Pelvic Inflammatory Disease (PID)

Prepare by

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PID

- Spectrum disease involve cx, uterus, tubes

- Most often → ascending spread of microorganisms from vagina & endocervix to endometrium, tubes, contiguous structures
Etiology

• Neisseria gonorrhoeae common cause of PID (N. gonorrhoeae)
  – gram –ve diplococcus
  – rapid growth (20–40 min)
  – rapid & intense inflammatory response
  – 2 major sequelae
    • infertility & ectopic pregnancy, strong asso. with prior Chlamydia infection

• 85% of infection → sexually active female of reproductive age

• 15% of infection occur after procedures that break cervical mucous barrier
• C. trachomatis
  - produce mild form of salpingitis
  - slow growth (48–72 hr)
  - intracellular organism
  - insidious onset
  - remain in tubes for months/years after initial colonization of upper genital tract
## PID 2 type:

<table>
<thead>
<tr>
<th>Acute PID</th>
<th>CHRONIC PID</th>
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<tbody>
<tr>
<td>- hs is often prolonged period followed by gradual onset of pelvic pain</td>
<td>- Pt complain of pelvic pain made worse during the period</td>
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<tr>
<td>- irregular bleeding</td>
<td>- irregular bleeding and heavy</td>
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<tr>
<td>- by examination:</td>
<td>- by examination:</td>
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<tr>
<td>+ abdominal tenderness</td>
<td>+ some swelling may felt</td>
</tr>
<tr>
<td>+ guarding</td>
<td>But often there is little to find</td>
</tr>
<tr>
<td>+ and extreme tenderness of the vaginal fornices and cervical excitation</td>
<td>except tenderness in the fornices</td>
</tr>
<tr>
<td>RX :</td>
<td>Rx :</td>
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<tr>
<td>1-a laproscopy is advisable if the doubt 2-an intrauterine device if in the uterus should be remove 3- given broad spectrum AB such as (doxycycline, azithromycin or amoxicillin) 4- if acute sign and symptoms persist, a laparotomy perform to search for abscess formation 5- no surgical procedure beyond drainage should be performed</td>
<td>1-rest 2-a broad spectrum AB is given 3-laparotomy and drainage done for hydrosalpinx and abscess formation 4-dyspareunia (painful coitus) May be relieved by correcting the uterine retroversion with a sling operation 5- in advance cases: the effective rx is removal of the uterus and tube and perhaps the ovaries as well</td>
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</table>
ACUTE PELVIC INFLAMMATORY DISEASE
CRONIC PELVIC INFLAMMATORY DISEASE
Risk factors

- Strong correlation between exposure to STD
- Age of 1st intercourse
- Frequency of intercourse
- Number of sexual partners
- Marital status; 33% → nulliparous
Risk factors

• Reinfection ➔ untreated male partners 80%

• Decrease risk
  – barrier method
  – OC

• Increase risk
  – surgical procedure
  – previous acute PID
Clinical features

• Common clinical manifestation
  - lower abdominal pain 90%
  - cervical motion tenderness
  - adnexal tenderness
  - Fever
  - cervical discharge
  - leukocytosis
Differential Diagnosis

- acute appendicitis
- Endometriosis
- torsion/rupture adx mass
- ectopic preg
- lower genital tract infection
PID

- 75% asso. endocervical infection & coexist purulent vaginal d/c
PID Dx

- CBC
- ESR
- C–reactive protein
- Vaginal & cervical swab
- U/S, CT, MRI
- Culdocentesis: refers to a procedure in which peritoneal fluid is aspirated transvaginally from the (pouch of Douglas).
- Laparoscopic visualization
  - most accurate method for confirm PID
PID
### Table 15.3. Clinical Criteria for the Diagnosis of Pelvic Inflammatory Disease

<table>
<thead>
<tr>
<th><strong>Symptoms</strong></th>
<th></th>
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<tbody>
<tr>
<td>None necessary</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>Signs</strong></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Pelvic organ tenderness</td>
<td></td>
</tr>
<tr>
<td>Leukorrhea and/or mucopurulent endocervicitis</td>
<td></td>
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</tbody>
</table>

**Additional criteria to increase the specificity of the diagnosis**

- Endometrial biopsy showing endometritis
- Elevated C-reactive protein or erythrocyte sedimentation rate
- Temperature higher than 38°C
- Leukocytosis
- Positive test for gonorrhea or chlamydia

**Elaborate criteria**

- Ultrasound documenting tuboovarian abscess
- Laparoscopy visually confirming salpingitis
Sequelae

- **Infertility**
  - \( \frac{1}{4} \) of pt have acute salpingitis
  - occur 20%
  - infertility rate increase direct with number of episodes of acute pelvic infection
Sequelae

• Ectopic pregnancy
  – increase 6–10 fold
  – 50% occur in fallopian tubes (previous salpingitis)
Sequelae

• Chronic pelvic pain
  - 4 times higher after acute salpingitis
  - caused by hydrosalpinx, adhesion around ovaries
  - should undergo laparoscope → R/o other disease

• TOA (tubo ovarian abscess )10%

• Mortality
  - acute PID 1%
  - rupture TOA 5–10%
Treatment

- Therapeutic goal
  - eliminate acute infection & symptoms
  - prevent long-term sequelae
TABLE 28.3.
Criteria for Hospitalization of Patients With Acute Pelvic Inflammatory Disease

The following criteria for hospitalization are based on observational data and theoretical concerns:
• Surgical emergencies such as appendicitis cannot be excluded.
• The patient is pregnant.
• The patient does not respond clinically to oral antimicrobial therapy.
• The patient is unable to follow or tolerate an outpatient oral regimen.
• The patient has severe illness, nausea and vomiting, or high fever.
• The patient has a tuboovarian abscess
### Table 15.4. CDC Guidelines for Treatment of Pelvic Inflammatory Disease

#### Outpatient Treatment

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Treatment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regimen A</strong></td>
<td>Ofloxacin, 400 mg orally 2 times daily for 14 days, or</td>
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<tr>
<td></td>
<td>Levofloxacin, 500 mg orally once daily for 14 days</td>
</tr>
<tr>
<td></td>
<td><em>With or Without:</em> Metronidazole, 500 mg orally 2 times daily for 14 days</td>
</tr>
<tr>
<td><strong>Regimen B</strong></td>
<td>Cefoxitin, 2 g intramuscularly, plus probenecid, 1 g orally concurrently, or</td>
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<tr>
<td></td>
<td>Ceftriaxone, 250 mg intramuscularly, or</td>
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<tr>
<td></td>
<td>Equivalent cephalosporin</td>
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<tr>
<td></td>
<td><em>Plus:</em> Doxycycline, 100 mg orally 2 times daily for 14 days</td>
</tr>
<tr>
<td></td>
<td><em>With or Without:</em> Metronidazole, 500 mg orally twice a day for 14 days</td>
</tr>
</tbody>
</table>
### Inpatient Treatment

<table>
<thead>
<tr>
<th>Regimen A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cefoxitin, 2 g intravenously every 6 hours, or</strong></td>
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<tr>
<td><strong>Cefotetan, 2 g intravenously every 12 hours,</strong></td>
</tr>
<tr>
<td><strong>Plus:</strong></td>
</tr>
<tr>
<td><strong>Doxycycline, 100 mg orally or intravenously every 12 hours</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Regimen B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clindamycin, 900 mg intravenously every 8 hours</strong></td>
</tr>
<tr>
<td><strong>Plus:</strong></td>
</tr>
<tr>
<td><strong>Gentamicin</strong>, loading dose intravenously or intramuscularly (2 mg/kg of body weight) followed by a maintenance dose (1.5 mg/kg) every 8 hours**</td>
</tr>
</tbody>
</table>
Treatment

• Empirical ABx cover wide range of bacteria

• Treatment start as soon as culture & diagnosis is confirmed/suspected

• reevaluate 48–72 hrs of initial OPD therapy
Treatment

• Rx male partners & education for prevention reinfection

• Rx male partners ➔ regimens for uncomplicated gonorrhoeae & chlamydial infection
  – Ceftriaxone 125 mg im follow by
    • doxycycline (100) 1x2◊ pc x7days or
    • azithromycin 1gm◊ or
    • ofloxacan (300) 1x2◊ pc x7days
Surgical treatment

• Laparotomy for
  – surgical emergencies
  – definite Rx of failure medical treatment

• Laparoscopy
  – consider in all pt with ddx of PID & without contraindication

• Evidence of current / previous abscess
• Acute exacerbation of PID with bilateral TOA
Prevention

- **Risk reduction** against sexually transmitted infections through **barrier methods** such as **condoms**.

- Going to the doctor immediately if symptoms of PID, **sexually transmitted infections** appear,

- Getting regular **gynecological** (pelvic) exams with STI testing to screen for symptomless PID[8]

- Regularly scheduling **STI testing** with a physician and discussing which tests will be performed that session.
Getting a STI history from your current partner and insisting they be tested and treated before intercourse.

Treating partners to prevent reinfection or spreading the infection to other people.

Diligence in avoiding vaginal activity, particularly intercourse, after the end of a pregnancy (delivery, miscarriage, or abortion) or certain gynecological procedures, to ensure that the cervix closes.
The End