of them received some or the other form of operative treatment. The confirmation of diagnosis of endometriosis was possible only by laparoscopy as confirmed by the appearance of endometriotic spots, drainage of chocolate coloured fluid and histopathology sample of cyst wall. This can not be achieved by any other means. The simultaneous treatment is an added advantage.

Many patients had overlapping findings i.e., more than one pathology was present in many patients. 24% patients had Chronic PID. Adhesiolysis, salpingostomy, drainage of pyosalpinx with local instillation of injectable antibiotics could be performed on them.

Dermoid Cyst were identified in 4% and in both of themcyst was removed by using endobag for sample retrieval. The diagnosis was confirmed on histopathology.

In women with para-ovarian cyst (2%), and simple Ovarian cyst (4%), cystectomy could be performed by minimally invasive route without any complications.

6% patients had Kochs as confirmed by presence of AFB. These cases were not diagnosed by clinical features or ultrasonography. It was only upon laparoscopy, that the biopsy could be taken from suspected granuloma or miliary deposits and confirmed for presence of AFB on staining and culture. Hence it is essential in a country like India, where Tuberculosis is endemic, that the biopsy of suspected lesions should be performed.
In study by Edessy Met al[9]out of 100 patients, 19% had tuboovarian mass, 18% had endometriosis, 9% had ovarian cysts, 8% had adenomyosis, 6% had adhesions, 4% had PID, 1% had bicornuate uterus and 15 had pelvic congestion. 29% patient had no findings. Hence proving thattuboovarian mass, endometriosis, ovarian cysts were most frequent causes of CPP.

Similar findings were seen in study by Zubor et al[10] where out of 86 patients, most frequent laparoscopic finding was endometriosis (31%). Pelvic adhesions were present in 25.6% cases, myomas in 15.1%, pelvic varicosities in 9.3% and chronic PID in3.5%. They reported that endometriosis and adhesions as commonest cause of chronic pelvic pain.

In a study conducted by Kang et al[11]on a large number (3068) of cases, pelvic endometriosis was the most common (60.2%), followed by normal pelvic findings (21.2%) and pelvic congestion (13.0%).

In our study, in 26% no cause of chronic pelvic pain identified on Laparoscopy while 36% were normal on TVS and 54% on clinical examination. This can be labelled as negative laparoscopy as reported by many studies ranging from 22% to 29%[9,12]. Since chronic pelvic pain has multiple aetiologies, cause of pain in these patients can be neurological, psychological, gastrointestinal or genitourinary or cause can be unexplained.

In our study on comparing the results of TVS with Laparoscopy (Fig. No. 2) the difference was found to be statistically significant (p value<0.05) indicating that causes of CPP can be missed on TVS, hence showing superiority of Laparoscopy. All the above clearly indicate that TVS underdiagnose many pathologies and labelled them as normal. Around 15-25% pathologies were not diagnosed on TVS.

Being minimally invasive laparoscopy has the advantage of shorter recovery time, lower postoperative morbidity, cost-effectiveness, cosmesis, earlier discharge and return to work, as confirmed by present study. There were no complications or conversion to laparotomy.

This study confirms that laparoscopy is an excellent diagnostic as well as therapeutic tool in management of women with chronic pelvic pain. The diagnosis is confirmed andtreatment (e.g., cystectomy, deroofing, electrocoagulation, adhesiolysis, etc.) can be imparted in same sitting, without subjecting the patients to laparotomy or causing any further delay in treatment of the existing pathology.

## CONCLUSION

It can be concluded from the present study that Chronic pelvic pain is multifactorial disease with multiple and overlapping pathologies in patients. Adhesions, Endometriosis, Chronic PID were seen as common causes. Laparoscopy is the gold standard and an excellent tool in management of patients with chronic pelvic pain, because diagnosis and treatment can be accomplished in one sitting, without subjecting the patients to exploratory laparotomy or any further delay in treatment of the existing pathology.

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