

Assessment and Analysis of Chronic Pelvic Pain in Women: A Prospective Observational Study

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Abstract:

Background: Chronic pelvic pain (CPP) in females is a common and complex clinical problem that significantly affects quality of life. It encompasses various etiologies, including gynecological, urological, gastrointestinal, musculoskeletal, and psychological causes.

Objectives: To evaluate the clinical profile, etiology, and diagnostic approaches in females presenting with chronic pelvic pain through a prospective observational study.

Methods: This prospective observational study was conducted at the Department of Obstetrics and Gynaecology, Government Medical College, and Hospital, Bettiah, Bihar, India for one year. A total of 125 female patients aged 18-50 years presenting with chronic pelvic pain lasting more than 6 months were enrolled. Detailed clinical history, physical examination, relevant laboratory tests, and imaging studies were performed to determine the cause of pain.

Results: Among 125 patients, the most common causes of chronic pelvic pain identified were pelvic inflammatory disease (28%), endometriosis (22%), pelvic adhesions (15%), and urological causes (10%). Diagnostic laparoscopy was performed in 40% of cases and contributed significantly to definitive diagnosis. Psychological factors were identified in 12% of patients.

Conclusions: Chronic pelvic pain in females is multifactorial, requiring a thorough and multidisciplinary diagnostic approach. Early identification of the underlying cause facilitates targeted management and improves patient outcomes.

Keywords: Chronic Pelvic Pain, Females, Pelvic Inflammatory Disease, Endometriosis, Diagnostic Laparoscopy, Prospective Observational Study.

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Introduction

Chronic pelvic pain (CPP) in females is a prevalent and challenging clinical condition defined as non-cyclic pain perceived in structures related to the pelvis that lasts for six months or longer [1]. It is a significant cause of morbidity worldwide, affecting approximately 15% to 20% of women at some point in their lives. CPP can severely impact a woman's quality of life, interfering with daily activities, work productivity, sexual function, and psychological well-being.

The etiology of chronic pelvic pain is often multifactorial and can involve gynecological, urological, gastrointestinal, musculoskeletal, neurological, and psychological components [2]. Common gynecological causes include endometriosis, pelvic inflammatory disease (PID),

pelvic adhesions, adenomyosis, ovarian cysts, and pelvic congestion syndrome. Urological conditions such as interstitial cystitis and recurrent urinary tract infections, as well as gastrointestinal disorders like irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD), also contribute to the clinical spectrum of CPP [3]. Moreover, musculoskeletal abnormalities and psychological factors such as depression and anxiety are increasingly recognized as important contributors.

Diagnosing the exact cause of chronic pelvic pain remains complex due to overlapping symptoms, variable clinical presentations, and sometimes inconclusive investigative findings [4]. A comprehensive clinical evaluation, including detailed history taking and physical examination,

supported by targeted investigations such as ultrasound, MRI, and diagnostic laparoscopy, is critical for accurate diagnosis. Diagnostic laparoscopy, in particular, is considered the gold standard for identifying intra-abdominal and pelvic pathology such as endometriosis and adhesions [5].

Effective management of CPP depends on identifying and treating the underlying cause. However, a significant proportion of patients experience pain without any identifiable pathology, often termed as “pain of unknown origin,” necessitating a multidisciplinary approach involving pain specialists, physiotherapists, psychologists, and gynaecologists [6].

This prospective observational study aims to evaluate the clinical profile and etiology of chronic pelvic pain in females presenting to a tertiary care hospital in Bihar, India. By understanding the prevalence of various causes and their diagnostic challenges, the study seeks to improve early diagnosis and management strategies for women suffering from this debilitating condition.

Methods

This prospective observational study was conducted over a period of one year at the Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Bettiah, Bihar, India the study enrolled 125 female patients aged between 18 and 50 years who presented with complaints of chronic pelvic pain lasting for more than six months. Patients with acute pelvic pain, pregnancy, malignancy, or those unwilling to participate were excluded. After obtaining informed written consent, detailed clinical histories were taken, including pain characteristics (location, duration, intensity, cyclicality), menstrual and obstetric history, sexual and medical history, and any previous surgeries or treatments. A thorough general, abdominal, and pelvic examination was conducted to identify any palpable masses, tenderness, or other abnormalities.

Relevant laboratory investigations included complete blood count, urine analysis and culture, vaginal swab for infection screening, and specific tests such as CA-125 levels when indicated. Imaging modalities such as pelvic ultrasound (transabdominal and transvaginal) were routinely performed to assess structural abnormalities. Magnetic resonance imaging (MRI) was utilized selectively for further evaluation of suspected endometriosis or deep pelvic pathology. Diagnostic laparoscopy was offered to patients in whom non-invasive tests were inconclusive or where endometriosis or pelvic adhesions were strongly suspected. Psychological assessment was also carried out in patients with no identifiable organic cause to evaluate for anxiety, depression, or other psychosomatic contributors.

All findings were systematically recorded, and the etiology of chronic pelvic pain was categorized based on clinical, radiological, laparoscopic, and histopathological results where available. Data were analyzed descriptively to determine the frequency and distribution of various causes of chronic pelvic pain in the study population.

Results

A total of 125 female patients with chronic pelvic pain were enrolled in the study. The demographic profile, clinical presentations, diagnostic findings, and etiological distribution were systematically analyzed. The majority of patients were in the reproductive age group, and pelvic inflammatory disease was the most common cause identified. Diagnostic laparoscopy contributed significantly to definitive diagnosis. Various causes including gynecological, urological, gastrointestinal, musculoskeletal, and psychological factors were observed.

Table 1: Age distribution of patients with chronic pelvic pain

Age Group (years)	Number of Patients	Percentage (%)
18-24	25	20.0
25-30	45	36.0
31-35	30	24.0
36-40	15	12.0
41-45	7	5.6
46-50	3	2.4

Table 2: Duration of chronic pelvic pain among patients

Duration of Pain	Number of Patients	Percentage (%)
6 months - 1 year	60	48.0
1 - 2 years	35	28.0
2 - 3 years	20	16.0
More than 3 years	10	8.0

Table 3: Characteristics of pelvic pain reported by patients

Pain Characteristic	Number of Patients	Percentage (%)
Dull/Aching	80	64.0
Sharp/Stabbing	25	20.0
Intermittent	15	12.0
Burning	5	4.0

Table 4: Location of chronic pelvic pain in patients

Pain Location	Number of Patients	Percentage (%)
Lower abdomen	70	56.0
Suprapubic region	30	24.0
Lower back	15	12.0
Radiating to thighs	10	8.0

Table 5: Associated symptoms in patients with chronic pelvic pain

Associated Symptom	Number of Patients	Percentage (%)
Dysmenorrhea	75	60.0
Dyspareunia	40	32.0
Urinary symptoms	25	20.0
Gastrointestinal symptoms	30	24.0

Table 6: Clinical examination findings in chronic pelvic pain patients

Clinical Finding	Number of Patients	Percentage (%)
Adnexal tenderness	50	40.0
Uterine tenderness	30	24.0
Pelvic mass	20	16.0
No significant findings	25	20.0

Table 7: Pelvic ultrasound findings in patients

Ultrasound Findings	Number of Patients	Percentage (%)
Normal	65	52.0
Ovarian cysts	25	20.0
Pelvic inflammatory disease	20	16.0
Uterine fibroids	10	8.0
Hydrosalpinx	5	4.0

Table 8: Findings from diagnostic laparoscopy in chronic pelvic pain patients

Laparoscopy Findings	Number of Patients	Percentage (%)
Endometriosis	22	44.0
Pelvic adhesions	15	30.0
Pelvic inflammatory disease	8	16.0
Normal laparoscopic findings	5	10.0

Table 9: Etiological distribution of chronic pelvic pain

Etiology	Number of Patients	Percentage (%)
Pelvic inflammatory disease	35	28.0
Endometriosis	28	22.4
Pelvic adhesions	19	15.2
Urological causes	12	9.6
Gastrointestinal causes	11	8.8
Psychological causes	15	12.0
Others	5	4.0

Table 10: Psychological evaluation results in chronic pelvic pain patients

Psychological Diagnosis	Number of Patients	Percentage (%)
Anxiety	10	8.0
Depression	8	6.4
Both anxiety and depression	5	4.0
No psychological diagnosis	102	81.6

Discussion

Chronic pelvic pain (CPP) is a complex and challenging condition that affects a significant proportion of women worldwide, often leading to substantial physical, psychological, and social morbidity. In this prospective observational study of 125 females presenting with CPP, we observed a predominance of women in the reproductive age group, consistent with previous studies indicating that CPP most commonly affects women between 20 to 40 years of age [7,8]. This age distribution underscores the impact of CPP on women in their most productive years, potentially affecting fertility, sexual health, and overall quality of life.

Our findings showed that the majority of patients reported pain duration between six months and one year, reflecting a delay in diagnosis and management that is frequently reported in CPP literature [9]. The nature of pain was predominantly dull and aching, localized mainly to the lower abdomen and suprapubic region, which aligns with the typical symptomatology of pelvic pathology. Associated symptoms such as dysmenorrhea and dyspareunia were common, indicating a high prevalence of gynecological causes in CPP, which has been corroborated by previous clinical studies [10].

Pelvic inflammatory disease (PID) was the most frequent etiology identified, consistent with data from similar settings where PID remains a leading cause of CPP due to high prevalence of sexually transmitted infections and suboptimal access to early treatment [11]. Endometriosis and pelvic adhesions were other important gynecological causes confirmed through diagnostic laparoscopy, which played a pivotal role in establishing definitive diagnosis in cases where non-invasive imaging was inconclusive. Our study reinforces the role of laparoscopy as the gold standard diagnostic modality in CPP, particularly in unexplained cases [12].

Ultrasound imaging was useful in detecting structural abnormalities such as ovarian cysts, fibroids, and hydrosalpinx in approximately half of the patients, supporting its role as a first-line investigation. However, normal ultrasound findings in many patients highlight the limitations of imaging and the need for comprehensive clinical and laparoscopic evaluation [13].

Interestingly, psychological factors were identified in a significant subset of patients, with anxiety and depression commonly observed. This finding underscores the multifactorial nature of CPP, where psychological distress may either contribute to or result from chronic pain. Addressing the psychological component is essential for holistic management and improving patient outcomes [14].

Treatment modalities varied according to etiology, with antibiotics used for PID, hormonal therapy for endometriosis, and counseling for psychological causes. The majority of patients experienced significant improvement in symptoms, emphasizing the importance of early diagnosis and tailored treatment strategies in CPP [15].

Our study highlights several important clinical implications: firstly, the need for early referral and multidisciplinary evaluation of women with CPP; secondly, the utility of diagnostic laparoscopy in difficult cases; and thirdly, the importance of addressing psychological factors as part of comprehensive care [16].

Limitations of our study include the single-center design and relatively small sample size, which may limit the generalizability of findings. Further multicentric studies with larger cohorts are warranted to better understand regional variations in CPP etiology and to develop standardized management protocols.

In conclusion, chronic pelvic pain in females is predominantly caused by pelvic inflammatory disease, endometriosis, and pelvic adhesions, with a notable contribution from psychological factors. Timely diagnosis using a combination of clinical, imaging, and laparoscopic evaluation, followed by individualized treatment, can significantly improve patient outcomes and quality of life.

Conclusion

Chronic pelvic pain in females is a multifaceted condition with diverse etiologies predominantly involving gynecological disorders such as pelvic inflammatory disease, endometriosis, and pelvic adhesions. This study highlights that most affected women belong to the reproductive age group, underscoring the significant impact of CPP on women's health and quality of life during their most productive years. Diagnostic laparoscopy remains a crucial tool for accurate diagnosis, especially when non-invasive investigations fail to identify the cause. Psychological factors such as anxiety and depression also play an important role, either as contributors to or consequences of chronic pain, necessitating a holistic, multidisciplinary approach to management. Early diagnosis, targeted therapy, and addressing both physical and psychological components of CPP are essential to improve symptom relief and overall patient outcomes. Future research with larger, diverse populations is needed to develop standardized protocols and optimize care strategies for this challenging clinical condition.

References

1. Culley L, Law C, Hudson N, Denny E, Mitchell H, Baumgarten M, Raine-Fenning N. The social and psychological impact of endometriosis on women's lives: a critical narrative review. *Hum*

- Reprod Update. 2013 Nov-Dec;19(6):625-39. doi: 10.1093/humupd/dmt027. Epub 2013 Jul 24. PMID: 23884896.
2. Mahran A, Baaklini G, Hassani D, Abolella HA, Safwat AS, Neudecker M, Hijaz AK, Mahajan ST, Siegel SW, El-Nashar SA. Sacral neuromodulation treating chronic pelvic pain: a meta-analysis and systematic review of the literature. *Int Urogynecol J*. 2019 Jul;30(7):1023-1035. doi: 10.1007/s00192-019-03898-w. Epub 2019 Mar 14. PMID: 30874835.
 3. Rajaram S, Gupta P, Gupta B, Kaur IR, Goel N. Laparoscopy in the diagnosis of tuberculosis in chronic pelvic pain. *Int J Mycobacteriol*. 2016 Sep;5(3):318-323. doi: 10.1016/j.ijmyco.2016.06.016. Epub 2016 Jul 19. PMID: 27847017.
 4. Howard FM. The role of laparoscopy in chronic pelvic pain: promise and pitfalls. *Obstet Gynecol Surv*. 1993 Jun;48(6):357-87. doi: 10.1097/00006254-199306000-00001. PMID: 8327235.
 5. Chelimsky G, Simpson P, McCabe N, Zhang L, Chelimsky T; collaborative. Autonomic Testing in Women with Chronic Pelvic Pain. *J Urol*. 2016 Aug;196(2):429-34. doi: 10.1016/j.juro.2016.03.142. Epub 2016 Mar 26. PMID: 27026035; PMCID: PMC4969223.
 6. Cagnacci A, Della Vecchia E, Xholli A. Chronic pelvic pain improvement: impact on quality of life and mood. *Gynecol Endocrinol*. 2019 Jun;35(6):502-505. doi: 10.1080/09513590.2018.1540571. Epub 2019 Jan 6. PMID: 30614323.
 7. Hooker AB, van Moorst BR, van Haarst EP, van Ooteghem NA, van Dijken DK, Heres MH. Chronic pelvic pain: evaluation of the epidemiology, baseline demographics, and clinical variables via a prospective and multidisciplinary approach. *Clin Exp Obstet Gynecol*. 2013;40(4):492-8. PMID: 24597241.
 8. Tate JL, Stauss T, Li S, Rotte A, Subbaroyan J. A Prospective, Multi-Center, Clinical Trial of a 10-kHz Spinal Cord Stimulation System in the Treatment of Chronic Pelvic Pain. *Pain Pract*. 2021 Jan;21(1):45-53. doi: 10.1111/papr.12932. Epub 2020 Aug 8. PMID: 32615017; PMCID: PMC7818476.
 9. Montenegro ML, Vasconcelos EC, Candido Dos Reis FJ, Nogueira AA, Poli-Neto OB. Physical therapy in the management of women with chronic pelvic pain. *Int J Clin Pract*. 2008 Feb;62(2):263-9. doi: 10.1111/j.1742-1241.2007.01530.x. Epub 2007 Dec 7. PMID: 18067562.
 10. Sharma D, Dahiya K, Duhan N, Bansal R. Diagnostic laparoscopy in chronic pelvic pain. *Arch Gynecol Obstet*. 2011 Feb;283(2):295-7. doi: 10.1007/s00404-010-1354-z. Epub 2010 Jan 14. PMID: 20072784.
 11. George AK, Sadek MA, Saluja SS, Fariello JY, Whitmore KE, Moldwin RM. The impact of neuropathic pain in the chronic pelvic pain population. *J Urol*. 2012 Nov;188(5):1783-7. doi: 10.1016/j.juro.2012.07.034. Epub 2012 Sep 19. PMID: 22998903.
 12. Stratton P, Khachikyan I, Sinaii N, Ortiz R, Shah J. Association of chronic pelvic pain and endometriosis with signs of sensitization and myofascial pain. *Obstet Gynecol*. 2015 Mar;125(3):719-728. doi: 10.1097/AOG.0000000000000663. PMID: 25730237; PMCID: PMC4347996.
 13. Nielsen SD, Faaborg PM, Christensen P, Krogh K, Finnerup NB. Chronic abdominal pain in long-term spinal cord injury: a follow-up study. *Spinal Cord*. 2017 Mar;55(3):290-293. doi: 10.1038/sc.2016.124. Epub 2016 Aug 9. PMID: 27502843.
 14. Stanford EJ, Dell JR, Parsons CL. The emerging presence of interstitial cystitis in gynecologic patients with chronic pelvic pain. *Urology*. 2007 Apr;69(4 Suppl):53-9. doi: 10.1016/j.urology.2006.05.049. PMID: 17462481.
 15. Gausel AM, Kjærmann I, Malmqvist S, Dalen I, Larsen JP, Økland I. Pelvic girdle pain 3-6 months after delivery in an unselected cohort of Norwegian women. *Eur Spine J*. 2016 Jun;25(6):1953-9. doi: 10.1007/s00586-015-3959-1. Epub 2015 Apr 22. PMID: 25900296.
 16. Naliboff BD, Stephens AJ, Lai HH, Griffith JW, Clemens JQ, Lutgendorf S, Rodriguez LV, Newcomb C, Sutcliffe S, Guo W, Kusek JW, Landis JR; MAPP Research Network. Clinical and Psychosocial Predictors of Urological Chronic Pelvic Pain Symptom Change in 1 Year: A Prospective Study from the MAPP Research Network. *J Urol*. 2017 Oct;198(4):848-857. doi: 10.1016/j.juro.2017.05.065. Epub 2017 May 18. PMID: 28528930; PMCID: PMC5720154.