DEFINITION

1. Pelvic inflammatory disease (PID) is the term given to a spectrum of infective conditions affecting the upper female genital tract, including cervicitis (infection of the cervix), endometritis (infection of the uterine cavity), salpingitis (infection of the fallopian tubes), and oophoritis (infection of the ovaries).

2. The condition is primarily a disease of menstruating heterosexually active women, mainly in the 15-24 age group. The four well-documented, long-term consequences of PID are disease recurrence, pelvic pain, infertility, and ectopic pregnancy. Approximately one quarter of women who have had PID have one or more of these sequelae. Diagnosis and treatment must be prompt to avoid them.

CLINICAL MANIFESTATIONS

3. PID typically presents with dull, continuous, bilateral lower abdominal or pelvic pain that may be mild or severe. Additional signs and symptoms may include fever, vomiting, an abnormal vaginal discharge, and irregular vaginal bleeding.

4. Presentation is variable however; the condition may even be asymptomatic and the patient is unaware that an episode of PID has occurred until some time later; for example when the results of infertility investigations are revealed.

5. It may be complicated by tubo-ovarian abscess formation, affecting the fallopian tube and ovary, or by pelvic peritonitis. Other complications include inflammation of the capsule of the liver (Fitzhugh-Curtis syndrome).

6. PID may present in a less acute form, with general malaise, diffuse lower abdominal pain, irregular bleeding and deep dyspareunia.

7. The diagnosis is largely made by a process of exclusion. Definitive diagnosis is only possible by direct examination of the fallopian tubes eg. by laparoscopy, when inflammation, oedema and exudate are diagnostic, but this form of investigation is generally only undertaken to exclude other surgical causes of pelvic pain.

8. Treatment is with broad-spectrum antibiotics appropriate to the causative organisms. Male sexual partners of patients with PID should be investigated for gonococcal and chlamydial urethritis and then should be treated presumptively for both infections if they had sexual contact with the patient during the 60 days preceding onset of symptoms in the patient. A large proportion of these males will be asymptomatic.

AETIOLOGY

9. Most cases of PID are caused by the ascent of micro-organisms through the cervix and along the endometrium to the normally sterile fallopian tubes.

10. The commonest primary infecting organisms are *Chlamydia trachomatis* and *Neisseria gonorrhoeae,* both almost invariably sexually transmitted from an infected partner. Following lower genital tract infection with these organisms, normal vaginal lactobacilli are supplanted by opportunistic species and the final bacteriological picture is often a mixed one.

11. Two rare causes of PID are recognised; the organisms of actinomycosis and those of genital tract tuberculosis.

12. Any invasive gynaecological procedure may result in upper genital tract infection, eg. dilatation and curettage, endometrial biopsy and tubal lavage, but such cases are uncommon.

13. PID is rare during pregnancy, and in prepubertal, postmenopausal and celibate women. If it occurs in these groups it is often due to spread from other intra-abdominal foci of infection, such as ruptured appendix abscess.

14. **Risk factors** A number of risk factors for the development of PID have been identified.

    14.1. **Gynaecological infections** - Previous or concomitant sexually transmitted disease (STD) predisposes to the condition. Recurrence is common and previous PID is one of the most significant risk factors.

    14.2. **Age** - 15- to 24-year-olds are most vulnerable to the condition.

    14.3. **Sexual activity** - A history of multiple sexual partners, an increased rate of acquisition of new partners and frequent intercourse with a single partner are all associated with increased risk of PID.

    14.4. **Intrauterine Contraceptive Devices (IUCD)** - There is evidence that the recent insertion of an intrauterine contraceptive device will temporarily increase the risk of PID. However this increased risk is only present for four months or so after its insertion, after which it returns to normal.

    14.5. **Miscellaneous factors** - Other suggested associations with PID include vaginal douching, which is thought by some authorities to be an important risk factor. In a number of studies examining the effect of cigarette smoking on relative risk of contracting PID, women who were current smokers had a two- to threefold increased relative risk of PID. Substance abuse has also been implicated although this association is less clearly defined.

CONCLUSION

15. Pelvic inflammatory disease is the term applied to infection in any part of the upper female genital tract. It usually affects 15- to 24-year-olds and is a common and growing problem, which may result in long-term gynaecological morbidity.

16. The most common cause is sexually transmitted infection with *Chlamydia trachomatis* or *Neisseria gonorrhoeae,* and recurrence is not uncommon.

17. Any invasive gynaecological procedure may also cause PID, as may spread from an intra-abdominal focus of infection, but these causes are infrequent.

18. Early treatment is necessary in order to obviate the risk of sequelae, and investigation and treatment of sexual partners is advised.

REFERENCES

Weström L. Pelvic inflammatory disease. In: Weatherall D J, Ledingham J G G and Warrell D A (Eds). Oxford Textbook of Medicine. 3rd Ed. Oxford. Oxford University Press. 1996. p3357-3359.

Sweet R L and Gibbs R S. Infectious diseases of the female genital tract. Baltimore. Williams and Wilkins. 1995. p379-428.

Tuomala R E and Chen K T. Gynecologic infections. In: Ryan K J, Berkowitz R S, Barbieri R L and Dunaif A (Eds). Kistner's Gynecology and Women's Health. 7th Ed. St. Louis. Mosby Inc. 1999. p455-463.

Batteiger B E. Pelvic inflammatory disease. In: Mandell G L, Bennett J E and Dolin R (Eds). Principles and Practice of Infectious Diseases. 5th Ed. Philadelphia. Churchill Livingstone. 2000. p1241-1243.

January 2002