Pelvic inflammatory diseases (PID)

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Objectives:

1) definition
2) epidemiology
3) Transmission & Predisposing Factors
4) Infective Organisms
5) Pathophysiology
6) presentation of acute and chronic PID
7) criteria for PID diagnosis
8) treatment of PID
Definition:

- PID is a nonspecific term for a spectrum of upper genital tract conditions ranging from acute bacterial infection to massive adhesions from old inflammatory scarring.
- Most common serious complication of STD.
- Ascending spread of infection from the vagina and endocervix to the endometrium, fallopian tubes, ovaries, &/or adjoining structures.
- Upper genital tract infection: endometritis, salpingitis, Salpingio-oophroitis, tubo-ovarian abscess & pelvic peritonitis.
1. STD-causing bacteria may enter vagina with semen

2. Bacteria may pass through cervix and enter uterus

3. Bacteria enter fallopian tubes and ovaries, which can become infected

4. Infection can leave fallopian tubes and spread to other parts of body
Epidemiology:

- Incidence acute PID 1-2% of young sexually active women each year.
- 85% of infection in sexually active female of reproductive age.
- 15% of infection occur after procedures that break cervical mucous barrier.
Transmission:

- Sexual transmission via the vagina & cervix
- Gynecological surgical procedures
- Child birth/Abortion
- A foreign body inside uterus
- Contamination from other inflamed structures in abdominal cavity
- Blood-borne transmission
Predisposing Factors:

- Frequent sexual encounters, many partners
- Young age, early age at first intercourse
- Exposure immediately prior to menstruation.
- Relative ill-health & poor nutritional status.
- Previously infected tissues (STD/ PID)
- Frequent vaginal douching
Increase risk:
- IUD user
- surgical procedure
- previous acute PID
- Reinfection untreated male partners 80%

Decrease risk:
- barrier method
- OC
Infective Organisms:

- Sexually transmitted (most common): Chlamydia trachomatis, Neisseria gonorrhoeae

- Endogenous Aerobic – Streptococci, Haemophilus, E. coli

- Anaerobes - Bacteroides, Peptostreptococcus
Chlamydia Trachomatis:

- slow growth (48-72 hr)
- intracellular organism
- insidious onset
- remain in tubes for months/years after initial colonization of upper genital tract
- more severe tubes involvement
Neisseria Gonorrhoeae:

- Gram –ve diplococcus
- Rapid growth (20-40 min)
- Rapid & intense inflammatory response
- 2 major squeals: **infertility & ectopic pregnancy**, strong asso. with prior Chlamydia infection
Pathophysiology:

1. Cervicitis: The initial infection starts with invasion of endocervical glands with chlamydia and gonorrhea. A mucopurulent cervical discharge or friable cervix may be noted. Cervical cultures will be positive, but symptoms are usually absent.

2. Acute salpingo-oophoritis: Usually after a menstrual period with breakdown of the cervical mucus barrier, the pathogenic organisms ascend through the uterus, causing an endometritis, and then the bacteria enter the oviduct where acute salpingo-oophoritis develops.

3. Tubo-ovarian abscess (TOA): is the accumulation of pus in the adnexae forming an inflammatory mass involving the oviducts, ovaries, uterus, or omentum.
Why is it Important to Treat PID?

- Where PID is suspected empirical treatment should be started immediately, as delay increases the risk of complications which are:
  - Tubo-ovarian abscess which occur in persistent untreated PID
  - Chronic pelvic Pain (15-20%) → Hysterectomy
  - Ectopic pregnancy (6-10 fold)
  - Infertility (Tubal): 20% ~ 2 episodes 40% ~ 3 episodes
  - Recurrence (25%)
  - Cervix Cancer / Ovarian Cancer
Presentation: Acute PID:

- Severe pain & tenderness lower abdomen
- Fever, Malaise, vomiting, tachycardia
- **most common Symptom** vaginal discharge with bad odor
- IMB or PCB
- B/L adnexal tenderness
- cervical excitation
- Tubo-ovarian mass
- Fitz-Hugh-Curtis Syndrome?

- Poor sensitivity & specificity
- Correct diagnosis: 45 – 70%
Presentation: Chronic PID:

- Chronic lower abdominal pain, Backache
- General malaise & fatigue
- Deep dyspareunia, Dysmenorrhea
- Intermittent offensive vaginal discharge
- Irregular menstrual periods
- Lower abdominal/ pelvic tenderness
- Infertility
- Bulky, tender uterus
PID
Differential Diagnosis ?
PID: Differential Diagnosis:

- 1) Ectopic Pregnancy
- 2) Torsion / Rupture ovarian cyst
- 3) Appendicitis
- 4) Endometriosis
- 5) Cystitis/ pyelonephritis
Laboratory Studies:

- Pregnancy test
- Complete blood count, ESR, CRP
- Urinalysis
- Gonorrhea, Chlamydia detection (Gram stain/ Cultures / ELISA/ DNA )
- Tests for TB, syphilis, HIV
- Pelvic Ultrasound
- Laparoscopy in women with PID may reveal scarring and adhesion formation between the structures of the pelvis and the development of hydrosalpinges of the tubes
Treatment:

- **Therapeutic goal:**
  - eliminate acute infection & symptoms
  - prevent long-term consequence
- Ectopic pregnancy:
  - Increase 6-10 fold
  - 50% occur in fallopian tubes (previous salpingitis)
  - Mechanism; interfere ovum transport entrapment of ovum

- Infertility:
  - ¼ of pt have acute salpingitis
  - Infertility rate increase direct with number of episodes of acute pelvic infection
Minimum Criteria for Diagnosis (CDC 2002):

- Lower abdominal tenderness on palpation
- Bilateral adnexal tenderness
- Cervical motion tenderness
- No other established cause
- Negative pregnancy test
Additional Criteria (CDC 2002):

- Oral temperature > 38.3°C (101°F)
- Abnormal cervical / vaginal discharge
- Elevated ESR
- Elevated C-reactive protein
- WBCs on saline micro. of vaginal sec.
- Lab. documentation of cervical infection with N. gonorrhoeae/ C. trachomatis
Definitive Criteria (CDC 2002):

- Endometrial biopsy with histopathology evidence of endometritis
- TVS/ MRI: Thickened fluid filled tubes/ free pelvic fluid / tubo-ovarian complex
- Laparoscopic abnormalities consistent with PID
Criteria for Hospitalization (CDC 2002):

- Surgical emergencies can not be excluded (appendicitis)
- Severe illness/ nausea/ vomit/ high fever
- Tubo-ovarian abscess
- Clinical failure of oral anti-microbials
- Inability to follow/ tolerate oral regimen
- Pregnancy
- Immunodeficient (HIV ë low CD4 counts, immunosuppressive therapy)
Antibiotic Therapy:

- Treatment regimes should cover all common pathogens and are **2 weeks in duration**; they usually include a macrolide or tetracycline plus metronidazole with a parenteral third-generation cephalosporin at the start.

- **Gonorrhea**: parenteral third-generation cephalosporin plus azithromycin

- **Chlamydia**: azithromycin or doxycycline
Surgical treatment:

- Laparotomy for:
  - surgical emergencies
  - definite Rx of failure medical treatment

- Laparoscopy:
  - consider in all pt with ddx of PID & without contraindication
  - R/O surgical emergency
  - Evidence of current / previous abscess
  - Acute exacerbation of PID with bilateral TOA
THANK YOU