Prostatitis

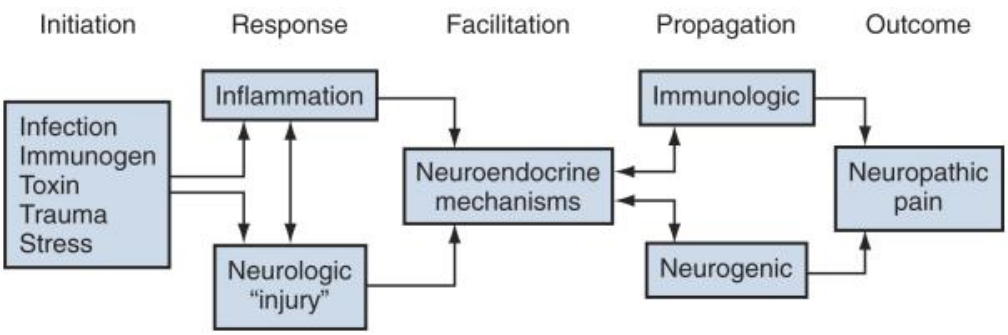
Common
- Most common urological problem in men < 50 yrs
- Third most common problem in men > 50yrs
- Represents 3% to 12% of male outpatient visits to urologists

All ages affected

Worldwide distribution

Aetiology poorly understood
- Risk of bacterial colonisation with pathogenic bacteria
  - UTI
  - Epididymitis
  - Dysfunctional voiding/bladder outlflow obstruction
  - Intraprostatic ductal reflux
  - Transurethral surgery
  - Indwelling urethral catheter
  - Unprotected anal intercourse
- Genetic susceptibility

<u>Pathology</u>
- Chronic inflammation common on histology (usually lymphocytic infiltrates around acini); seen in ~40% pathology specimens: not necessarily indicative of prostate disease
- Infiltrates within glandular epithelium and in lumen rarely seen in asymptomatic patients – often in chronic prostatitis and occ. BPH
- Corpora amylacea a/w chronic prostatitis – composed of urine constituents indicating possible role for intraprostatic reflux – may also form a protective environment for bacteria (biofilm formation)
- Granulomatous inflammation not typically seen – usually after surgery or BCG; rarely due to active TB
- Chronic non-infectious prostatitis a/w activatd immune system (?autoimmune disease triggered by initiator)
  - Non-specific IgG and IgM
  - Complement
  - IL-10 and TNF-a
- Current popular concept indicates that CPPS is caused by an interrelated cascade of inflammatory, immunologic, neuroendocrine, and neuropathic mechanisms that begin with an initiator in a genetically or anatomically susceptible man.



Microbiology

Gram negative organisms

- **E. coli** 65-80%
- Pseudomonas } Klebsiella } Proteus } 10-15%

Gram positive organisms

- Enterococcus 5-10%
- CN staphylococcus Occasional

Chlamydia trachomatis

- Controversial
- Up to one third have antibodies to chlamydia
- Attempts to localise infection to prostate has led to very conflicting results - most studies use culture or FISH - few studies utilise NAAT

Ureaplasma urealyticum

- Limited evidence; at best only ~ 10% infected with ureaplasma

Classification

Traditional	*National Institutes of Health*	*Description*
Acute bacterial prostatitis	Category I	Acute infection of the prostate gland
Chronic bacterial prostatitis	Category II	Chronic infection of the prostate gland
	Category III Chronic Pelvic Pain Syndrome (CPPS)	Chronic genitourinary pain in the absence of uropathogenic bacteria localized to the prostate gland employing standard methodology
Nonbacterial prostatitis	Category IIIA (Inflammatory CPPS)	Significant number of white blood cells in expressed prostatic secretions, post–prostatic massage urine sediment (VB3), or semen
Prostatodynia	Category IIIB (Noninflammatory CPPS)	Insignificant number of white blood cells in expressed prostatic secretions, post–prostatic massage urine sediment (VB3), or semen
	Asymptomatic Inflammatory Prostatitis (AIP)	White blood cells (and/or bacteria) in expressed prostatic secretions, post–prostatic massage urine sediment (VB3), semen, or histologic specimens of prostate gland

Presentation

Acute bacterial prostatitis

- Pain, mixed LUTS and systemic illness
- 5% develop chronic bacterial infection

Chronic bacterial prostatitis

- Commonly history of recurrent UTIs
- Typically asymptomatic in between episodes

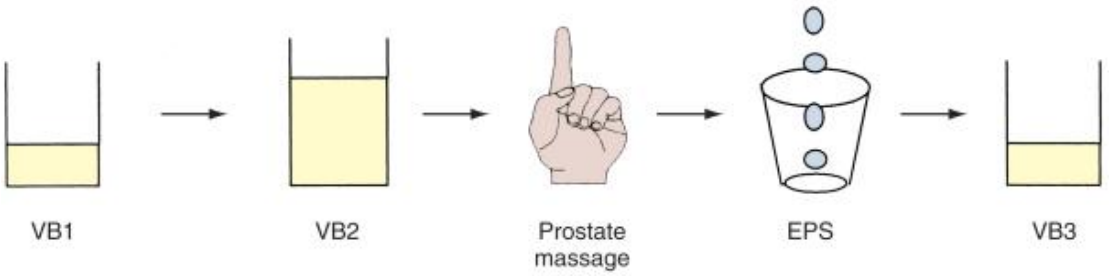
Chronic pelvic pain syndrome*

- Pain – **perineal**, **suprapubic**, groin, testes, penis, lower back
- **Ejaculatory pain** characteristic
- Mixed LUTS
- Occasionally ED and pyschosexual disturbance

* symptom assesment using validated NIH-chronic prostate symptom index. Very useful research tool and to determine baseline symptoms score (see page 5; essentially 3 domains – pain (4), LUTS (2), QOL (3).

Evaluation

Traditional classification described by Drach (1978) following description of the 4 glass test by Meares and Stamey (1968).



VB = voided bladder
VB1 = urethral specimen – first 10 ml
VB2 = MSU
VB3 = post-massage specimen – first 10 ml after massage

Type II (chronic bacterial prostatitis) diagnosed if 10 fold increase in bacteria when EPS/VB3 compared with VB1/VB2 [NB. if MSU positive, requires treatment of male UTI, followed by repeat localisation]
Type IIIa (chronic inflammatory prostatitis) diagnosed if wbcs identified in EPS/VB3 or semen specimen (NIH criteria)
Type IIIb (chronic non-inflammatory prostatitis) diagnosed if no bacteria or wbcs identified

Alternative is simplified 2 glass test (Weidner 1985), recommended by Nickel
Good evidence that VB1 can be excluded provided no penile discharge. Also VB3 at least as effective at detecting inflammation as EPS (Kreiger 2000). Adition of semen microscopy and culture appears to increase the frequency of men diagnosed with type IIIa prostatitis

However many physicians do not perform localisation tests because:
- Chronic bacterial prostatitis rarely identified (4.4% of cases)
- Classification does not predict response to antibiotics
- Pre-treatment with antibiotics common making classification difficult

Other tests
- (i) Urodynamics
  - Value of urodynamics controversial. Some evidence that patients with CPPS have dysfunctional voiding (bladder neck obstruction, acontractility, detrusoe overactivity, hypercontractile EUS) - ? cause or effect.
- (ii) Cystoscopy
  - No apparent value for flexible cystoscopy
- (iii) TRUS
  - Controversial. Prostatic calculi not necessarily indicative of prostate disease. May be useful to exclude midline prostatic cysts in cases of equivocal DRE or reduced ejaculate volume
  - No role for prostate biopsy

<u>Management</u>
(i) Acute bacterial prostatitis
- Management straightforward
- Antibiotics

In acutely inflammed prostate virtually all antibiotics acheive reasonable penetration
Typically IV initially
7mg/kg gentamicin od and 500mg amoxycillin tds
Convert to oral antibiotic when temperature controlled
Ciprofloxacin recommended due to high prostate penetration (zwitterion)
Duration unknown; 2-4 weeks recommended
5% risk of developing chronic bacterial prostatitis
TRUS +/- TUR prostate abscess if failing to respond

(ii) Chronic bacterial prostatitis
Antibiotic therapy indicated
Early studies showed variable efficacy for 3 months TMP-SMX
Recently most studies have shown good efficacy for quinolones.
Ciprofloxacin most studies, although levofloxacin has activity against GPB and atypical bacteria
Macrolides may be considered when chlamydia implicated
Best evidence from Naber – examined all available studies: 63-76% bacterial eradication with 28 days cipro 500mg bd
6-12 weeks therapy recommended by Nickel et al; 4-6 weeks by EAU
For persistent cases, possible role for repeated prostate massage (three times a week for 6 weeks and concomitant Abx)

(iii) CP/CPPS
Limited evidence
a) Antibiotics
Older studies suggest that up to 40% of Type III patients appear to benefit from Abx despite absence of bacteria
Short course (4 weeks) of antibiotics recommended by EAU*
Best evidence (2 multicentre PC-RCTs in heavily pre-Rx patients; Nickel 2003 and Alexander 2004) showed no benefit for 6 weeks of either ciprofloxacin or levofloxacin respectively
* one month of ciprofloxacin 500mg bd ~ £7
b) Alpha-blockers
Confirmed benefit in treatment naiive men with recent development of moderate to severe symptoms
4 RCTs classify men according to NIH and used NIH-CPSI for patient assessment: overall 42% of patients benefitted from Rx, although clinical modest symptom score improvement
c) Anti-inflammatory drugs
Limited evidence for nimesulide, high dose steroids and pentosan polysufate but studies small.
Some evidence for rofecoxib 50mg (Nickel 2003) but currently not recommended (cardiac complications)
d) Phytotherapy
Promising data for Saw palmetto but more studies required

NIH-Chronic Prostatitis Symptom Index (NIH-CPSI)

Pain or Discomfort

1. In the last week, have you experienced any pain or discomfort in the following areas?

		Yes	No
a.	Area between rectum and testicles (perineum)	❑1	❑0
b.	Testicles	❑1	❑0
c.	Tip of the penis (not related to urination)	❑1	❑0
d.	Below your waist, in your pubic or bladder area	❑1	❑0

2. In the last week, have you experienced:

		Yes	No
a.	Pain or burning during urination?	❑1	❑0
b.	Pain or discomfort during or after sexual climax (ejaculation)?	❑1	❑0

3. How often have you had pain or discomfort in any of these areas over the last week?

❑0 Never
❑1 Rarely
❑2 Sometimes
❑3 Often
❑4 Usually
❑5 Always

4. Which number best describes your AVERAGE pain or discomfort on the days that you had it, over the last week?

❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
0	1	2	3	4	5	6	7	8	9	10
NO PAIN										PAIN AS BAD AS YOU CAN IMAGINE

Urination

5. How often have you had a sensation of not emptying your bladder completely after you finished urinating, over the last week?

❑0 Not at all
❑1 Less than 1 time in 5
❑2 Less than half the time
❑3 About half the time
❑4 More than half the time
❑5 Almost always

6. How often have you had to urinate again less than two hours after you finished urinating, over the last week?

❑0 Not at all
❑1 Less than 1 time in 5
❑2 Less than half the time
❑3 About half the time
❑4 More than half the time
❑5 Almost always

Impact of Symptoms

7. How much have your symptoms kept you from doing the kinds of things you would usually do, over the last week?

❑0 None
❑1 Only a little
❑2 Some
❑3 A lot

8. How much did you think about your symptoms, over the last week?

❑0 None
❑1 Only a little
❑2 Some
❑3 A lot

Quality of Life

9. If you were to spend the rest of your life with your symptoms just the way they have been during the last week, how would you feel about that?

❑0 Delighted
❑1 Pleased
❑2 Mostly satisfied
❑3 Mixed (about equally satisfied and dissatisfied)
❑4 Mostly dissatisfied
❑5 Unhappy
❑6 Terrible

Scoring the NIH-Chronic Prostatitis Symptom Index Domains

Pain: Total of items 1a, 1b, 1c,1d, 2a, 2b, 3, and 4 =_____

Urinary Symptoms: Total of items 5 and 6 =_____

Quality of Life Impact: Total of items 7, 8, and 9 =_____

Epididymo-orchitis

Isolated orchitis typically viral in origin; much more commonly occurs secondary to acute epididymitis

Acute epididymitis common

Causes (surgical sieve)

- Infective
  - Bacterial: UTI; STI; TB; Haematogenous
  - Viral: paramyxovirus
  - Parasite: filariasis
- Traumatic
- Autoimmune
- Inflammatory: Behcet's disease
- Idiopathic

Organisms

- Men <35 yrs*: N. Gonorrhoea and c. trachomatis
- Men >35 yrs*: Coliforms (E coli, Klebsiella, Pseudomonas etc.)
- Anal intercourse: E coli and H influenza
- * Berger 1998

Diagnosis

- VB1 for culture/NAAT
- Urethral swab for gram stain**
- MSU
- Doppler USS or scrotal exploration in selected cases
- ** gram positive diplococci = N gonorrhoea; wbcs only – two thirds = chlamydia

Management

- 2-4 weeks of oral antibiotics (duration unclear)
- Men <35: Ciprofloxacin 500mg bd and doxycycline 200mg od
  Doxycycline good vs. chlamydia, ciprofloxacin good vs. GNB. Alternatively levofloxacin 500mg day monotherapy – has better activity than ciprofloxacin vs. GPB and atypical. Doxycycline not active and ciprofloxacin not great vs. gonococcus. Therefore if patient not responding or if STI suspected (gonococcus more common in homosexual population), single dose of oral cefixime 400mg recommended
  Remember contact tracing
- Men >35: Ciprofloxacin alone
- Epididymectomy effective in ~50% of patients with chronic orchalgia

Complications

- Abscess formation
- Testicular infarction
- Testicular atrophy
- Chronic epididymitis (~15% - typically undertreated)
- Infertility (rare)

Mumps orchitis
70:30 rule
Paramyxovirus
Incubation period 2-3 weeks
30% subclinical; 70% clinical parotid swelling and high fever
30% unilateral parotid swelling; 70% bilateral.
30% of post-pubertal males get orchitis. Usually approximately 1 week after.
Of those 70% unilateral, 30% bilateral.
30% of affected testes become atrophic. Therefore sterility rare.
Diagnosis

Diagnosis is clinical, and laboratory tests are unnecessary. The virus can be isolated from saliva or mouth washings in primary monkey kidney tissue culture.

Diagnosis can also be made by significant rise between acute and convalescent phase titers in serum mumps immunoglobulin G (IgG) antibody level using any standard serologic assay or positive serologic test for mumps immunoglobulin M (IgM) antibody. Interpretation of titer rise may have limitations because of mumps cross-reaction with parainfluenza viruses.

Serum amylase is elevated in mumps parotitis and pancreatitis. Serum lipase is elevated in pancreatitis.

CBC indicates a normal or elevated WBC count with lymphocyte predominance.

Treatment

No antiviral agent is indicated for mumps, which is a self-limited disease.

Outcomes
Orchitis (usually unilateral) has been reported as a complication in 20-30% of clinical mumps cases in postpubertal males. Some testicular atrophy occurs in about 35% of cases of mumps orchitis, but sterility rarely occurs.

Acute uncomplicated UTIs in men
Typically newborn, children or elderly males with UT abnormalities
UTI in male aged 15-50 rare (~6 per 10,000 males aged 21-50)
Aetiology

Urinary tract abnormality – up to 25%
Anal intercourse
? intercourse with female with UTI
? uncircumcised state

~90% of men with febrile UTI have concomitant prostatitis
Overall E coli only accounts for ~25% of all male UTIs, but ~90% of uncomplicated cystitis
Investigation recommended for all men
7-10 days recommended for UTI
6 weeks recommended when prostate involvement suspected
Quinolones drugs of choice