

IT Worker's Testicle and other Urological Nuggets!

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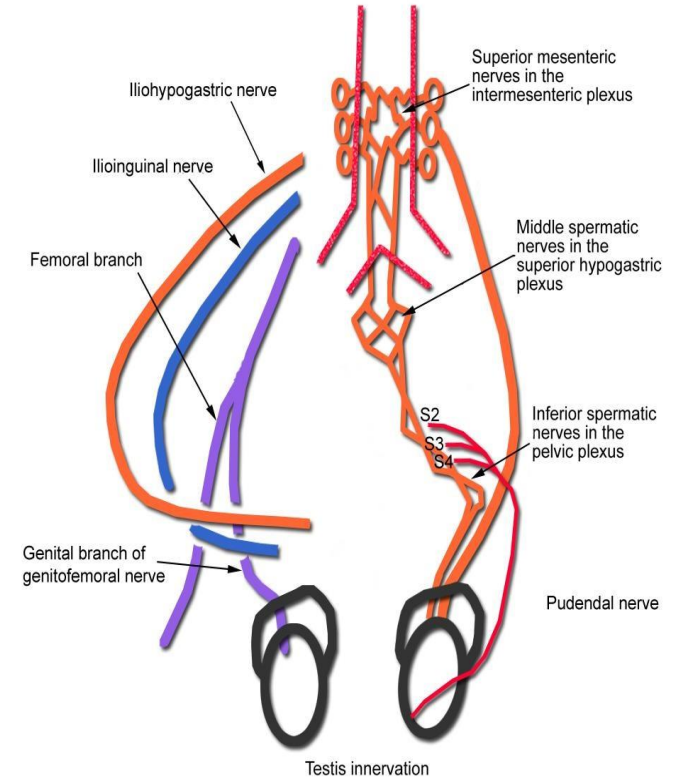
Chronic orchalgia occupies up to 5% of urological consultations and appears to be increasing.

Def: 3 months of intermittent or continuous bothersome testicular ache or pain.

Review causes and assess management of testicular pain – much of which is idiopathic

IT Worker's Testicle

- Primary somatic innervation of the testis is from the ilioinguinal nerve and the genital branch of the genitofemoral nerve.
- However any organ or tissue that shares a neural pathway from L1-2 and S2-S4 can refer pain to the genital area.
- Low back pain of a radiculopathy affecting T10-L1 can cause pain
- Any inflammation or noxious stimulus to these nerves can be perceived in the scrotum
- Ureteric stones can trigger T11-T12 mediated pain and this can be perceived in the testicle
- Pelvic floor muscle dysfunction or spasm can cause orchalgia



IT Worker's Testicle

- Chronic orchalgia tends to be mild to moderate whereas acute orchalgia tends to be severe.
- Acute orchalgia need to exclude:
 - Testicular torsion
 - Acute epididymitis/orchitis
 - Trauma
- All of the above will manifest with sudden onset, usually unilaterally very tender, tense or swollen testis or epididymis, and require emergency treatment. **If in doubt refer direct to A/E**
- However chronic orchalgia is insidious, often mild to moderate, may have been present for some time. Often the testis/epididymis is not tender to gentle examination and there is no swelling (patients often feel it is swollen). Bilaterality not unusual.



- **Causes of chronic orchalgia**
- varicocele – nearly always on the left
- post vasectomy pain syndrome – up to 2-15% of patients
- chronic back pain – very common in the older man
- post hernia repair
- large hydroceles/epididymal cysts – often due to awkwardness
- pelvic floor pain and or dysfunction – epidemic in IT workers!!

- **Amiodarone** can cause chronic orchalgia in up to 11% of patients

- Psychological factors also important particularly anxiety, depression and stress

- **Nugget: A detailed history and examination will often lead to the cause of the pain**

IT Worker's Testicle

- Pelvic floor dysfunction is a well recognised cause of chronic orchalgia - one study showed 93% of men with chronic orchalgia had a least one symptom of pelvic floor dysfunction and 88% of them had it documented on EMG.
- IT workers, drivers, and others in a job that involves long hours of sitting frequently have low back pain and pelvic floor dysfunction leading to chronic orchalgia.
- It also leads to urinary symptoms, pelvic and perineal pain, ejaculatory pain and sensory urgency
- Since COVID and working from home it appears to have become much more common probably due to poor ergonomics at home.
- **Nugget: Ask patients to stand up and stretch and move every hour**

IT Worker's Testicle - Management

- Careful and detailed history
- Physical examination
- Urine dipstix
- US of testes and kidneys
- Physiotherapy
- Ergonomic assessment
- NSAIDS if needed
- Reassure
- Refer if not responding to conservative management
- **Nugget: NO ANTIBIOTICS UNLESS EVIDENCE OF INFECTION OR STD**

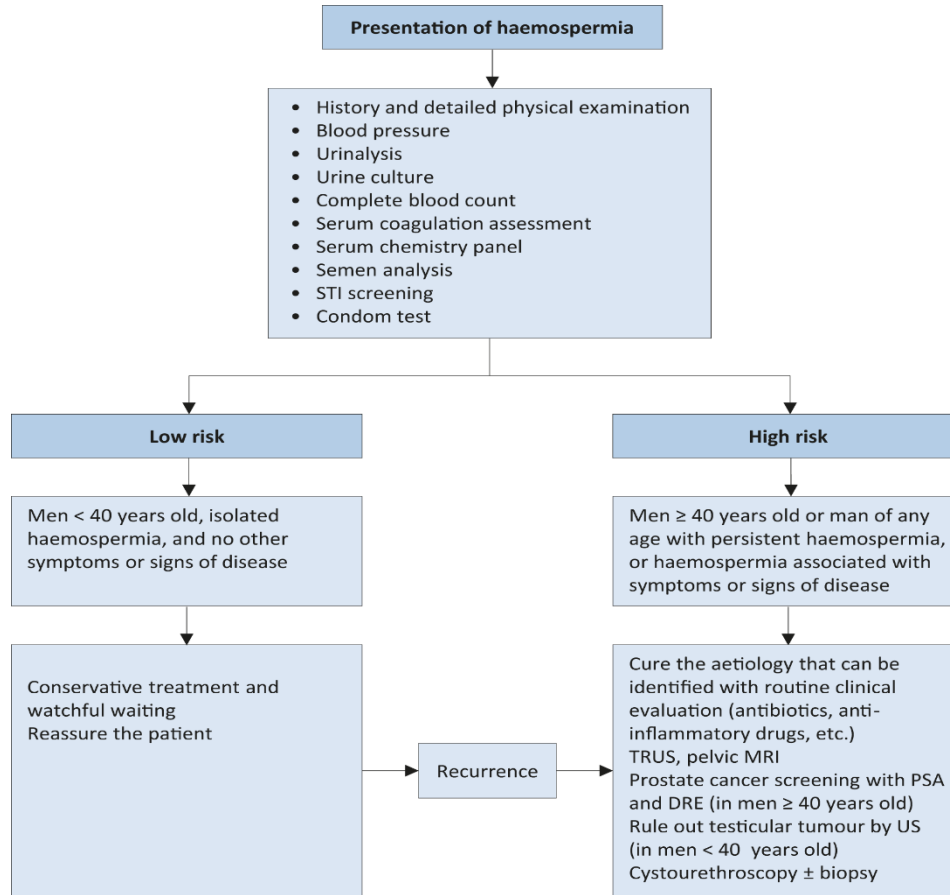
- **Definition:** The presence of blood in the ejaculate
- **Risk of malignancy:** 3.5%
- **Non-identifiable cause:** 85%
- **Commonest cause <40:** UTI
- **Commonest cause > 40:** Stones 2.2% and Malignancy 6.6%

- **Management:**
- Careful history and examination including DRE and urine microscopy and culture
- If > 40 PSA
- MRI if abnormal PSA or persistent haematospermia
- Consider semen culture and STD screen
- Cystoscopy in persistent cases

Haemospermia

- Conservative management ie reassurance for a single episode under 40.
- Older men may require more intensive investigations eg MRI
- Offer antibiotics if evidence of infection
- Men <40 with persisting haematospermia should have a Scrotal US to outrule Testicular cancer
- Consider a cystoscopy in all men with persistent haematospermia
- **Nugget: The vast majority of men with haemospermia can be managed with reassurance and do not need referral**

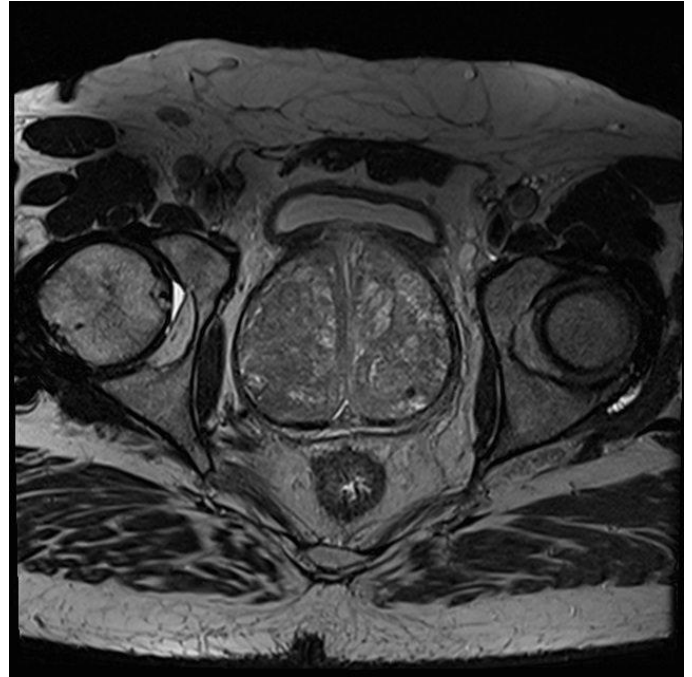
Management algorithm for haemospermia



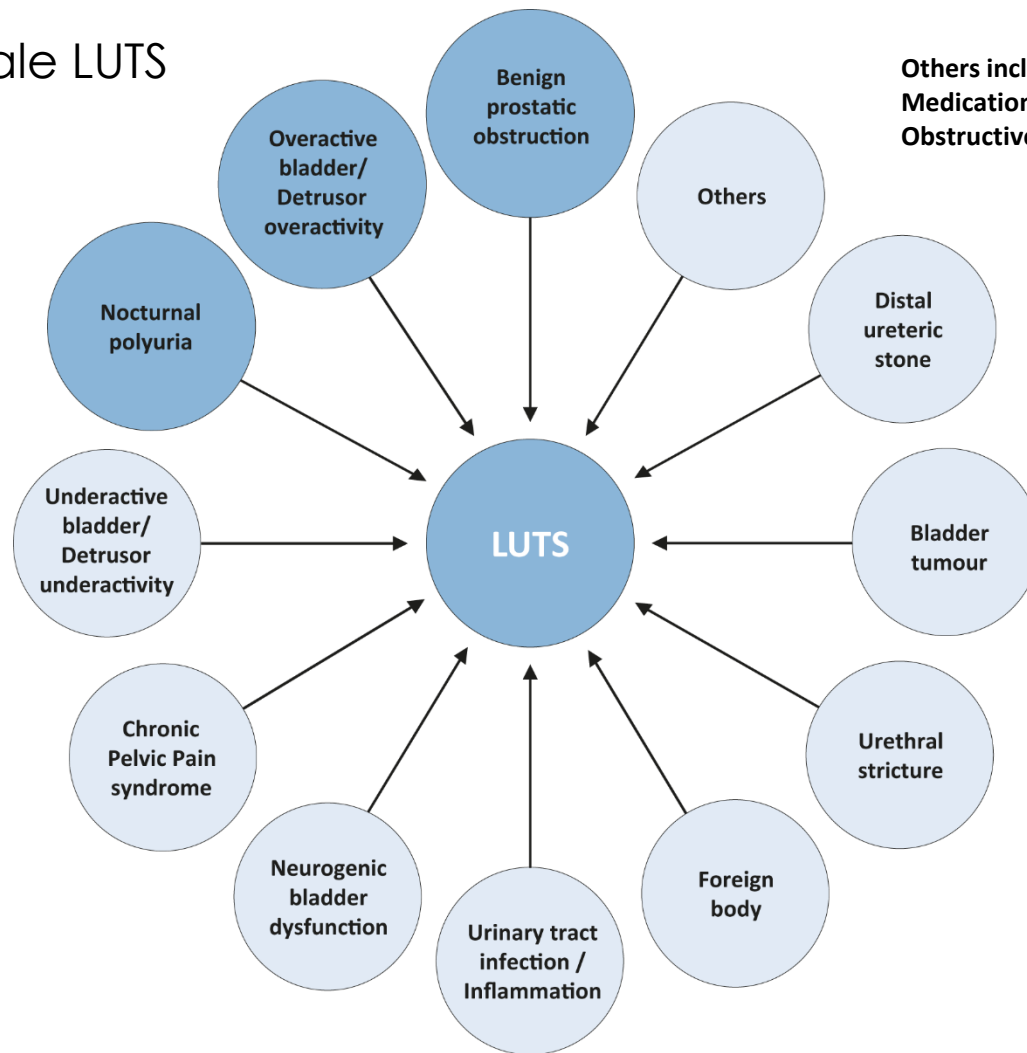
EAU GUIDELINES 2023
Male Sexual & Reproductive Health
6.8 Haemospermia

LUTS and How to Approach the patient and instigate medical management

- LUTS have many different causes and differ little in men as women as we age.
- A lot of us blame this:
- But its only part of the story
- Its helpful to classify LUTS into Voiding symptoms.
- Storage symptoms and Post micturition symptoms.

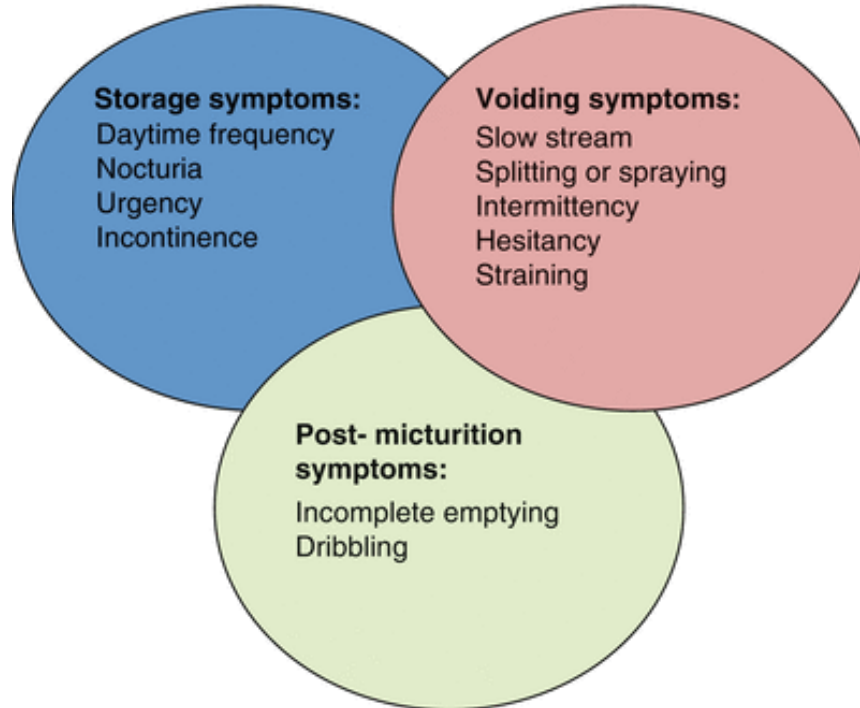


Causes of Male LUTS



Others includes:
Medications: Diuretics, Ca⁺⁺ channel antagonists
Obstructive Sleep Apnoea

LUTS: Storage and Voiding Symptoms



- **Detailed history of symptoms**
 - includes lifestyle, fluid intake, type of fluids, sleep pattern, occupation
- **Physical examination of abdomen and genitalia and DRE**
- **Urinalysis**
- **Validated symptoms score**
- **Renal profile, PSA if appropriate**
- **Bladder diary/frequency volume chart**

Medical Management of LUTS – Options and Choices

- **Alpha – blockers:** (doxazosin, terazosin, alfuzosin, tamsulosin, silodosin)
- **5-alpha reductase inhibitors:** (finasteride and dutasteride)
- **Phosphodiesterase inhibitors:** (tadalafil)
- **Phytotherapy:** (serenoa repens)
- **Muscarinic receptor antagonists:** (oxybutinin, tolterodine, darofenacin, solifenacin, fesoterodine, tropspium, propiverine)
- **Beta 3 agonist:** (migrabegron)
- **Combination therapies:** (tamsulosin/solifenacin, tamsulosin/dutasteride, mirabegron/solifenacin)

Medical Management of LUTS – Alpha-blockers

Alpha 1-blockers aim to inhibit the effect of endogenously released noradrenaline on smooth muscle cells in the prostate and thereby reduce prostate tone and BOO

Controlled studies show that α 1-blockers typically reduce IPSS by approximately 30-40% and increase Q_{\max} by approximately 20-25%.

Alpha 1-blockers can reduce both storage and voiding LUTS.

Alpha 1-blockers do seem to be more efficacious in patients with smaller prostates (< 40 mL)

Main adverse events of α 1-blockers are asthenia, dizziness and (orthostatic) hypotension, ejaculatory dysfunction, and Floppy Iris Syndrome

Patients with cardiovascular co-morbidity and/or vaso-active co-medication may be susceptible to α 1-blocker-induced vasodilatation and may become a falls risk.

The risk of hypotension with the α 1A-selective blocker silodosin is comparable with placebo

Nugget: Doxazosin (Cardura XL) is frequently used for BP control – do not add another alpha blocker for LUTS

Medical Management of LUTS – 5ARIs

- Two 5-ARIs : dutasteride and finasteride. Finasteride inhibits only 5 α -reductase type 2, dutasteride inhibits both 5 α -reductase types (dual 5-ARI).
- The 5-ARIs induce cellular apoptosis reducing prostate size by 18-28% resulting in a **decrease in circulating PSA levels of about 50% after six months** of treatment. Takes up to 6/12 to derive maximal benefit.
- Dutasteride reduces IPSS, prostate volume, the risk of AUR, and increases Q_{max} in patients with prostate volumes >30mls. The greater the baseline prostate volume (or serum PSA level), the faster the symptomatic benefit of dutasteride. 5 α -reductase inhibitors, reduce the long-term (> 1 year) risk of AUR or need for surgery
- Adverse events: reduced libido, erectile dysfunction (10%), decreased semen volume. Gynaecomastia (1-2%)
- Controversies:
 - Potential cardiovascular side effects of 5-ARIs, in particular dutasteride but population-based studies did not find such an association.
 - There is a suggestion of a higher incidence of high-grade prostate cancers although no causal relationship has been proven and there was no associated increased mortality.
- **Nugget: Use 5 α -reductase inhibitors (5-ARIs) in men who have moderate-to-severe LUTS and an increased risk of disease progression (e.g., prostate volume > 30 mL; PSA >1.5ng/ml).**

Medical Management of LUTS – Antimuscarinics

- The detrusor is innervated by parasympathetic nerves whose main neurotransmitter is acetylcholine, which stimulates muscarinic receptors (M-cholinoreceptors) on the smooth muscle cells.
- Muscarinic receptors are also present on other cell types, such as bladder urothelial cells and epithelial cells of the salivary glands.
- Five muscarinic receptor subtypes of which M2 and M3 are predominant in the detrusor.
- The M2 subtype is more numerous, but the M3 subtype is functionally more important for bladder contractions.
- Antimuscarinic effects might also be induced or modulated through other cell types, such as the bladder urothelium or by the central nervous system.
- **Nugget: Avoid antimuscarinics in patients with incomplete emptying**

Medical Management of LUTS – Antimuscarinics

- Antimuscarinics were mainly tested in females in the past, as it was believed that LUTS in men were caused by the prostate, so should be treated with prostate-specific drugs. However, there is no scientific data for this assumption.
- Antimuscarinic monotherapy can significantly improve urgency, UUI, and increased daytime frequency.
- Use antimuscarinics in men with moderate-to-severe LUTS who mainly have bladder storage symptoms.
- Do not use antimuscarinic overactive bladder medications in men with a post-void residual volume > 150 mL.
- Adverse events include dry mouth (up to 16%), constipation (up to 4%), voiding difficulties (up to 2%), nasopharyngitis (up to 3%), and dizziness (up to 5%).
- **Nugget: Antimuscarinics can cross the blood-brain barrier. In elderly patients on other drugs with an anticholinergic effect, they may cause confusion and agitation.**

Medical Management of LUTS – Beta-3 agonists

- Beta-3 adrenoceptors are the predominant beta receptors expressed in the smooth muscle cells of the detrusor and their stimulation is thought to induce detrusor relaxation. The mode of action of beta-3 agonists is not fully elucidated
- Mirabegron treatment resulted in reduced frequency, urgency and UUI rates, as well as improved voided volumes and reduced UUI compared with both placebo and tolterodine.
- The most common side effect of mirabegron is hypertension, UTI, headache and nasopharyngitis. It does not cross the blood brain barrier so does not contribute to the anticholinergic burden and is safe in the elderly.
- Mirabegron had fewer significant side effects compared with anticholinergics especially less dry mouth and constipation
- Patients are less likely to stop mirabegron therapy compared with antimuscarinics
- **Nugget: If Mirabegron alone is ineffective add in solifenacin 5mg or start an antimuscarinic**

Medical Management of LUTS – PDE5Is

- PDE5Is reduce smooth muscle tone of the detrusor, prostate, and urethra and may alter reflex pathways in the spinal cord and neurotransmission in the urethra, prostate, or bladder. Chronic treatment with PDE5Is increases blood perfusion/oxygenation in the LUT. The exact mechanism of PDE5Is on LUTS remains unclear.
- To date, only **tadalafil 5 mg once daily** has been officially licensed for the treatment of male LUTS with or without ED. Long term follow up is lacking.
- RCTs have demonstrated that PDE5Is reduce IPSS, storage and voiding LUTS, and improve QoL. However, Q_{max} did not significantly differ from placebo in most trials
- In my experience patients with severe irritative symptoms, small prostates and failed alpha-blocker therapy may derive significant improvement in symptoms.
- It may also be helpful in men >45 with storage LUTS and ED
- **Nugget: Tadalafil 5mg daily is worth trying in patients with significant preferably storage LUTS who can't tolerate alpha-blockers or are unhappy about ejaculatory dysfunction while on them.**

Medical Management of LUTS – Phytotherapy

- There are multiple potential relevant compounds including phytosterols, β -sitosterol, fatty acids, and lectins.
- The *in vivo* effects of these compounds are uncertain, and the precise mechanisms of plant extracts remain unclear.
- The plant extracts vary by companies. They do not have the same biological or clinical effects; therefore, the effects of one brand cannot be extrapolated to others. In addition, batches from the same producer may contain different concentrations of active ingredients.
- Hexane extracted *Serenoa repens* improves Q_{\max} and results in fewer voids/night compared to placebo with little or no effect on sexual function.
- **Nugget: Inconsistencies in extraction methods and concentrations of active ingredients suggest a limited use for phytotherapy even if there are some beneficial effects.**

Combination Therapies

- **Tamsulosin/Dustasteride (Combodart)**
 - Has been shown to be better combined than either drug alone especially with large (>40cc) prostates and significant LUTS.
- **Tamsulosin/Solifenacin (Vesomni)**
 - Ideal for smaller prostates with storage symptoms and poor flow
- **Mirabegron and Solifenacin**
 - If there is a poor or inadequate response to Mirabegron 50mg alone – you can add Solifenacin 5mg.
- **Nugget: Use Combodart for larger prostates but remember to warn about ED and decreased semen production and the effect on PSA.**

Complex Uroflometry - The Flow Rate

- Complex uroflometry and a post void residual are the key preliminary investigation performed by urologists when assessing LUTS.
- Offers an objective assessment of a persons flow rate and assesses bladder emptying
- Helps assess response to both medical and surgical therapies
- Simple, quick and non-invasive
- However not always consistent, depending on bladder filling, parauresis, and level of hydration.
- May suggest bladder outlet obstruction, detrusor failure, or overactive bladder.

Flow Rate – the terms

Q_{max} – Maximal flow rate

>15ml/sec normal, 1
10 -15 mls/sec equivocal,
<10ml/sec likely obstructed

Q_{ave} – Average flow rate

V_{vol} – Voided volume

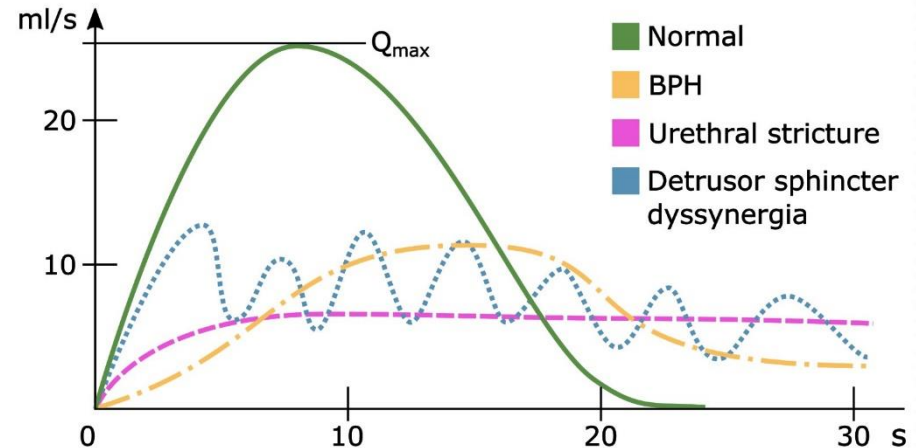
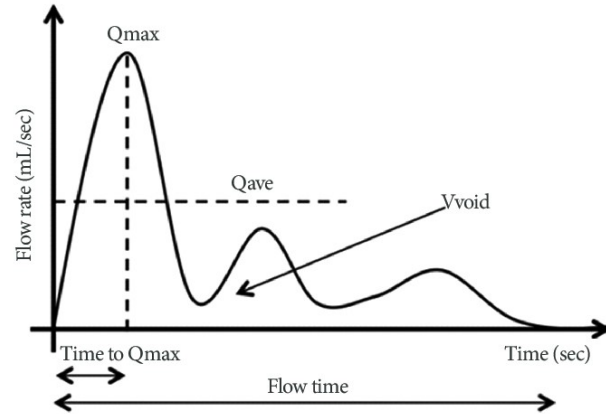
Ideally >200mls but <500mls

Trace – Pattern of voiding

Rapid take-off – indicating OAB
Intermittent – straining to void due to obstruction or detrusor failure
Flat trace – obstruction likely stricture

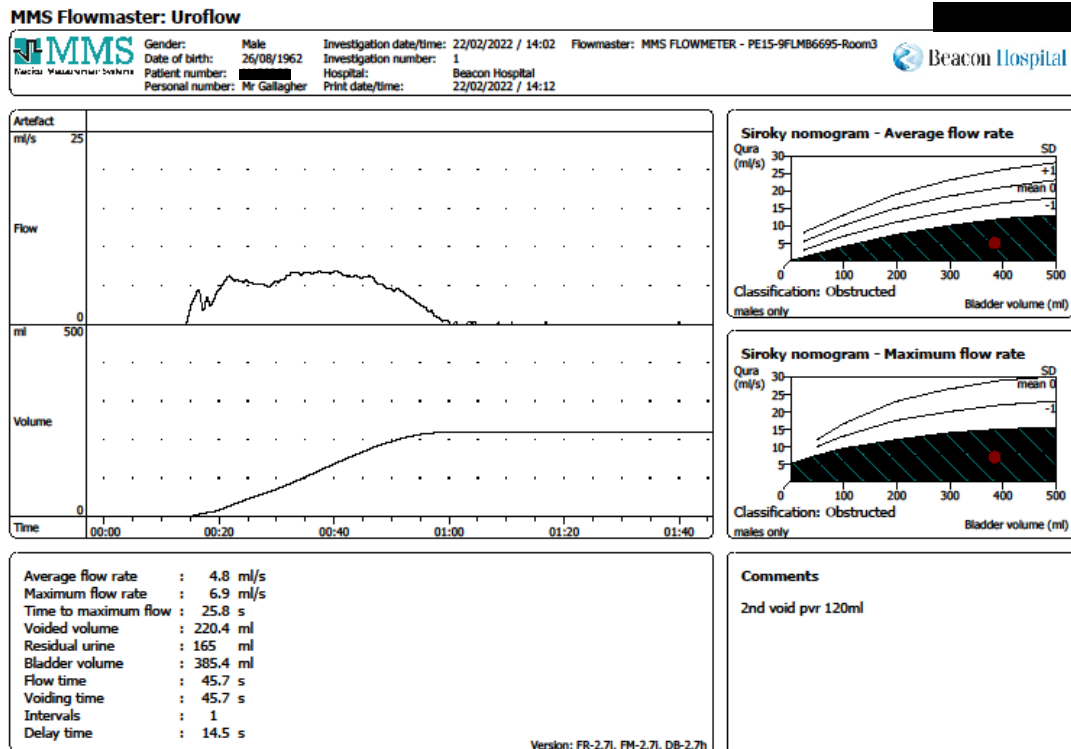
PVR - Post-void residual

Normal <100mls,
Equivocal 100-200mls,
High >200mls



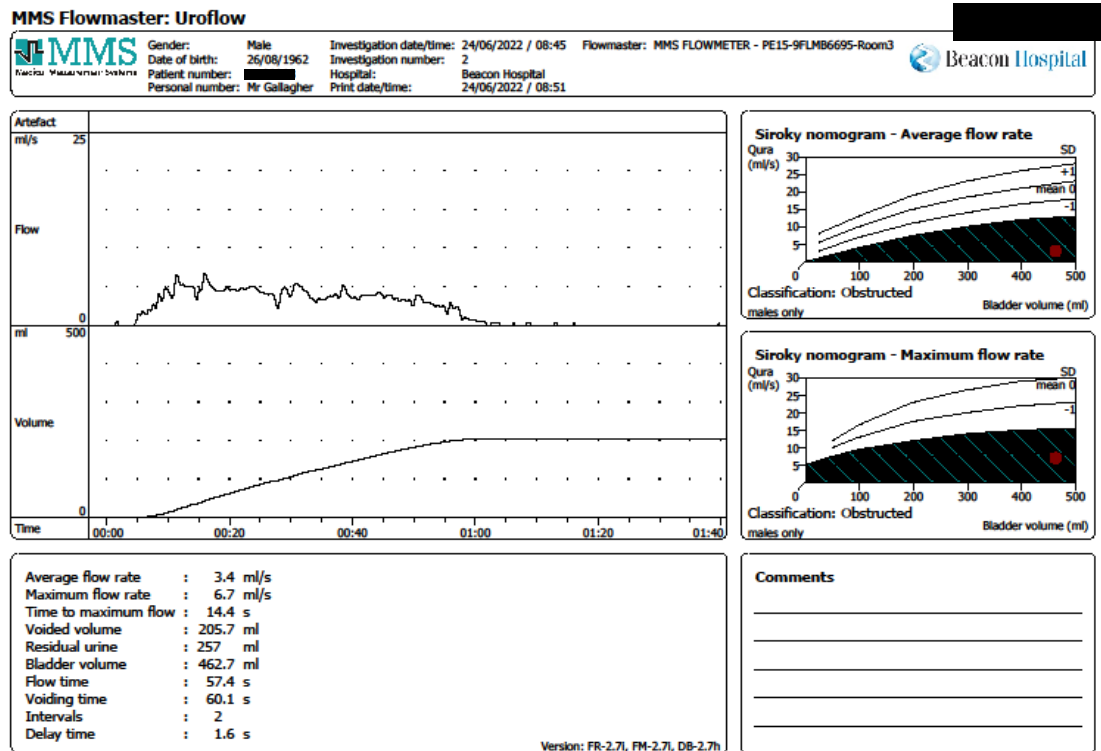
Case Discussion

59yo man 2 year history of LUTS. PSA 4.1 Father with CaP in 90s. Poor flow and possible incomplete emptying on questioning. N x 2. DRE clinically benign but size hard to evaluate. Repeat PSA 3.54



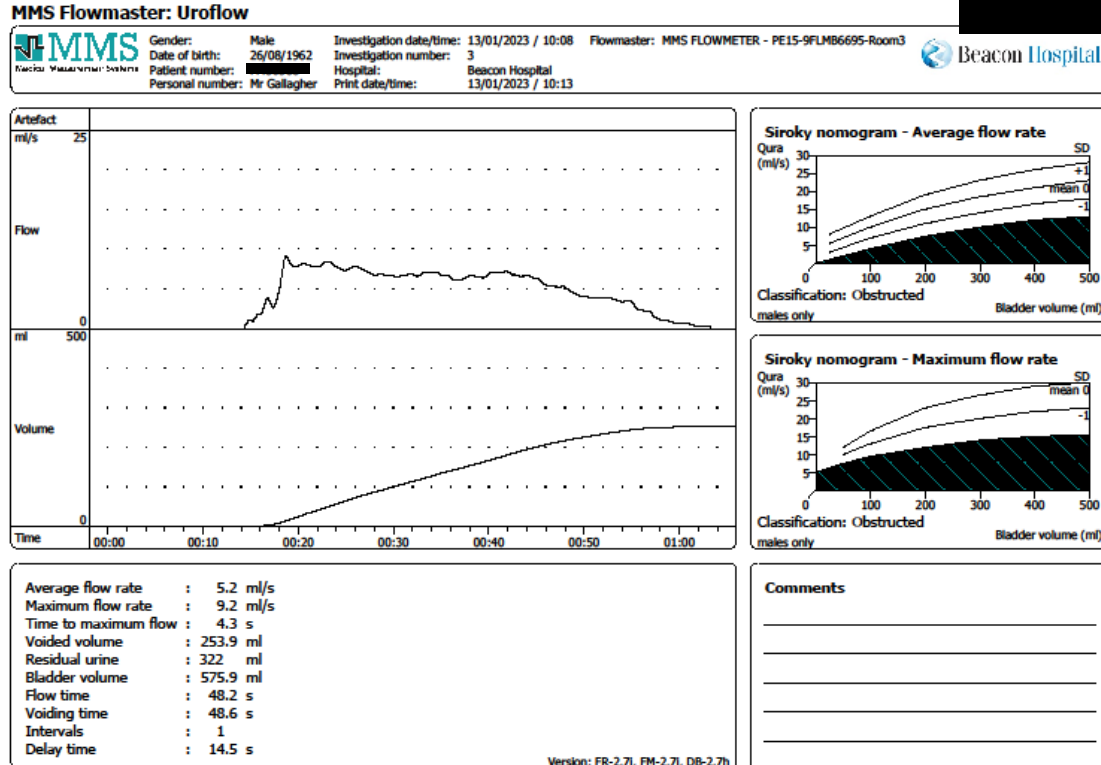
Case Discussion

Started Tamsulosin. Reviewed 6/12 later – some symptomatic improvement but no improvement in flow. Residual worse. PSA 4.13 MRI 65cc benign prostate. Started Combodart.



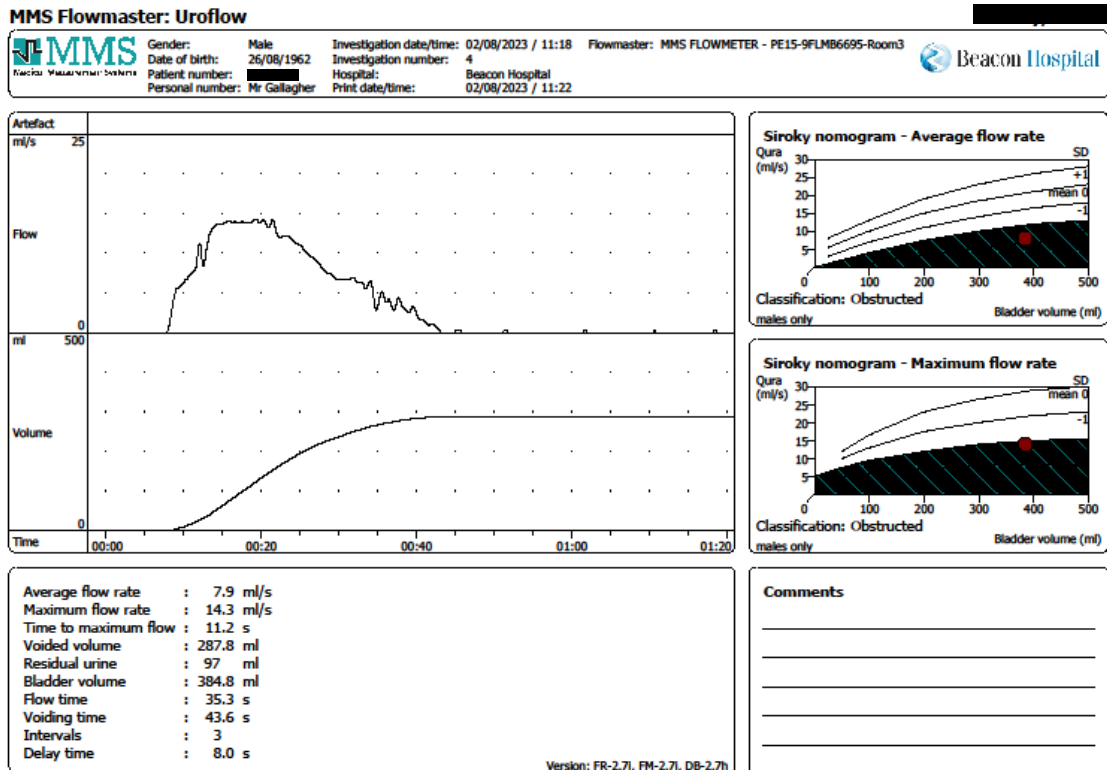
Case Discussion

Review 6/12 somewhat improved flow, high residual falling on a double void.



Case discussion

Review about 1 year after Combodart shows a much improved flow and residual. Excellent PSA response as well - >50% reduction. PSA from 4.13 to 0.89 (1.78).



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Thank you