

Frequency of Candidiasis, Trichomoniasis and Pyogenic Infection Causing Pelvic Inflammatory Diseases

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ABSTRACT

Objective: To determine the frequency of Candida, Trichomonas and Pyogenic infection, in Pelvic inflammatory diseases (PID)

Patients and Methods: This cross-sectional study was carried out in Gynecology OPD of Abbasi Shaheed Hospital Karachi and Baqai Hospital Karachi from November 2013 to January 2014. The study included 100 females of 20-40 years and above with history of vaginal discharge, low back pain, itching, bleeding. The subjects were divided on the basis of various socioeconomic status (poor, middle, rich) groups. Females who were pregnant or had recent history of abortion were excluded from the study. For assessment, Pap smear, wet preparation and high vagina swab was collected from cervix and vagina.

Results: In our study Candida albican 35%, Trichomonas infection 30% and pyogenic infection 35% were seen in various age groups. Majority of the cases were between 20-40 years. It was also observed that trichomoniasis was observed in lower and middle class females and not in upper class females.

Conclusion: Trichomonas, Candida and Pyogenic infections were found to be most commonly associated with pelvic inflammatory diseases. A relatively higher frequency of Candidiasis, and Pyogenic infections were observed in upper and middle class, whereas high frequency of trichomoniasis was found in lower and middle class women.

Key words: Candidiasis, Pelvic inflammatory disease, Pyogenic Infection, Trichomoniasis.

Author's Contribution

¹Conception, Synthesis and Planning of the research, ² Active participation in active methodology & Interpretation, analysis and discussion, ^{1,3}Active participation in active methodology

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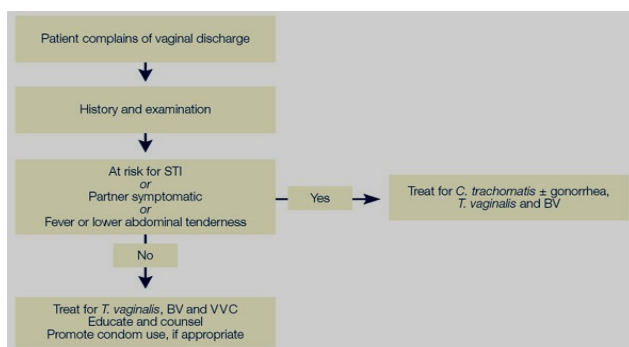
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Introduction

Pelvic inflammatory disease (PID) is an infectious and inflammatory disorder of the upper female genital tract, including the uterus, fallopian tubes, and adjacent pelvic structures. Infection and inflammation may spread to the abdomen, including perihepatic structures. PID is initiated by infection that ascends from the vagina and cervix into the upper genital tract. Vaginitis is defined as a spectrum of condition that cause vaginal and sometimes vulvar

symptoms, such as itching, burning, irritation, odor, and vaginal discharge. The most common causes of vaginitis and cervicitis are candidiasis, trichomoniasis and bacterial vaginosis.¹ The symptomatic infection by these etiological agents arises when there is an excessive proliferation of these microorganism in the vaginal flora, ceasing the colonization and starting to achieve outright adherence to the vaginal cells, consequently causing infection.² In

candidiasis infective patient presents with thick, fetid vaginal secretions which may have granular appearance and an itchy vulva.³ The vagina becomes hyperemic and the vulva becomes erythematous, and there may be excoriation and dyspareunia.⁴ A patient with trichomoniasis presents with intense frothy yellow-greenish vaginal discharge, irritation and pain in the vulva, perineum and thighs, along with dyspareunia and dysuria.⁵ *Trichomonas vaginalis* is a flagellate protozoan considered to be sexually transmittable and usually seen in low socioeconomic class.⁶ In Bacterial vaginosis foul-smelling vaginal secretion, is associated with a high incidence of endometritis and pelvic inflammatory disease following abortion and late miscarriages, premature rupture of membranes, and preterm birth.⁷ Among women with bacterial vaginosis, no overall increased risk of developing pelvic inflammatory disease has been found.⁸ Bacterial vaginosis is also associated with both symptomatic and asymptomatic conditions. Bacterial vaginosis have been strongly linked with an increased risk of human immunodeficiency virus transmission.⁹ Clinical manifestations of PID vary widely, however: Many patients exhibit few or no symptoms, whereas others have acute, serious illness. The most common presenting complaint is lower abdominal pain. Many women report an abnormal vaginal discharge. For situations where on-site microscopy is not available, the World Health Organization has developed algorithm for management of vaginal discharge.¹⁰



Patients and Methods

This cross-sectional study was carried out in 100 females (20 years and above) attending Gynae OPD of Abbasi Shaheed Hospital and Baqai Hospital Karachi from November 2013 to January 2014. Patients with history of discharge, low back pain, itching were included in the

study. Patients were also asked for history of bleeding, pregnancy and medication. Patients with present pregnancy and abortion were excluded from the study. For the assessment of Pap smear, wet preparation and high vagina swab was collected from cervix and vagina. Wet preparation in normal saline for the identification of trichomonas was also done. High vaginal swab was inoculated in Macconkey's agar for the isolation of type of bacteria. In our study, we found the colonies of *E. coli* which showed indole positivity, pink rod were shows in gram staining. Pap staining was used to find out the *Candida albican* and cell morphology. All values were entered on SPSS version 10 for evaluation of frequency of etiological agents in the study population. Moreover, their frequency was also assessed in various socioeconomic groups.

Results

Among total of 100 cases, 35 cases were found to have candidiasis, 30 cases trichomoniasis, and 35 cases were found to have pyogenic infection. Our study also showed that Candidiasis was found in 57% of cases in 20-40 years' age group. whereas it was 43% in 50 years and above. Trichomoniasis was found in 100% cases between 20-40 years. None of the females 50 years and above were found to be infected with it (table1 & 2).

Variables	Number	
Age limits	20-30years	No
	31-40yrs	58
	41yrs & above	25
Marital status	Married	60
	Unmarried	40
Education	Educated	60
	Uneducated	40
Occupation	House wife	60
	Working ladies	40
Socioeconomic status	According to area	
	poor	40
	middle	30
	rich	30
Family life cycle	Satisfactory	60
	Unsatisfactory	40

Pyogenic infection was found in 94 in 20-40% years and 6% of cases in age groups of 50 years and above. Our data was also categorized according to socioeconomically

status into poor, middle and rich classes (Table 3); we found in poor class 40% cases had infection whereas in middle class and upper class it was seen in 30% cases each. Frequency of various infections in different socioeconomic groups is shown in table 3; as shown in table no case of trichomoniasis was found in upper class.

Etiological agents	20-30years (n=58) n(%)	30-40yrs (n=25) n(%)	50 yrs & (n=17) n(%)
Candida albicans (n=35)	10 (28.5)	10(28.5)	15(43)
Trichomoniasis (n=30)	20(6.7)	10(33)	—
Pyogenic (n=35)	28(80)	5(14)	2(6)

Etiological agents	Lower class (n=40) n(%)	Middle class (n=30) n(%)	Upper class (n=30) n(%)
Candida albicans (n=35)	10 (28.5)	10 (28.5)	15 (43)
Trichomoniasis (n= 30)	20 (67)	10 (33)	---
Pyogenic (n= 35)	10 (28.5)	10 (28.5)	15 (43)

Discussion

Pelvic inflammatory disease comprises a spectrum of inflammatory disorders of the upper female genital tract, including any combination of endometritis, salpingitis, tubo-ovarian abscess, and pelvic peritonitis.¹¹ Microorganisms that comprise the vaginal flora (e.g., anaerobes, *G. vaginalis*, *Haemophilus influenzae*, enteric Gram-negative rods, and *Streptococcus agalactiae*) have been associated with PID.¹² In addition, cytomegalovirus (CMV), *M. hominis*, *U. urealyticum*, and *M. genitalium* have also been found to be associated with some PID cases.¹³⁻¹⁶ Sexually transmitted organisms, especially *N. gonorrhoeae* and *C. trachomatis*, are implicated in many cases. Screening and treating sexually active women for chlamydia reduces their risk for PID.¹⁷ According to epidemiological studies three main causes of vaginitis all over the world are; candidiasis,

trichomoniasis and pyogenic infections.¹⁸ These etiological agents are associated with a high incidence of endometritis and pelvic inflammatory disease. Our study also correlates with another study which was conducted on infection and infertility in India, and it revealed that candidiasis, trichomoniasis, and pyogenic infections are the most common opportunistic infections in the female genital system.¹⁹ They also reported 35% candidiasis, 30% trichomoniasis infection and 35% other pyogenic infections in their study. They isolated other pyogens like *sp. Staphylococci*, *Chlamydia*, and *Nesisseria gorrhoeae* sp. species, besides *Escherichia coli*, a finding which is not comparable with our study. Many cases of PID go unrecognized. Reason being as some of the cases are asymptomatic, others are not diagnosed because the patient or the health-care provider fails to recognize and investigate for mild or nonspecific symptoms or signs (e.g., abnormal bleeding, dyspareunia, and vaginal discharge) and thus many cases remain undiagnosed. It has also been observed that even women with mild or asymptomatic PID might be at risk for infertility, so it is very much important that all cases with even mild and nonspecific symptoms be investigated meticulously. Another study was also conducted on sexually transmitted diseases, and it revealed that trichomonas infection was frequently observed in poor and middle class, because of poor hygiene.²⁰ This theory correlates with our study as we also observed that poor class and middle class are most commonly infected with trichomonas infections due to improper hygiene.

Conclusion

Trichomonas, candida and pyogenic infections were found to be most commonly associated with pelvic inflammatory diseases and trichomoniasis was more frequently observed in poor and middle class females due to poor hygenic.

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