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Original Research Article

A Retrospective Analysis of Clinical Profile, Management Patterns, and Treatment Outcomes of Pelvic Inflammatory Disease Patients at a Tertiary Care Center

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Abstract:

Background: Pelvic Inflammatory Disease (PID) is a common infection of the upper female genital tract and a major cause of reproductive morbidity among women of reproductive age. Delayed diagnosis and inadequate treatment can lead to chronic pelvic pain, infertility, and recurrent infections.

Aim: To analyze the clinical profile, management patterns, and treatment outcomes of patients diagnosed with PID at a tertiary care center.

Methodology: A retrospective descriptive study was conducted in the Department of Obstetrics and Gynecology, Nalanda Medical College & Hospital, Patna, Bihar, India, over one year. Medical records of 95 women aged 18–45 years diagnosed with PID were reviewed. Data regarding demographic characteristics, clinical presentation, treatment modalities, and outcomes were collected and analyzed.

Results: Most patients belonged to the 25–29 years age group (27.4%), and 53.7% were multiparous. Lower abdominal pain (92.6%) was the most common presenting symptom, followed by vaginal discharge (70.5%) and backache (50.5%). Outpatient antibiotic therapy was administered to 56.8% of patients, while 13.7% required surgical intervention. Complete clinical recovery was achieved in 71.6% of cases. Chronic pelvic pain (11.6%), infertility (8.4%), and recurrence (7.4%) were the most common sequelae.

Conclusion: PID remains a significant reproductive health problem. Early diagnosis, appropriate treatment, and regular follow-up are essential to improve outcomes and prevent long-term complications.

Keywords: Pelvic Inflammatory Disease, Clinical Profile, Treatment Outcomes, Management Patterns, Retrospective Study.

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Introduction

Infection and inflammation of the upper female genital tract, including the uterus, fallopian tubes, ovaries, and adjacent pelvic tissues, are the hallmarks of Pelvic Inflammatory Disease (PID), a serious gynecological condition. It continues to be a major global public health concern and is one of the most prevalent and dangerous reproductive tract infections affecting women of reproductive age. Significant short-term morbidity and long-term reproductive effects, such as infertility, ectopic pregnancy, persistent pelvic pain, and recurrent pelvic infections, are linked to PID. PID continues to be a significant cause of gynecological consultations and hospital admissions despite advancements in diagnostic methods and antimicrobial therapy, especially in poor nations where knowledge, access to healthcare, and preventive services are still restricted [1].

The prevalence of PID varies significantly across various demographics and geographical areas. Because many cases are asymptomatic or subclinical, it is still challenging to ascertain the real prevalence of acute PID, even if the reported incidence has decreased in a number of affluent nations because of

better STI management efforts. According to earlier research, the incidence of PID is estimated to be between 0.28% and 1.67% worldwide; however, because of underdiagnosis and underreporting, the true burden may be significantly greater. PID mostly affects women in their reproductive years, with the second and third decades of life showing the highest frequency [2]. Reproductive health is severely hampered by the condition as many women only show symptoms after difficulties have arisen, at which

point permanent harm to the reproductive organs may have already taken place.

The ascending transmission of germs from the lower vaginal tract to the higher reproductive organs is the main cause of PID. The endometrium (endometritis), fallopian tubes (salpingitis), ovaries (oophoritis), and pelvic peritoneum (peritonitis) may all be affected by the inflammatory process. The most prevalent cause of the illness is bacteria, and it is often polymicrobial [3]. Neisseria gonorrhoeae and Chlamydia trachomatis have historically been identified as the main pathogens causing PID. The significance of early identification and treatment of sexually transmitted diseases is highlighted by the estimated 10% of women who get Chlamydia trachomatis go on to develop PID [4]. Mycoplasma genitalium, Gardnerella vaginalis, Enterococcus faecalis, Streptococcus species, Escherichia coli, anaerobic bacteria, and genital tract mycoplasmas are among the additional microbes that have recently been linked to PID. For the condition to be effectively managed, broad-spectrum antibiotic treatment is frequently required due to its polymicrobial nature.

PID risk factors include a number of behavioral, reproductive, procedural, and demographic characteristics. Multiple sexual partners, early sexual debut age, prior STDs, low socioeconomic position, single marital status, and poor genital cleanliness are some of these [5]. Intrauterine contraceptive device (IUCD) insertion, endometrial biopsy, hysteroscopy, dilatation and curettage, and hysterosalpingography (HSG) are some gynecological procedures that may increase the risk of infection by facilitating the ascent of pathogenic organisms into the upper genital tract. Additionally, the burden of PID is greatly increased by obstetric variables such septic abortion, postpartum infections, and unsanitary births, especially in areas with minimal resources.

PID can cause a wide variety of clinical symptoms, from minor lower abdomen pain to a serious pelvic infection that necessitates hospitalization. Lower abdomen discomfort, irregular vaginal discharge, fever, dyspareunia, irregular menstruation, dysuria, and infertility are common symptoms. Because symptoms might be vague and overlap with those of other gastrointestinal and gynaecological conditions, clinical diagnosis is sometimes still difficult. As a result, when women of reproductive age exhibit pelvic discomfort and signs of a genital tract infection, a high index of suspicion is necessary. Progression to severe illness and long-term consequences are more likely when diagnosis is delayed and therapy is insufficient [6].

One of the most dangerous elements of PID is its complications and aftereffects. Tubal scarring, pelvic adhesions, hydrosalpinx, tubo-ovarian abscess development, persistent pelvic discomfort, infertility, and ectopic pregnancy are all consequences of persistent inflammation. One of the most terrible effects of PID is still tubal infertility, especially for young women who want to become pregnant in the future. The likelihood of irreversible tubal damage and unfavourable reproductive outcomes is significantly increased by repeated episodes of PID. In addition to having an impact on physical health, these issues place a heavy financial, social, and psychological burden on impacted women and their families [7].

Reproductive tract infections in women of reproductive age remain a significant public health issue in India. Healthcare-seeking behavior is frequently delayed by sociocultural factors such lack of privacy, stigma associated with gynecological complaints, low health awareness, inadequate healthcare accessibility, financial restrictions, and women's disadvantaged social standing. Because of this, many women show here with established issues or at later stages of the disease. One of the most significant aftereffects of reproductive tract infections is pelvic inflammatory disease, which significantly increases gynaecological morbidity in the nation. The burden of PID and its related problems might be considerably decreased with improved obstetric and delivery care, safe abortion facilities, family planning counselling, sexually transmitted infection control programs, and health education campaigns [8].

Despite its clinical importance, there remains limited data regarding the clinical presentation, management practices, and treatment outcomes of PID patients attending tertiary care institutions in India. Understanding the demographic characteristics, risk factors, clinical manifestations, treatment modalities, and outcomes of PID is essential for developing effective prevention and management strategies. Therefore, the present study entitled A Retrospective Analysis of Clinical Profile, Management Patterns, and Treatment Outcomes of Pelvic Inflammatory Disease Patients at a Tertiary Care Center was undertaken to evaluate the clinical profile of PID patients, assess prevailing management approaches, and analyze treatment outcomes among women attending a tertiary care center. The findings of this study are expected to provide valuable insights into the disease burden, facilitate early diagnosis and appropriate management, and contribute to reducing the reproductive morbidity associated with PID.

Methodology

Study Design: This study was designed as a retrospective descriptive observational study aimed at analyzing the clinical profile, management patterns, and treatment outcomes of patients diagnosed with Pelvic Inflammatory Disease (PID) at a tertiary care center. The retrospective design enabled the evaluation of existing medical records to identify demographic characteristics, clinical presentations, treat-

ment modalities, and outcomes among women diagnosed with PID.

Study Area: The study was conducted in the Department of Obstetrics and Gynecology, Nalanda Medical College & Hospital (NMCH), Patna, Bihar, India.

Study Duration: The study was conducted over a period of one year from February 2025 to January 2026.

Sample Size: A total of 95 patients diagnosed with Pelvic Inflammatory Disease and fulfilling the study eligibility criteria were included in the analysis.

Inclusion Criteria

1. Women aged 18–45 years diagnosed with Pelvic Inflammatory Disease.
2. Patients presenting with one or more of the following symptoms:
    - Lower abdominal pain
    - Abnormal vaginal discharge
    - Dyspareunia
    - Menstrual irregularities
3. Patients have clinical evidence of PID, including:
    - Cervical motion tenderness
    - Uterine tenderness
    - Adnexal tenderness on pelvic examination
4. Patients whose medical records contained complete clinical and treatment-related information.
5. Patients managed PID at Nalanda Medical College & Hospital during the study period.

Exclusion Criteria

1. Women below 18 years of age.
2. Postmenopausal women.
3. Patients with established alternative causes of lower abdominal pain such as:
    - Acute appendicitis
    - Ovarian torsion
    - Ruptured ovarian cyst
    - Urinary tract disorders
    - Gastrointestinal pathologies
4. Patients with incomplete or missing medical records.
5. Patients with diagnosed gynecological malignancies

Study Population: The study population comprised women of reproductive age group (18–45 years) who attended the Gynecology Outpatient Department (OPD) or were admitted to the Department of Obstetrics and Gynaecology at Nalanda Medical College & Hospital (NMCH), Patna, Bihar, with a diagnosis of Pelvic Inflammatory Disease (PID) during the study period. A total of 95 eligible patients meeting the predefined inclusion and exclusion criteria were included in the study. The study population represented women presenting with clinical features suggestive of PID and receiving treatment at the tertiary care center.

Data Collection: Data were collected retrospectively from hospital medical records, including outpatient case sheets, inpatient records, treatment registers, discharge summaries, laboratory reports, and imaging records maintained in the Department of Obstetrics and Gynaecology. Information regarding demographic characteristics, reproductive and obstetric history, socioeconomic status, presenting complaints, clinical examination findings, risk factors, laboratory investigations, treatment modalities, and treatment outcomes was extracted using a structured data collection proforma. The collected information was carefully reviewed for completeness and accuracy before being entered into the study database for analysis.

Procedure: After obtaining ethical approval, hospital records of patients diagnosed with Pelvic Inflammatory Disease during the study period were identified and screened according to the inclusion and exclusion criteria. Eligible records were reviewed in detail, and relevant information regarding demographic profile, clinical presentation, risk factors, examination findings, investigations, treatment administered, and treatment outcomes was extracted using a predesigned proforma. The clinical profile of patients was assessed based on variables such as age, parity, socioeconomic status, presenting symptoms, and associated risk factors. Management patterns were evaluated by reviewing antibiotic regimens, supportive treatment, hospitalization requirements, and surgical interventions, where applicable. Treatment outcomes were assessed in terms of symptom resolution, clinical improvement, complications, recurrence, and development of sequelae. The data collected were compiled, verified, and prepared for statistical analysis.

Statistical Analysis: The collected data were entered into Microsoft Excel and subsequently analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics were used to summarize the data. Continuous variables, such as age, were expressed as mean ± standard deviation (SD), while categorical variables were presented as frequencies and percentages. The findings were summarized in the form of tables and charts for better interpretation. Associations between clinical variables, management patterns, and treatment outcomes were evaluated using appropriate statistical tests such as the Chi-square test or Fisher's exact test wherever applicable. A p-value of less than 0.05 was considered statistically significant. The results obtained were compared with findings from previously published studies to assess similarities and differences in the clinical profile,

management practices, and treatment outcomes of PID patients.

Result

Table 1 displays the research participants' demographic details. The age group of 25–29 years old accounted for the largest percentage of PID patients (27.4%), followed by the age group of 18–24 years old (22.1%). 53.7% of patients had parity between two and four, making up the bulk of multiparous patients. Nulliparous patients made up just 8.4% of the total. These results suggest that PID was more prevalent among multiparous women and women in their reproductive years.

Table 1: Demographic and Clinical Characteristics of PID Patients (N = 95)

Variable	Number (n)	Percentage (%)
Age Group (Years)		
18–24	21	22.1
25–29	26	27.4
30–34	20	21.1
35–39	16	16.8
40–45	12	12.6
Parity		
Nulliparous	8	8.4
Para 1	19	20
Para 2–4	51	53.7
≥5	17	17.9

Table 2 shows the clinical characteristics of PID patients. The most prevalent symptom, reported by 92.6% of patients, was lower abdominal discomfort, which was followed by backache (50.5%) and vaginal discharge (70.5%). 44.2% of patients had a fever, while 32.6% and 28.4% of patients had dyspareunia and irregular menstruation, respectively. These results imply that the most common presenting symptoms among individuals with PID were lower abdominal discomfort and abnormal vaginal discharge.

Table 2: Presenting Clinical Features of PID Patients (N = 95)

Clinical Feature*	Number (n)	Percentage (%)
Lower abdominal pain	88	92.6
Vaginal discharge	67	70.5
Fever	42	44.2
Backache	48	50.5
Dyspareunia	31	32.6
Menstrual irregularities	27	28.4
Dysuria	18	18.9
Infertility	15	15.8

Table 3 presents a concise summary of the management strategies implemented for patients with PID. The most popular treatment approach, given to 56.8% of patients, was outpatient antibiotic therapy. 29.5% of patients had conservative inpatient care, while 37.9% of cases required intravenous antibiotics. 13.7% of patients require surgery, mostly as a result of severe illness or related complications. As part of comprehensive treatment, all patients received analgesics, supportive care, counselling, and health education.

Table 3: Management Patterns Among PID Patients (N = 95)

Treatment Modality	Number (n)	Percentage (%)
Outpatient antibiotic therapy	54	56.8
Inpatient conservative management	28	29.5
Intravenous antibiotics	36	37.9
Surgical intervention (Drainage/Laparoscopy/Laparotomy)	13	13.7
Analgesics and supportive therapy	95	100
Counseling and health education	95	100

Table 4 illustrates the treatment outcomes and sequelae experienced by patients with PID. After therapy, 71.6% of patients had a full clinical recovery, while 16.8% showed some improvement. In 7.4% of

patients, recurrence was seen during follow-up. Infertility (8.4%) and tubo-ovarian abscess (5.3%) were the most frequent sequelae, with 11.6% of patients experiencing chronic pelvic discomfort. 4.2% of patients needed to be readmitted to the hospital. These results show that while a small percentage of patients experienced long-term problems, the majority of patients reacted well to therapy.

Table 4: Treatment Outcomes and Sequelae of PID Patients (N = 95)

Outcome	Number (n)	Percentage (%)
Complete clinical recovery	68	71.6
Partial improvement	16	16.8
Recurrence during follow-up	7	7.4
Chronic pelvic pain	11	11.6
Infertility	8	8.4
Tubo-ovarian abscess	5	5.3
Required repeat hospitalization	4	4.2

Discussion

In underdeveloped nations, pelvic inflammatory disease (PID) is still a major public health problem and one of the leading causes of gynecological morbidity among women of reproductive age. The majority of patients in the current retrospective analysis were between the ages of 25 and 29 (27.4%), followed by those between the ages of 18 and 24 (22.1%) and 30 and 34 (21.1%). These results suggest that PID mostly affects women in their prime reproductive years. Similar findings were reported by Nkwabong and Dingom (2015), who discovered that women between the ages of 20 and 24 had the greatest incidence of PID (27.2%), followed by those between the ages of 25 and 29 (24.3%). Similarly, Garcia et al. (2006) noted that PID mostly affects sexually active women in their second and third decades of life, highlighting the susceptibility of younger women of reproductive age to ascending genital tract infections (Garcia et al., 2006). higher sexual activity, higher exposure to STDs, and risk factors related to reproductive health may all contribute to the high frequency in this age group" [9].

In terms of parity, only 8.4% of the patients in this research were nulliparous, whereas more than half (53.7%) were multiparous with parity between 2 and 4. This result implies that multiparous women have a greater incidence of PID. Ahmed et al. (2017) found similar findings, showing that only a tiny percentage of women were nulliparous and that 56% of PID cases occurred among women with parity between 2 and 5. Additionally, Patel et al. (2013) showed a strong correlation between multiparity and PID, attributing the elevated risk to recurrent intrauterine interventions, cervical trauma, and exposure to childbirth-related illnesses. Additionally, women who are multiparous are more likely to have had gynecological or obstetric operations, which can lead to ascending infections [10].

The current study's clinical presentation was mostly in line with PID's traditional symptoms. Vaginal discharge (70.5%), backache (50.5%), fever (44.2%), and lower abdomen discomfort (92.6%) were the most frequent presenting complaints. Similar results were reported by Nkwabong and Dingom (2015), who found that 75.7% of patients had stomach discomfort, 73.3% had vaginal discharge, and 70.9% had fever. Additionally, Ahmed et al. (2017) found that the most common symptoms among PID patients were abnormal vaginal discharge and lower abdomen discomfort. Patients attending a tertiary care facility may have delayed presentation and persistent inflammatory alterations, which might account for the somewhat greater prevalence of stomach discomfort in our research. Variations in healthcare-seeking behavior and illness severity at presentation may also be reflected in the variation in symptom distribution among studies [11].

The current conventional method to treating PID is reflected in the management patterns seen in this study. While 37.9% of the patients needed intravenous antibiotics and 29.5% needed inpatient conservative care, over half of the patients (56.8%) handled outpatient antibiotic treatment. 13.7% of patients require surgery because of severe illness, chronic symptoms, or complications such a tubo-ovarian abscess. These results corroborate Sweet's (2012) recommendations, which stressed that while severe infections and abscess development frequently need hospitalisation and surgical surgery, the majority of simple PID patients may be adequately handled with broad-spectrum antibiotic medication. According to Brunham et al. (2015), early beginning of adequate antibiotic therapy greatly slows the course of the disease and its consequences for reproduction. The current study's comparatively minimal need for surgical intervention may point to timely diagnosis and efficient medical care in the majority of patients [12].

The current study's treatment results were largely positive. 71.6% of patients made a full clinical recovery, and 16.8% showed some improvement. In 7.4% of cases, recurrence was reported. A portion of patients experienced long-term consequences despite therapy, such as tubo-ovarian abscess (5.3%), infertility (8.4%), and persistent pelvic discomfort (11.6%). These results are consistent with earlier re-

search outlining the serious reproductive effects of PID. According to Westrom et al. (1992), tubal damage brought on by PID significantly raises the likelihood of ectopic pregnancy and infertility, especially following repeated infection episodes. In a similar vein, Wiesenfeld et al. (2012) showed that infertility and long-term reproductive tract damage can arise from even asymptomatic PID. Due to timely identification and treatment in the tertiary care environment, the infertility rate found in this research is relatively lower than that seen in other previous studies [13].

The long-term impact of PID is further highlighted by the fact that 11.6% of patients experience persistent pelvic discomfort. One of the most crippling aftereffects of pelvic infection is chronic pelvic pain, which is often linked to pelvic adhesions and ongoing inflammation. According to Sweet (2012), even after the infection has been successfully eradicated, persistent pelvic discomfort is still a common consequence, highlighting the need of early identification and treatment (Sweet, 2012). Similarly, recurring inflammatory events raise the risk of tubal injury and persistent discomfort (Brunham et al., 2015) [14].

Overall, the results of this study show that PID is frequently linked to multiparity and mostly affects women in their reproductive years. Vaginal discharge and lower abdomen discomfort were the most common symptoms. With a high probability of full clinical recovery, most patients reacted well to medical treatment. However, a significant percentage experienced long-term consequence including infertility and chronic pelvic discomfort, highlighting the need for early diagnosis, prompt treatment, health education, and successful preventative measures. The findings support the ongoing impact of PID on women's reproductive health and are generally in line with another research.

Conclusion

The current retrospective study emphasizes that among women of reproductive age who visit a tertiary care facility, pelvic inflammatory disease (PID) continues to be a major gynecological health issue. The condition was more common in multiparous individuals and was more frequently seen in women between the ages of 25 and 29. The most common presenting complaints were lower abdomen discomfort and atypical vaginal discharge, highlighting the significance of keeping a high index of clinical suspicion in women who exhibit these symptoms. Most patients recovered satisfactorily after conservative medical care with antimicrobial medication. However, a significant percentage of patients experienced long-term consequences and problems such tubo-ovarian abscess, infertility, recurrence, and chronic pelvic discomfort, highlighting the possible reproductive repercussions of delayed diagnosis and insufficient treatment. These results highlight the need of early identification, immediate beginning of appropriate medication, routine follow-up, and effective preventative interventions such as health education, promotion of safe sexual behaviors, and fast management of reproductive tract infections. The burden of PID and its related morbidity among women in the reproductive age group may be considerably decreased by raising knowledge and expanding access to gynecological healthcare services.

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