

# Presence of Obstetrical Conditions among Women with Pelvic Inflammatory Diseases: Experience of 50 Cases in Bangladesh

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## Abstract

**Background:** Pelvic Inflammatory Diseases can be associated with the different obstetrical condition. **Objectives:** The purpose of the present study was to see the Presence of Obstetrical Conditions among Women with pelvic inflammatory diseases (PID). **Methodology:** This cross-sectional of study was conducted in the Department of Obstetrics and Gynaecology at Dhaka Medical College, Dhaka from January 2007 to June 2007 for a period of six (6) months. Women with the age group of 15 - 45 years presented with lower abdominal pain, tenderness, per vaginal discharge and cervical motion tenderness were included in this study. A pre-designed data collection sheet was used to record the history of different obstetrical condition. **Result:** A total number of 50 women presented with PID were recruited for this study of which majority was in para 2 to 5 which was 30 (60.0%) cases. Majority of the patients had given the history of home delivery (74.0%) which was performed by untrained birth attendance (60.0%). The history of induced abortion was given by 24.0% cases. History of more than 2 times menstrual regulation (MR) and 2 to 5 times were performed in 20 (40.0%) cases in each. Among 50 cases majority used intrauterine device (IUCD) which were 20 (40.0%) cases. **Conclusion:** In conclusion majority of the women presented with PID have given the history of para 2 to 5, home delivery with untrained birth attendance, induction abortion and history of more than two times MR.

## Keywords

Obstetrical Conditions, Home Delivery, Pelvic Inflammatory Diseases, MR

## 1. Introduction

Pelvic inflammatory disease (PID) is an infection-caused inflammatory continuum from the cervix to the peritoneal cavity [1]. Most importantly, it is associated with fallopian tube inflammation, which can lead to infertility, ectopic pregnancy, and chronic pelvic pain [2]. According to a national estimate, in 2001 more than 750,000 cases of pelvic inflammatory disease occurred in the United States; however, over the past two decades, the rates and severity of pelvic inflammatory disease have declined in North America and Western Europe [3] [4] [5]. Despite progress, however, pelvic inflammatory disease remains a problem because reproductive outcomes among treated patients are still suboptimal, subclinical pelvic inflammatory disease remains poorly controlled, and programs aimed at the prevention of pelvic inflammatory disease are not feasible in much of the developing world [6].

The microbial etiology is linked to sexually transmitted microorganisms, including *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Mycoplasma genitalium*, and bacterial vaginosis-associated microorganisms, predominantly anaerobes [4]. Pelvic pain and fever are commonly absent in women with confirmed PID. Clinicians should consider milder symptoms such as abnormal vaginal discharge, metrorrhagia, postcoital bleeding, and urinary frequency as potential symptoms associated with the disease, particularly in women at risk of sexually transmitted infection [6]. The diagnosis of PID is based on the findings of lower genital tract inflammation associated with pelvic organ tenderness. The outpatient treatment of mild-to-moderate PID should include tolerated antibiotic regimens with activity against the commonly isolated microorganisms associated with PID and usually consists of an extended spectrum cephalosporin in conjunction with either doxycycline or azithromycin [7]. Clinically severe PID should prompt hospitalization and imaging to rule out a tuboovarian abscess. Parenteral broad-spectrum antibiotic therapy with activity against a polymicrobial flora, particularly gram-negative aerobes and anaerobes, should be implemented. Screening for and treatment of *Chlamydia* infection can prevent PID [8].

Pelvic inflammatory disease is now a major concern as because it can cause reproductive disability including infertility, ectopic pregnancy and chronic pelvic pain [3]. After the introduction of laparoscopy in the 1960s, research on pelvic inflammatory disease proliferated which leads to major breakthroughs in the understanding of the microbial causes of the disease and its relationship to reproductive disability, as well as enabling the standardization of antimicrobial treatment [9]. Despite progress, however, pelvic inflammatory disease remains a problem because reproductive outcomes among treated patients are still suboptimal, subclinical pelvic inflammatory disease remains poorly controlled, and programs aimed at the prevention of pelvic inflammatory disease are not feasible in much of the developing world. The reason may be due the different history of obstetrical condition [8]. In this regards this present study was undertaken to the

presence of obstetrical conditions among women with pelvic inflammatory diseases (PID).

## 2. Methodology

This was a prospective observational type of cross-sectional of study. This study was conducted in the outpatient department (OPD) of the Department of Obstetrics and Gynaecology at Dhaka Medical College, Dhaka. The duration of study was from January 2007 to June 2007 for a period of six (6) months. Women with the age group of 15 to 45 years presented with lower abdominal pain, tenderness, per vaginal discharge and cervical motion tenderness were included in this study. Women with fibroid uterus, uterovaginal prolapsed or cystocele was excluded from this study. Clinically PID was diagnosed with the clinical features of lower abdominal pain, abdominal tenderness, per vaginal discharge and cervical motion tenderness in the women. After attending in gynaecology OPD in Dhaka Medical College & Hospital (DMCH), Dhaka, Bangladesh an introduction was given to the patients regarding the purpose and importance of the study. After taking informed verbal consent from the patients, a pre-designed data collection sheet was used to record the history of different obstetrical condition like age of the patients, number of parity, places of delivery, types of abortion history, history of different issues related to menstrual regulation (MR) and history of uses of different types of uses of contraceptives methods. Statistical Packages for Social Sciences (SPSS) Statistics 20.0 was used for the statistical analyses. Categorical data were presented as frequency and percentage.

## 3. Results

The study was performed on 50 cases. Out of 50 cases of pelvic inflammatory disease majority (50%) belonged to the age group of 26 to 35 years followed by more than 35 years age group and 18 to 25 Years of age group which were 14 (28.0%) cases and 10 (20.0%) cases respectively (**Table 1**).

Among 50 women with PID majority were in para 2 to 5 which was 30 (60.0%) cases followed by more than 5 para and para 1 which were 14 (28.0%) cases and 10 (20.0%) cases respectively. However, primigravida was only in 3 (6.0%) cases (**Table 2**).

Among 50 cases 74% cases were underwent home delivery of which 60% labour were performed by untrained birth attendance and 14% cases were by trained birth attendance; furthermore 26% cases were given the history of hospital delivery (**Table 3**).

Out of 50 patient 24% cases were given the history of induced abortion, 14% has septic abortion, 24% spontaneous abortion and 20% had D and C (**Table 4**).

Among 50 cases more than 2 times MR and 2 to 5 times were performed in 20 (40.0%) cases in each; however, 10 (20.0%) cases were given no history of MR. Among all cases 11 (22.0%) cases were performed by trained person and the rest 29 (58.0%) cases were performed by untrained person (**Table 5**).

**Table 1.** Age distribution of study population (n = 50).

Age Group (years)	Frequency	Percentage
Less than 18 Years	1	2.0
18 to 25 Years	10	20.0
26 to 35 Years	25	50.0
More than 35 Years	14	28.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

**Table 2.** Distribution of number of parity among the study population (n = 50).

Parity	Frequency	Percentage
Primigravida	3	6.0
1	5	10.0
2 to 5	30	60.0
More Than 5	12	24.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

**Table 3.** Distribution of the places of delivery among the study population (n = 50).

Place of delivery	Frequency	Percentage
Hospital delivery	13	26.0
Home delivery attended by		
Untrained BA	30	60.0
Trained BA	7	14.0
Puerperal sepsis	5	10.0

BA = Birth Attendance.

**Table 4.** Types of abortion history among the study population (n = 50).

Events	Less than 2	More than 2	Total
Spontaneous Abortion	5	7	12 (14.0%)
Induced Abortion	6	8	14 (28.0%)
D & C	10	-	10 (20.0%)
Septic Abortion	4	10	14 (28.0%)

D &amp; C = Dilatation and Curettage.

**Table 5.** Distribution of history of MR among the study population (n = 50).

Variables	Frequency	Percentage
Number of MR		
0	10	20.0
Less than 2	20	40.0
2 to 5	20	40.0
MR Performed by		
Trained Person	11	22.0
Untrained Person	29	58.0

Among 50 cases majority were used intrauterine device (IUCD) which were 20 (40.0%) cases followed by oral contraceptive pill (OCP) users, barrier users and permanent sterilization (tubectomy) which were 15 (30.0%) cases, 5 (10.0%) cases and 4 (8.0%) cases respectively; however, 6 (12.0%) cases were contraceptive non users (**Table 6**).

#### 4. Discussion

In this present study 50 cases of PID patients were examined. It showed that the highest percentage (50.0%) of PID is in the age group of 26 to 35 years. Peterson also mentioned that women with PID were usually under the age of 25 years. Shah *et al.* [10] showed in his study that 87 percent of the patient belong the age group of 20 - 35 years. Tarafder [11] showed the highest incidence 55.21% of PID in the age group of 26 - 35 years. Another study St John *et al.* [12] concluded that cases of PID were usually between the age group of 30 to 44 years (67.1%) PID occur more in the younger age group in the Western countries, where it is mostly STD related. But in the developing countries it is more commonly in the age group and mostly related to the obstetrical events [11].

Younger age is marked by the biological characteristics favourable to develop PID, like lower prevalence of protective chlamydial antibody, longer zone of cervical ectopy and greater permeability of the cervical mucus [7]. In this study majority of the women with pelvic inflammatory disease were multipara which 60.0% cases were. However, maximum patients were delivered at home (74.0%) and 40.0% delivery cases were conducted by untrained birth attendants; furthermore 10% patients had the history of puerperal sepsis. Similar to the present study result, Trafder [11] showed that 83.85% of the patients were multipara and 90.8% of were delivered at home. Again in this present study 67.03% cases delivery were conducted by untrained birth attendant and 56.21% were complicated by puerperal sepsis. Sultana [13] showed that 81.7% cases of PID patients were the history of home delivery and 81.0% were multipara; furthermore 73.4% of the patients had the history of puerperal sepsis which is consistent with the present study result. Peterson *et al.* [14] showed that PID occurred mostly in multipara. In another study De-Vries *et al.* [15] has shown that 74.4% of the PID cases were multiparous which are mostly in acute cases. These studies, therefore, focused that PID occurred in mostly parous women in the developing countries

**Table 6.** History of contraceptives among the study population (n = 50).

Contraceptive	Frequency	Percentage
Pill	15	30.0
IUCD	20	40.0
Barrier	5	10.0
Tubectomy	4	8.0
Nil	6	12.0

and the majority were young multiparous women in developed countries.

The rural women of Bangladesh mostly depend on untrained birth attendant who conduct the delivery in a very unhygienic way [9]. There is no provision of using sterile gloves. In addition to that per vaginal examination is done repeatedly even after rupture of membrane. Sometimes they are using lubricating oil. These give the opportunity for the pathogen to enter into the upper genital tract and alter the normal sterile environment. Again, the untrained birth attendant usually perform traumatic vaginal delivery which causes perineal tear, cervical tear and also performed manual removal of placenta which favor postpartum pelvic infection [9]. However, infection initially remains localized to the pelvic region and if is not treated efficiently, this leads to chronic PID. And subsequently causes the chronic PID with its sequelae. In a maternal mortality study it has been found that 16.7% women reported symptoms of PID at postpartum period [10].

This study has shown frequency of PID among the women with the different ways of termination of pregnancy in the form of MR as well as abortion which may be induced or spontaneous. It is more common after induced abortion, spontaneous abortion without completed by Dilatation and Curettage. In this series 28.0% cases had the history of induced abortion, 24.0% had spontaneous abortion, 28.0% ended with complications by sepsis. Regarding MR it becomes evident that 40% have the history of more than two times MR and 40.0% up to 2 MR. From these finding it is obvious that PID was more common in the patients having repeated MR specially the unauthorized person which is about 58% cases. Sultana [13] showed that 72.2% patients had the history of termination of pregnancy. Tarafder [7] showed 66.13% of her patients had history of termination of pregnancy; fifty percent of them underwent puerperal sepsis. Kocher [16] showed the highest incidence of pelvic infection occurred following abortion. It is estimated that 36 to 53 million induced abortion performed through the word of which 21 million are unsafe [13].

The prevalence of pelvic infection following pregnancy termination depends upon the precaution and procedure of termination. In Bangladesh MR is mostly done by the unskilled person in unauthorized place with a very unhygienic way although it should be done by the trained personal in proper hygienic way. As a result the patients subsequent develop PID. The endometrial cavity is normally sterile. The natural barrier to pelvic infection is the cervix where downward flows of the mucous and ciliary action are reinforced by production of lysozyme. With the help of cervical secreted IgA, the lysozyme hydrolyses peptidoglycan links of microorganism allow osmotic destruction [8]. This cervical protective barrier is compromised after abortion, instrumentation like D & C, IUCD insertion, MR and hysterosalpingography or as a result of sexual promiscuity [1].

The dramatic increase in use of contraception worldwide makes it imperative to understand the effect of contraceptives on the health of women. PID may follow elective abortion in about 10.0% of patients. Incidence of *Chlamydia tra-*

*chomatis* screened was 14.0%. This study emphasizes the frequency of PID in different methods of contraceptives. From the series it has been found that 12.0% of the patients were contraceptive non users; 30.0% cases had the history of taking oral contraceptive pill; 40.0% cases were IUCD users and 10.0% cases were barrier method users. In this study 8.0% patient had history of tubectomy. Sultana [13] showed that 48.1% patients were contraceptive non-users; however, 23.5% cases were using oral pill and 74.0% cases had the history of IUCD insertion. Tarafder [7] showed that 28.12% of the patients had the history of taking oral contraceptive pill; IUCD was on third position. Sciarra [17] showed that women with IUCD has symptom of PID which was 2.5 times of non-users and 1.8 times on women using other contraceptives. These patients also showed that a relative risk of PID of 0.3% to 0.9% for oral contraceptive users compared to non-users of contraceptives and even lower relative risk compared to users of all other method. IUCD was often regarded as important iatrogenic cause of PID. It is stated that risk is 3 to 4 folds more [16]. In FIGO manual on family planning [2], it has been mentioned that IUCD is associated with an increase risk of PID which is estimated to be 1.5 to 10 fold for IUCD users compared to other methods of contraceptives. There may be lower rate of PID among users of newer copper-bearing device. Risk of PID appears more common in the first few months following insertion and reinsertion. Women using IUCD for 5 or more years are more likely to have a more severe form of disease [2].

During IUCD insertion number of vaginal and cervical organisms enters into the endometrial cavity leading to PID. A number of different organisms are responsible like gonococcus, *Chlamydia trachomatis*, *Mycoplasma*, anaerobic and aerobic bacteria [13]. Prompt recognition and treatment should reduce the tubal damage and subsequent infertility, ectopic pregnancy. Use of doxycycline at time of IUCD insertion may reduce the risk of PID.

The relationship between oral contraceptive and PID is complex. Oral contraceptive increase cervical erosion which favours chlamydia infection. On the other hand in upper genital tract oral contraceptive provides some protection against symptomatic infection. Oral contraceptive decreases blood loss which is favorable environment for bacterial growth. Thickened cervical mucus hinders the absconding growth mechanical barrier; furthermore condom also protects the upper genital tract from STD and other ascending infections [9]. Oral contraceptive has a protective effect against PID [8].

MacLean [18] found that relative risk of PID was 0.5 with oral contraceptives and diaphragm, 0.7 with sterilization, 1.8 with medicated IUCD, 3.3 with non-medicated IUCD and 1.3 with previous IUCD user, suggesting that IUCD increases the risk of PID. Another study [9] showed the levonorgestrel releasing IUCD provides excellent contraception, may reduce the rate of PID and ectopic pregnancy compared to other copper releasing IUCD. Senarayek and Kramer [19] strongly imply that oral contraceptives have a protective effect against PID.

It is thought that oral contraceptive use has been associated with lower risk of



PID but higher risk of chlamydia cervicitis. A study showed that women with un-recognized endometritis were 4.3 times more likely to develop PID than women with recognized endometritis using oral contraceptives [20] and has concluded that future studies need to fully characterize the risk.

There are some limitations of the study. Small sample size is the major limitation. Furthermore this is a single centered study.

## 5. Conclusion

In conclusion it can be said that obstetrical events play a vital role in causation of PID. Home delivery is common to most of the patients conducted by untrained birth attendants. A good number of patients are conducted by untrained birth attendants and have the history of puerperal sepsis. It is observed that there is an increased trend of induced abortion and repeated MR performed by the unskilled person. MR and induced abortion are found as a method of termination of unplanned pregnancies rather than medically indicated, which ultimately leads to pelvic infection. Safe delivery practice by skilled personal at the community level is strongly recommended to prevent PID.

## Conflict of Interest

The authors of this paper have declared that there is no conflict of interest to any of the authors.

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