Red Whale
Lifelong Learning for Primary Care

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Pelvic inflammatory disease

1. Pelvic inflammatory disease

Pelvic inflammatory disease (PID) is an acute gynaecological infection which can have long-term sequelae; it is therefore important that we recognise and manage it appropriately.

Unfortunately, PID is a clinical diagnosis, and there is a lack of definitive diagnostic criteria; it can also be asymptomatic which makes diagnosis challenging. Moreover, in primary care, we don't have access to all appropriate tests, and usually can't easily give the first-line treatment option!

The article below summarises how we approach this condition in primary care, mainly using the BASHH guidelines on the diagnosis and management of PID (UK national guideline for the management of pelvic inflammatory disease, 2018 – updated 2019). Other sources are referenced where used.

Note: there are separate articles on chlamydia, gonorrhoea and Mycoplasma genitalium.

This article was updated in March 2025.

1.1. Definition and implications

PID is an ascending upper genital tract infection, usually caused by a sexually transmitted pathogen. Infection originates in the lower genital tract and extends to the pelvic organs, causing inflammation and, in some cases, peritonitis and tubo-ovarian abscesses.

Untreated infection can result in scarring, leading to tubal infertility, ectopic pregnancy and chronic pelvic pain. Severe disease is associated with greater risk of complications. Delayed treatment or repeated infection increases the risk of infertility.

Causes of PID

- Chlamydia trachomatis (approximately 14–35% of cases).
- Mycoplasma genitalium (approximately 9% of cases (Clinical Infectious Diseases,2020;71(10):2719)).
- Neisseria gonorrhoeae (approximately 2–3% of cases).
- Gardnerella vaginalis, anaerobes and other organisms found in the genital tract may be implicated.
- BUT it is common not to be able to identify a causative organism (pathogen-negative PID).

1.2. Prevalence and risk factors

True prevalence of PID is unknown due to difficulties in diagnosis and coding. However, most recent Public Health England data suggests that the rate of PID diagnoses in primary care among women aged 15–44y is around 176/100 000 person-years (Health Protection Report, 2015; Vol 9 No. 22).

Rates are highest in women aged 20–24y which reflects the risk factors for PID:

- Young age (<25y), especially if not using barrier contraception.
- Multiple sexual partners.
- Recent change in sexual partner.

Remember: risk of PID is increased 4–6w after IUD insertion, especially in women with pre-existing chlamydia or gonorrhoeal infection.

1.3. Clinical features suggestive of PID

No symptom or sign is highly specific or sensitive, and PID may be asymptomatic. The following clinical features are suggestive:

Symptoms	Signs
• Lower abdominal pain, usually bilateral. • Deep dyspareunia. • Abnormal vaginal bleeding: intermenstrual, postcoital and heavy menstrual bleeding. • Abnormal vaginal or cervical discharge which is often purulent. • Secondary dysmenorrhoea.	• Lower abdominal tenderness, usually bilateral. • Adnexal tenderness on bimanual vaginal examination. • Cervical motion tenderness (excitation). • Fever >38°C.

1.4. Diagnosis

Consider a diagnosis of PID in:

Any sexually active woman who has recent-onset, lower abdominal pain associated with local tenderness on bimanual vaginal examination in whom pregnancy has been excluded and no other cause for the pain has been identified.

See below for differential diagnoses and investigations to rule them out:

Condition	Clinical features
Ectopic pregnancy	Positive pregnancy test! Exclude in all women.
Acute appendicitis	Nausea and vomiting occurs with most appendicitis and only in 50% of PID. Cervical motion tenderness is associated with PID but can also occur in 25% of appendicitis.
Endometriosis	Symptoms usually related to menstrual cycle.
Ovarian cyst torsion or rupture	Often sudden onset.
Urinary tract infection	Dysuria, frequency, urgency.
Functional pain	Associated with long-standing symptoms.
Irritable bowel syndrome, acute bowel infection or diverticular disease	Gastrointestinal symptoms.

1.5. Investigations

- Urine: dipstick and pregnancy test.
- Examination: abdominal, pelvic and speculum.
- Swabs:
    - NAAT test for gonorrhoea and chlamydia. If positive, supports the

diagnosis, but, if negative, does not exclude PID.

- An endocervical charcoal swab enables culture and sensitivities to be performed if she has gonorrhoea.
- ***Absence*** of endocervical or vaginal pus cells makes PID unlikely (negative predictive value 95%), but their presence is very non-specific. This is usually reported on swab results as 'pus cells present'.
- **BASHH strongly recommends testing for Mycoplasma genitalium** (however, the appropriate NAAT test is not universally available in primary care at present).

- Blood tests:
  - Check FBC, CRP or ESR if clinically indicated. If elevated, supports the diagnosis but not specific.
  - Offer HIV and syphilis.

Ultrasound is of limited value in diagnosing PID unless an abscess or hydrosalpinx is present, but it can be helpful in ruling out other causes of pelvic pain.

1.6. Severe disease: criteria for admission

Refer to hospital for intravenous antibiotics and further investigation. Features of severe disease include:

- Pyrexia >38^{0}C.
- Signs of tubo-ovarian abscess (i.e. systemically unwell with severe pain, possible fluctuant mass in adnexa or unilateral tenderness).
- Signs of pelvic peritonitis (rebound, guarding, cervical motion

tenderness).

- No response to oral treatment.
- Pregnancy.
- Right upper quadrant pain: this could be Fitz-Hugh Curtis syndrome due to peri-hepatitis which is generally associated with chlamydial PID. Resultant adhesions may need division.

1.7. Mild/moderate disease: outpatient management

It is likely that delaying treatment increases the risk of long-term sequelae. Because of this and the lack of definitive diagnostic criteria, we should have a low threshold for empiric treatment.

General measures

- Advise rest and analgesia.
- Advise avoidance of oral and genital intercourse until patient AND their partner have completed antibiotics.
- Educate regarding possible complications (link to patient information leaflet in useful resources, below).
- Advise regarding safe sex and regular STI testing to prevent further infection.

Antibiotics

- Give oral broad-spectrum antibiotics as per table below.

- We should treat women with PID who are at risk of pregnancy with the same regimes as non-pregnant women.
- HIV may result in more severe symptoms, but antibiotic recommendations are the same as for non-HIV-infected patients.

All the recommended regimens are of similar efficacy:

Antibiotic and dose	Notes or cautions
First line	
IM ceftriaxone 1gm stat (single dose) AND Doxycycline 100mg twice daily po for 14d AND Metronidazole 400mg twice daily po for 14d.	• DO NOT give oral cephalosporins as there is no evidence of efficacy. • Metronidazole may be discontinued in patients with mild/moderate PID who are unable to tolerate it as anaerobes are implicated more in severe disease.
Second line (if allergies or intolerance preclude the above)	
Ofloxacin 400mg twice daily po AND Metronidazole 400mg twice	• Ofloxacin, levofloxacin and moxifloxacin are effective for the treatment of chlamydia. **HOWEVER, quinolones can cause disabling and permanent side-effects involving the musculoskeletal and nervous system, hence they are ONLY recommended by the MHRA if there is no alternative** (MHRA safety alert 2024).

daily po for 14d.	• *The BASHH response to the MHRA advice on quinolones was that "Clinicians are advised to prescribe fluoroquinolones only when judged to be the most appropriate treatment for the patient's infection after considering factors such as likely causative organisms, antimicrobial resistance factors, the availability of alternative agents, and pharmacological considerations such as tissue penetration" (BASSH - response to MHRA statement on the use quinolone antimicrobials).* • Levofloxacin may be used as an alternative to ofloxacin (500mg once daily 14d). • If a patient is at high risk of gonococcal PID, e.g. partner known to have it, sexual contact abroad or clinically severe disease, avoid oral ofloxacin and moxifloxacin because of increasing quinolone resistance.
Moxifloxacin 400mg once daily po for 14d.	• Give this first line if Mycoplasma genitalium-positive as moxifloxacin has greatest microbiological activity (BASHH, 2019). • There is potential for serious liver toxicity but this is rare and no deaths have occurred.
Third line	
IM ceftriaxone 500mg stat AND Azithromycin 1g/week for 2w.	• Single doses of azithromycin have the potential to induce macrolide resistance in Mycoplasma genitalium so should be restricted to women who are Mycoplasma genitalium-negative.

1.8. Should I remove an IUD?

There is limited evidence as to whether an IUD should be removed in cases of PID. BASHH recommends that for women with mild or moderate disease:

- Leave an IUD in situ UNLESS no significant clinical response to antibiotic treatment has occurred within 48–72h.
- Consider pregnancy risk in those who have had unprotected intercourse in the preceding 7d, and offer emergency contraception if removal is carried out.

Follow-up

Review at 72h and consider referral to secondary care if there is no improvement. BASHH recommends further review in clinic or by telephone 2–4w after initiation of treatment to ensure:

- Resolution of symptoms.
- Compliance with oral antibiotics.
- Screening and treatment of sexual contacts.
- Women who tested positive for gonorrhoea or Mycoplasma genitalium have a test of cure at 2–4w (4w for Mycoplasma genitalium).
- Further review of any patient with symptoms suggestive of persistent or recurrent infection.

1.9. Partner notification and treatment

Current partners

- In women with PID due to chlamydia or gonorrhoea, test current

partners and treat if positive.

- In women with confirmed Mycoplasma genitalium, test current partners and treat if positive.
- Male partners who do not test positive for chlamydia, gonorrhoea or Mycoplasma genitalium should be treated with a broad-spectrum antibiotic (e.g. doxycycline 100mg twice daily for 7d) to cover other pathogens which may be responsible for PID.
- Current sexual partners should avoid intercourse until they have completed their full treatment course.

Contact tracing

We should recommend notification of all sexual contacts within a 6m period (refer to GUM for further advice if necessary).

1.10. Complications

Untreated PID, or delayed treatment for PID, has serious potential long-term complications, including:

- Chronic pelvic pain.
- Infertility.
- Ectopic pregnancy.

A large longitudinal cohort study showed that delaying antibiotic treatment for >3 days after onset of symptoms was associated with a three-fold increase in the risk of post-PID infertility (BMJ 2013;346:f3189).

1.11. Wait – can we really do all this in a GP consultation?

Just to recap, we need to:

- Take a focused history.
- Get the patient to pass urine, then dipstick it and wait for a pregnancy test.
- Perform an abdominal/pelvic/speculum exam and appropriate swabs (label and send in a timely manner).
- Assess whether the patient is systemically unwell or feverish (consider bloods, USS or admission).
- Prescribe and administer (correct!) antibiotics, offer STI counselling and screening (including HIV/syphilis), advise about barrier contraception, arrange testing and treatment of partner, contact trace, safety-net and follow-up.

Would it not make sense to just refer GUM? Especially if we can't test for Mycoplasma genitalium anyway and don't have IM ceftriaxone in our drug cupboard!

We see a lot of women with pelvic pain in general practice and we shouldn't refer all of them to GUM. Furthermore, patients may struggle to get an appointment with us, may wait a while in the waiting room before being seen, may be quite keen to get treated there and then rather than be sent off to a sexual health clinic – which may or may not be open, have appointments and involve another long stint in a waiting room. Perhaps it is pragmatic to assess the likelihood of PID on an individual basis, and then refer on those in whom we have a high index of suspicion.

Pelvic inflammatory disease

- Think about this when seeing a woman with abdominal pain!
- Mycoplasma genitalium is a newly identified pathogen which can cause PID (along with chlamydia, gonorrhoea and other anaerobes).
- If recent-onset bilateral abdominal pain and localised tenderness on bimanual examination (especially if under 25y): THINK PID, RULE OUT PREGNANCY, OFFER EMPIRICAL TREATMENT!
- Negative swabs do not rule out the diagnosis!
- Remember to offer a full STI screen, and advise on barrier contraception and contact tracing.
- First-line treatment for PID is IM ceftriaxone 1gm stat (single dose) AND doxycycline 100mg twice daily po for 14d AND metronidazole 400mg twice daily po for 14d.
- We should treat Mycoplasma genitalium-positive PID with moxifloxacin 400mg twice daily for 14d.
- Refer severe, unresponsive cases, or PID in a pregnant woman, to hospital.

Is Mycoplasma genitalium testing available in your area?

Useful resources:

Websites (all resources are hyperlinked for ease of use in Red Whale Knowledge)

- BASHH - patient information leaflets

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