

## Prostate Abscess in Adults - Microbiology Full Clinical Guideline

Reference number: CG-ANTI/2023/070

### Introduction

- The commonest causes of acute bacterial prostatitis (e.g. *Escherichia coli*) are most commonly inoculated through reflux of urine or via iatrogenic mechanisms of transmission.
- Less common causes of prostate abscess (*Staphylococcus aureus*) can be inoculated via a haematogenous mechanism of transmission. Another focus of infection culminates in bacteraemia; the microorganism then disseminates via the blood and inoculates the prostate gland.
- One of the relatively uncommon outcomes of:
  - Microbial invasion of the prostate; and
  - The subsequent prostatic inflammatory responseIs the formation of an encapsulated lesion containing necrotic immune cells and invading pathogens, i.e. a prostate abscess.
- The purulent prostate mass may manifest with localising symptoms and signs (e.g. perineal-scrotal pain, urgency, frequency, dysuria, pyuria, prostate tenderness, and prostate fluctuance) and/or generalised stigmata of infectious disease (e.g. fever, chills, and malaise).
- Temperatures  $> 38^{\circ}\text{C}$  or  $< 36^{\circ}\text{C}$ , respiratory rate  $> 20$  breaths/minute, heart rate  $> 90$  beats/minute, and hypotension can denote progression of localised infectious disease into sepsis and septic shock.

### Diagnosis

- Perineal-scrotal pain, urgency, frequency, dysuria, pyuria, and prostate tenderness are manifestations that overlap with acute bacterial prostatitis.
  - Persistence of these symptoms and signs, on appropriate antibiotics, can be indicative of prostate abscess.
- Prostate fluctuance, on gentle palpation, can be a distinguishing feature of prostate abscess.

### Investigation

#### **Past**

- Review the past microbiology results, with specific reference to previous genito-urinary samples:
  - Culture positive for *Escherichia coli*, *Proteus* species, *Klebsiella* species, and *Staphylococcus aureus*:
    - Noting susceptibility or resistance to first and second line options for prostate abscess.

#### **Present: microbiology**

Before starting antibiotics:

- Mid-stream urine for microscopy, culture, and susceptibilities (MC&S).
- $\pm$  Blood cultures:
  - If there are temperature spikes, episodes of haemodynamic instability, and/or criteria for intravenous antibiotics.

## **Present: blood sciences**

- Full blood count (FBC), C reactive protein (CRP),  $\pm$  lactate, urea and electrolytes (U&Es), liver function tests (LFTs), and clotting (prothrombin time and APTT).

## **Present: $\pm$ radiology**

- If the differential diagnosis includes a prostate abscess:
  - Request a urology review:
    - With the urology registrar/consultant to  $\pm$  liaise with the radiology team regarding magnetic resonance imaging (MRI).

## **Treatment**

Please note:

- The antibiotic sections include fluoroquinolone usage.
- The empiric/directed per oral/intravenous regimens include [ciprofloxacin/levofloxacin](#) hyperlinked to the British National Formulary.
- For extra information on fluoroquinolone side-effects, please also note the Medicines & Healthcare products Regulatory Agency:
  - [Healthcare professional information](#); and
  - [Patient leaflet](#).

## **Surgical intervention**

- Collaborate with the urology team regarding  $\pm$  drainage, etc.

## **Intravenous versus per oral antibiotics; community versus hospital**

- Criteria for intravenous:
  - (1) Progression of symptoms and signs after 48 hours of per oral antibiotics.
  - (2) Intolerant of per oral antibiotics.
  - (3) Acute urinary retention.
  - (4) Sepsis.
  - (5) Septic shock.
- Intravenous versus per oral antibiotics, and community versus hospital health care:
  - No criteria for intravenous:
    - Per oral antibiotics in the community.
  - Criteria (1) or (2) for intravenous:
    - Consider intravenous therapy in hospital or via the outpatient parenteral antimicrobial therapy (OPAT) team in the community.
  - Criteria (3) for intravenous:
    - Intravenous therapy in hospital.
  - Criteria (4) for intravenous:
    - Intravenous therapy in hospital  $\pm$  in the intensive care unit (ICU).
  - Criteria (5) for intravenous:
    - Intravenous therapy in the ICU.

## **Empiric, per oral antibiotics**

- If there is no history of a urogenital procedure/surgery with fluoroquinolone prophylaxis:
  - First line:
    - [Levofloxacin](#) 500 mg 24 hourly.

- If there is a history of a urogenital procedure/surgery with fluoroquinolone prophylaxis, or if [levofloxacin](#) is contraindicated:
  - First line:
    - Trimethoprim 200 mg 12 hourly.
  - Second line:
    - Co-amoxiclav 625 mg 8 hourly **PLUS** amoxicillin 500 mg 8 hourly.
  - Third line:
    - Fosfomycin\* 3 g 24 hourly for 7 days; thereafter, 3 g 48 hourly.
- \* Fosfomycin and this dosage are unlicensed for prostate abscess.

### Empiric, outpatient parenteral antimicrobial therapy (OPAT)

- Options may include:
  - Ceftriaxone 2 g intravenously 24 hourly.
  - Ertapenem 1 g intravenously 24 hourly.
  - Piperacillin tazobactam 18 g infuser 24 hourly.

### Empiric, intravenous antibiotics

- If there is no history of a urogenital procedure/surgery with fluoroquinolone prophylaxis:
  - First line:
    - [Levofloxacin](#) 500 mg 24 hourly.
- If there is a history of a urogenital procedure/surgery with fluoroquinolone prophylaxis, or if [levofloxacin](#) is contraindicated:
  - First line:
    - Ceftriaxone 2 g 24 hourly; **and**
    - Tobramycin stat, [dose as per hospital guidelines](#).
  - Second line, if ceftriaxone is contraindicated:
    - Co-trimoxazole 960 mg 12 hourly; **and**
    - Tobramycin stat, [dose as per hospital guidelines](#).
  - Third line, if ceftriaxone and co-trimoxazole are contraindicated:
    - Co-amoxiclav 1.2 g 8 hourly; **and**
    - Tobramycin stat, [dose as per hospital guidelines](#).
  - Fourth line, if ceftriaxone, co-trimoxazole, and co-amoxiclav are contraindicated:
    - Fosfomycin\* 4 g 8 hourly; **and**
    - Tobramycin stat, [dose as per hospital guidelines](#).
- \* Fosfomycin and this dosage are unlicensed for prostate abscess.

### Directed, intravenous antibiotics (**with susceptibilities**)

- *Enterobacterales* (e.g. *Escherichia coli*, *Proteus* species, and *Klebsiella* species), **according to susceptibilities**:
  - First line:
    - [Ciprofloxacin](#) 400 mg 12 hourly.
  - Second line, if [ciprofloxacin](#) is contraindicated:
    - Ceftriaxone 2 g 24 hourly.
  - Third line, if [ciprofloxacin](#) and ceftriaxone are contraindicated:
    - Co-trimoxazole 960 mg 12 hourly.
  - Fourth line, if [ciprofloxacin](#), ceftriaxone, and co-trimoxazole are contraindicated:
    - Narrowest spectrum of amoxicillin or co-amoxiclav or piperacillin tazobactam [standard dosage](#).

- Fifth line, if [ciprofloxacin](#), ceftriaxone, co-trimoxazole, and amoxicillin/co-amoxiclav/piperacillin tazobactam are contraindicated:
  - Fosfomycin\* 4 g 8 hourly.
- *Staphylococcus aureus*, **according to susceptibilities**:
  - First line:
    - [Levofloxacin](#) 500 mg 24 hourly.
  - Second line, if [levofloxacin](#) is contraindicated:
    - Co-trimoxazole 960 mg 12 hourly.
  - Third line, if [levofloxacin](#) and co-trimoxazole are contraindicated:
    - Linezolid\*\* 600 mg 12 hourly (or per oral [absorption 100%]).
- \* Fosfomycin and this dosage are unlicensed for prostate abscess.
- \*\* Linezolid is licensed for a maximum duration of 28 days.

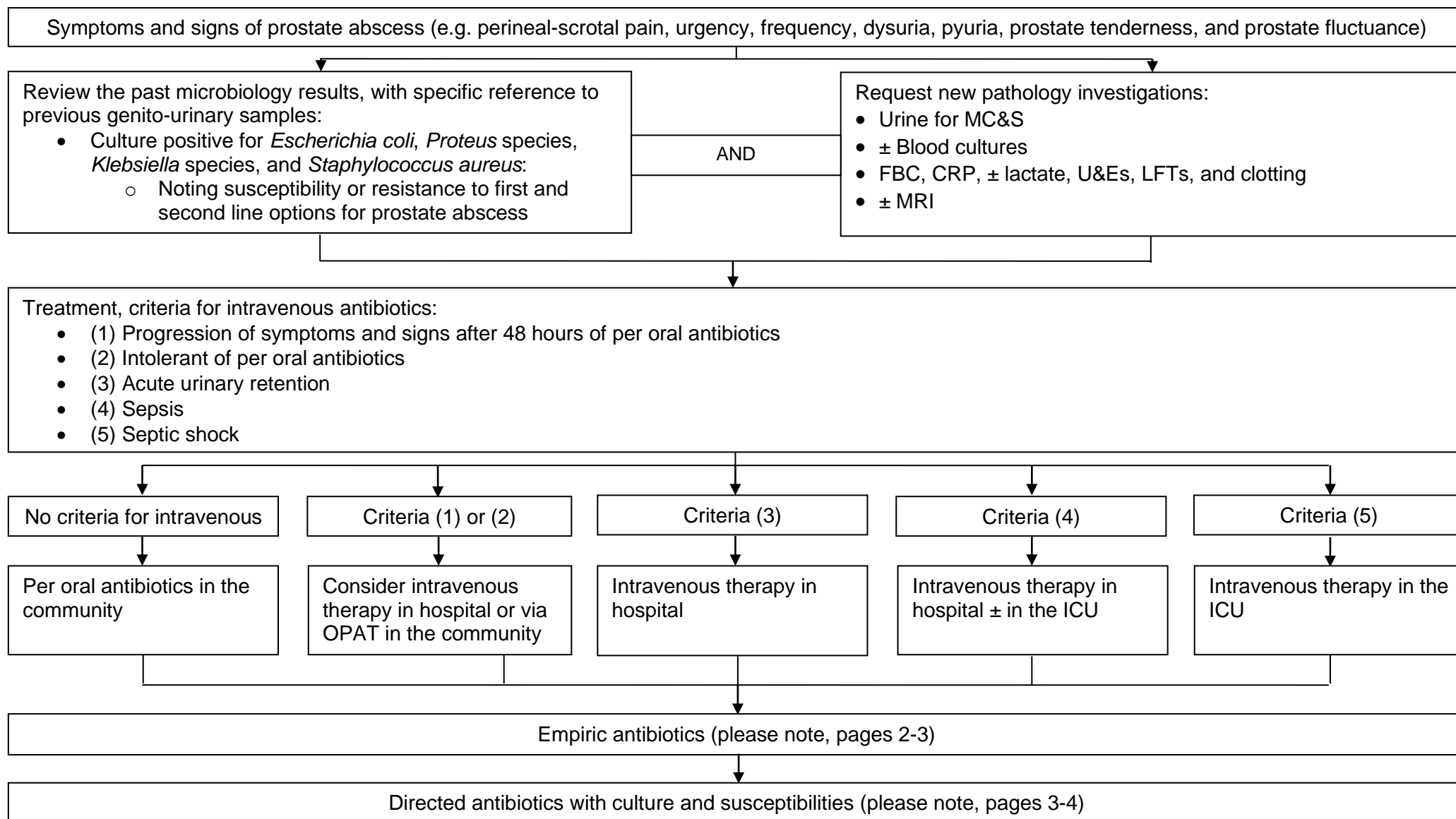
### Directed, per oral antibiotics (**with susceptibilities**)

- *Enterobacterales* (e.g. *Escherichia coli*, *Proteus* species, and *Klebsiella* species), **according to susceptibilities**:
  - First line:
    - [Ciprofloxacin](#) 500 mg 12 hourly.
  - Second line, if [ciprofloxacin](#) is contraindicated:
    - Narrowest spectrum of: trimethoprim 200 mg 12 hourly; or co-trimoxazole 960 mg 12 hourly.
  - Third line, if [ciprofloxacin](#) and trimethoprim/co-trimoxazole are contraindicated:
    - Narrowest spectrum of: amoxicillin 1 g 8 hourly; or co-amoxiclav 625 mg 8 hourly **PLUS** amoxicillin 500 mg 8 hourly.
  - Fourth line, if [ciprofloxacin](#), trimethoprim/co-trimoxazole, and amoxicillin/co-amoxiclav are contraindicated:
    - Fosfomycin\* 3 g 24 hourly for 7 days, thereafter, 3 g 48 hourly.
- *Staphylococcus aureus*, **according to susceptibilities**:
  - First line:
    - [Levofloxacin](#) 500 mg 24 hourly.
  - Second line, if [levofloxacin](#) is contraindicated:
    - Narrowest spectrum of: trimethoprim 200 mg 12 hourly; or co-trimoxazole 960 mg 12 hourly.
  - Third line, if [levofloxacin](#) and trimethoprim/co-trimoxazole are contraindicated:
    - Linezolid\*\* 600 mg 12 hourly.
- \* Fosfomycin and this dosage are unlicensed for prostate abscess.
- \*\* Linezolid is licensed for a maximum duration of 28 days.

### Duration of antibiotics

- If urology have intervened/drained:
  - After 4 weeks, if resolution of symptoms and signs and if the bloods (FBC, CRP) and urine are indicative of resolved prostate abscess, stop antimicrobial chemotherapy.
  - After 4 weeks, if symptoms and signs are ongoing or if the bloods (FBC, CRP) or urine are indicative of a persisting prostate abscess, prolong the antimicrobial chemotherapy for an extra 2 weeks.
    - Consider imaging/re-imaging of the prostate.
- If there is no urology intervention/drainage:
  - 6 weeks.
    - Consider imaging/re-imaging of the prostate.

## Management



## References

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## Document control

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