

Pelvic Inflammatory Disease Among Female Patients Presenting with Low Backache in an Orthopaedics OPD: A Prospective Epidemiological Study

Heena Khan¹, Ruchira Nautiyal², Sirazul Haque Malik³

¹Assistant professor, Department of Obstetrics & Gynaecology, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, Uttarakhand, India. ²Professor, Department of Obstetrics & Gynaecology, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, Uttarakhand, India. ³Associate Professor, Department of Orthopaedics, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, Uttarakhand, India.

Abstract

Background: Low backache is common among women and may have both musculoskeletal and gynecological causes. Pelvic inflammatory disease (PID) can present with low backache and other nonspecific symptoms and may therefore be overlooked in women attending an Orthopaedics OPD. The objective is to determine the frequency of PID among female patients presenting with low backache to an Orthopaedics OPD and describe their associated clinical and sociodemographic characteristics. **Material and Methods:** This prospective epidemiological study was conducted from January 2025 to December 2025 at the Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun. A total of 176 female patients presenting with low backache to the Orthopaedics OPD were included. Patients with clinical or radiological evidence of disc prolapse, spinal tuberculosis, or other spinal diseases were excluded. Detailed history, clinical examination, and relevant investigations were performed. PID was diagnosed based on clinical evaluation and relevant investigations. **Results:** PID was identified in 48 of 176 patients (27.3%). The largest proportion of patients belonged to the 40–49 years age group (36.9%). Most patients had low socioeconomic status (64.8%), were literate (75.0%), obese (63.6%), and parous (76.7%). Discharge per vaginam was the most common associated complaint (52.8%), followed by lower abdominal pain (43.2%). Regarding contraceptive use, 75 (42.6%) reported no contraception, 56 (31.8%) used an intrauterine contraceptive device, and 45 (25.6%) used oral contraceptive pills. **Conclusion:** PID was identified in more than one fourth of female patients presenting with low backache to the Orthopaedics OPD. Gynecological causes should therefore be considered during the evaluation of women with low backache, particularly when associated symptoms are present.

Keywords: Pelvic inflammatory disease; Low backache; Orthopaedics OPD; Female patients; Gynecological morbidity.

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INTRODUCTION

Low back pain is an important public health problem worldwide and is a common cause of pain, disability, healthcare utilization, and loss of productivity.^[1] It is estimated that 60% to 80% of adults experience low back pain at some point in their lifetime. Anderson estimated the annual worldwide incidence of low back pain in adults to be approximately 15%, with a point prevalence of about 30%.^[2] In India, the reported prevalence of low back pain varies widely, ranging from 6.2% to 92%, with prevalence generally increasing with age and a higher burden reported among women.^[3] Nearly 60% of the Indian population is reported to experience significant back pain at some point in life, highlighting its substantial impact on individual health and daily functioning.^[4,5]

Low back pain is defined as pain localized between the costal margin and the inferior gluteal folds, with or without associated leg pain.^[6] It may be classified as nonspecific when no identifiable underlying pathology is found or as specific when a recognizable pathological cause is present.^[7] Although history taking and clinical examination are sufficient for most patients, further evaluation may be required when symptoms suggest radicular pain or spinal

pathology.^[6,8] In addition to physical causes, psychosocial factors may contribute to persistent symptoms and long-term disability.^[6] Therefore, identifying potentially treatable causes of low backache is important, particularly in women presenting with persistent or associated pelvic symptoms.

Pelvic inflammatory disease (PID) is a spectrum of infection and inflammation involving the upper female genital tract, including the uterus, fallopian tubes, ovaries, pelvic peritoneum, and surrounding pelvic structures.^[9,10] PID may present with lower abdominal or pelvic pain, abnormal or excessive vaginal discharge, lower backache, fever, and other genitourinary symptoms.^[4,10] The condition can have substantial consequences for women's reproductive and general health. Untreated or

Address for correspondence: Dr. Sirazul Haque Malik, Associate Professor, Department of Orthopaedics, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, Uttarakhand, India. E-mail: sirazmalik@gmail.com

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inadequately treated PID may result in infertility, ectopic pregnancy, chronic pelvic pain, and pelvic scarring.^[11] Hospital admission rates attributable to PID have been reported to range from 3% to 10% in India.^[9]

The clinical presentation of PID can overlap with other common causes of low backache. Lower abdominal pain and dull aching backache are recognized symptoms of PID, and therefore a gynecological cause may be overlooked when a woman initially presents to an orthopedic service.^[4,10] Studies from India have reported that approximately 24% to 32% of women may experience PID, although information regarding its magnitude, distribution, and determinants remains limited, particularly in developing settings.^[4,12] Previous studies have also highlighted the considerable burden of gynecological morbidity among Indian women.^[12] Given the frequent occurrence of low backache among women and the potential for PID to present with backache and other nonspecific symptoms, consideration of PID during the evaluation of women presenting with low backache may facilitate earlier diagnosis and appropriate treatment.^[13] However, limited information is available regarding the occurrence of PID among women presenting specifically to orthopedic outpatient departments with low backache. Therefore, the present study was undertaken to determine the frequency of PID among female patients presenting with low backache to the Orthopaedics OPD and to describe their associated clinical and sociodemographic characteristics.

MATERIALS AND METHODS

Study Design and Setting: This prospective epidemiological study was conducted from January 2025 to December 2025 at the Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun. The study included female patients presenting with low backache to the Department of Orthopaedics. A total of 176 female patients were included in the study.

Study Population and Eligibility Criteria: Female patients presenting to the Orthopaedics OPD with complaints of low backache were eligible for inclusion. Patients with clear clinical or radiological evidence of disc prolapse, tuberculosis of the spine, or other spinal diseases were

excluded.

Data Collection: A detailed history was obtained from all participants, followed by a thorough clinical examination. Information regarding age, parity, socioeconomic status, educational status, associated complaints, contraceptive use, and addiction status was recorded. Associated complaints assessed included discharge per vaginum, lower abdominal pain, menstrual irregularities, infertility, dyspareunia, fever, and frequency of micturition. Details of contraceptive use, including oral contraceptive pills and intrauterine contraceptive devices, were also recorded.

Evaluation for Pelvic Inflammatory Disease: All participants were evaluated to identify and exclude other potential causes of low backache. Relevant investigations, including complete blood count with erythrocyte sedimentation rate, urine routine microscopy, and X ray of the spine, were performed as clinically indicated. Patients requiring evaluation for sexually transmitted infections were referred to the STI clinic for relevant investigations. PID was diagnosed based on clinical findings suggestive of upper genital tract infection, including lower abdominal or pelvic pain with relevant pelvic examination findings, supported by appropriate laboratory or other investigations when indicated.

Statistical Analysis: Data were analyzed using descriptive statistics. Categorical variables were expressed as frequencies and percentages. The frequency of pelvic inflammatory disease was calculated as the proportion of female patients diagnosed with pelvic inflammatory disease among the total study population.

RESULTS

Among the 176 female patients presenting with low backache to the Orthopaedics OPD, PID was identified in 48 (27.3%) patients. Thus, more than one fourth of the women presenting with low backache were diagnosed with PID. The age distribution of the 176 female patients with low backache showed that the largest proportion belonged to the 40–49 years age group, comprising 65 (36.9%) patients, followed by those aged 30–39 years, with 58 (33.0%) patients. Patients aged ≥50 years accounted for 33 (18.8%), while the youngest age group of 19–29 years included 20 (11.4%) patients. Overall, most patients were between 30 and 49 years of age [Table 1].

Table 1: Age Distribution of Female Patients with Low Backache.

Age group, years	n (%)
19–29	20 (11.4)
30–39	58 (33.0)
40–49	65 (36.9)
≥50	33 (18.8)
Total	176 (100.0)

Table 2: Associated Complaints Among Female Patients with Low Backache.

Associated complaint	n (%)
Discharge per vaginum	93 (52.8)
Lower abdominal pain	76 (43.2)
Menstrual irregularities	55 (31.3)
Infertility	46 (26.1)
Dyspareunia	40 (22.7)
Fever	25 (14.2)
Frequency of micturition	20 (11.4)

The most common associated complaint was discharge per vaginum, reported by 93 (52.8%) patients, followed by lower abdominal pain in 76 (43.2%). Menstrual irregularities were reported by 55 (31.3%) patients, while 46 (26.1%) reported infertility. Dyspareunia was present in 40 (22.7%) patients, whereas fever and frequency of micturition were reported by 25 (14.2%) and 20 (11.4%) patients, respectively. Overall, discharge per vaginum and lower abdominal pain were the most frequently reported complaints [Table 2].

The majority of patients belonged to the low socioeconomic status group, accounting for 114 (64.8%) patients, followed

by 40 (22.7%) from the middle socioeconomic group and 22 (12.5%) from the high socioeconomic group. Most patients were literate, with 132 (75.0%) patients compared with 44 (25.0%) who were illiterate. Regarding obesity status, 112 (63.6%) patients were obese and 64 (36.4%) were non-obese. Regarding addiction habits, 25 (14.2%) patients reported smoking and 21 (11.9%) reported tobacco chewing, while 130 (73.9%) had no addiction. Most patients were parous, accounting for 135 (76.7%), whereas 41 (23.3%) were nulliparous [Table 3].

Table 3: Sociodemographic and Clinical Characteristics of Female Patients.

Characteristic	Category	n (%)
Socioeconomic status	Low	114 (64.8)
	Middle	40 (22.7)
	High	22 (12.5)
Educational status	Literate	132 (75.0)
	Illiterate	44 (25.0)
Obesity status	Obese	112 (63.6)
	Non-obese	64 (36.4)
Addiction status	Smoking	25 (14.2)
	Tobacco chewing	21 (11.9)
	No addiction	130 (73.9)
Parity	Parous	135 (76.7)
	Nulliparous	41 (23.3)

Among the study participants, 45 (25.6%) patients reported using oral contraceptive pills, while 56 (31.8%) used an intrauterine contraceptive device. A total of 75 (42.6%) patients reported using no contraceptive method. Thus, no

contraceptive method was the most commonly reported category, followed by intrauterine contraceptive device use and oral contraceptive pill use [Table 4].

Table 4: Contraceptive Use Among Female Patients.

Contraceptive method	n (%)
Oral contraceptive pills	45 (25.6)
Intrauterine contraceptive device	56 (31.8)
No contraceptive method	75 (42.6)
Total	176 (100.0)

DISCUSSION

The present study found that pelvic inflammatory disease (PID) was identified in 48 of 176 female patients presenting with low backache, giving a frequency of 27.3%. This finding is comparable with the 26% frequency reported by Singh et al. among 200 women presenting with low backache at a tertiary care centre in Uttarakhand.^[14] It is also close to the 27.5% reported by Deshpande et al. in a similar study of women attending an orthopaedic OPD.^[15] In contrast, much higher rates were reported by Sachdeva et al. (86.4%) and Ghosh and Dossa (78%).^[16,17] The marked difference may partly be related to differences in study populations and diagnostic approaches. Sachdeva et al. provisionally considered women with backache and per vaginal discharge as having PID,^[17] while Ghosh and Dossa referred women without skeletal or neurological pathology to the gynaecology OPD for further evaluation.^[16] The present study and the studies by Singh et al. and Deshpande et al. evaluated women presenting directly to orthopaedic services, making these studies more comparable.^[14,15]

The age distribution in the present study showed that women aged 40–49 years constituted the largest group (36.9%). This

finding was consistent with previous studies, in which the 40–49 or 40–50-year age group represented the largest proportion of patients: 41.5% in the study by Singh et al., 37% in the study by Deshpande et al., 35.0% in the study by Ghosh and Dossa, and 35.6% in the study by Sachdeva et al.^[14,15,17] This consistent pattern suggests that low backache with associated gynecological symptoms is particularly common among women in middle age. A low socioeconomic background was common in the present study, accounting for 64.8% of participants. This was similar to the findings of Singh et al. (62%), Deshpande et al. (65%), and Ghosh and Dossa (62%), while Sachdeva et al. reported a somewhat lower proportion of 53.2%.^[14,15,17] In the present study, 75.0% of women were literate and 25.0% were illiterate. This educational distribution differs from some previous studies and may reflect differences in the sociodemographic characteristics of the study populations and healthcare settings.^[14,15]

Obesity was present in 63.6% of women in the present study, closely matching the 61.5% reported by Singh et al. and 63.5% reported by Deshpande et al.^[14,15] Sachdeva et al. reported obesity in 61.2% of participants, while Ghosh and Dossa reported 25.3% obesity and an additional 43.0% pre-obesity.^[16,17]

The present study also showed a high proportion of parous women (76.7%), which was comparable with the 77% reported by Singh et al. and 76.5% reported by Deshpande et al.^[14,15] Discharge per vaginam was the most frequent associated complaint in the present study (52.8%), closely resembling the 54% reported by Singh et al. and 53% reported by Deshpande et al.^[14,15] Other complaints, including lower abdominal pain, dyspareunia, fever, menstrual irregularities, infertility, and urinary symptoms, were also reported, consistent with the broader clinical presentation described in previous studies.^[14,15]

Regarding contraceptive use, 75 (42.6%) women reported no contraceptive use, 56 (31.8%) used an intrauterine contraceptive device, and 45 (25.6%) used oral contraceptive pills. Thus, no contraceptive method was the most commonly reported category in the present study. These findings differed from previous studies, which reported higher proportions of oral contraceptive pill and IUCD use, potentially reflecting differences in contraceptive practices and study populations.^[14,16] Overall, the similarities in age, socioeconomic profile, obesity, parity, and vaginal discharge across several studies support the importance of considering PID when women present to orthopaedic services with low backache.

A major strength of the present study is its prospective assessment of women presenting with low backache, with systematic evaluation for PID after excluding identifiable spinal causes. The study also assessed relevant demographic, clinical, reproductive, and contraceptive characteristics, allowing comparison with previous studies. However, several limitations should be considered. The study was conducted at a single centre and included a relatively limited sample, which may restrict generalizability. The observational nature of the study limits inference regarding a causal relationship between PID and low backache. In addition, PID diagnosis may be influenced by clinical assessment and available investigations, and some associated symptoms may have been underreported.

CONCLUSION

The present study found that PID was a relatively common finding among female patients presenting with low backache, affecting 27.3% of the study population. Most patients were aged 30 to 49 years, had low socioeconomic status, were literate, obese, and parous. Discharge per vaginam and lower abdominal pain were the most frequently reported associated complaints. These findings highlight the overlap between gynecological and musculoskeletal presentations of low backache. Therefore, PID should be considered during the evaluation of women presenting with low backache, particularly when associated gynecological symptoms are present. Early recognition and appropriate gynecological evaluation may facilitate timely management and reduce

morbidity.

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Conflicts of interest

There are no conflicts of interest.

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