Imperial Endourology

Imperial College Healthcare NHS Trust

Bladder outflow obstruction & minimally invasive treatments

GP training day
29th September 2021

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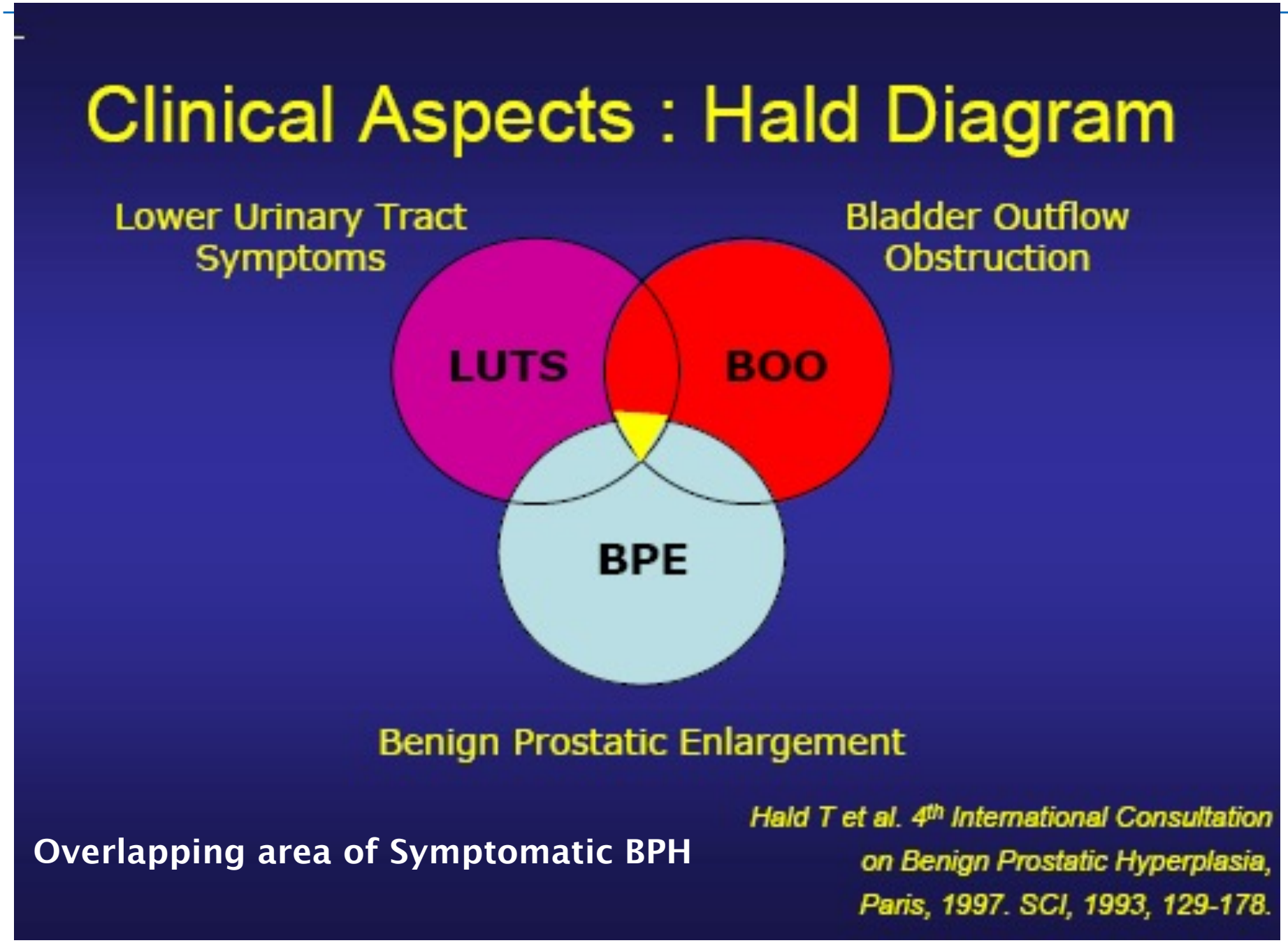
Topics to be covered:

- Overview on LUTS
- Management in 1ry care
- When to refer
- Current pathway
- Treatments offered at Imperial Urology

Definitions

- Benign prostate hyperplasia (BPH) - histological diagnosis
- Benign prostate enlargement (BPE) - clinical diagnosis based on DRE.
- Bladder outflow obstruction - clinical diagnosis
- Lower urinary tract symptoms (LUTS) - constellation of symptoms which neither gender or organ specific

Clinical Aspects : Hald Diagram



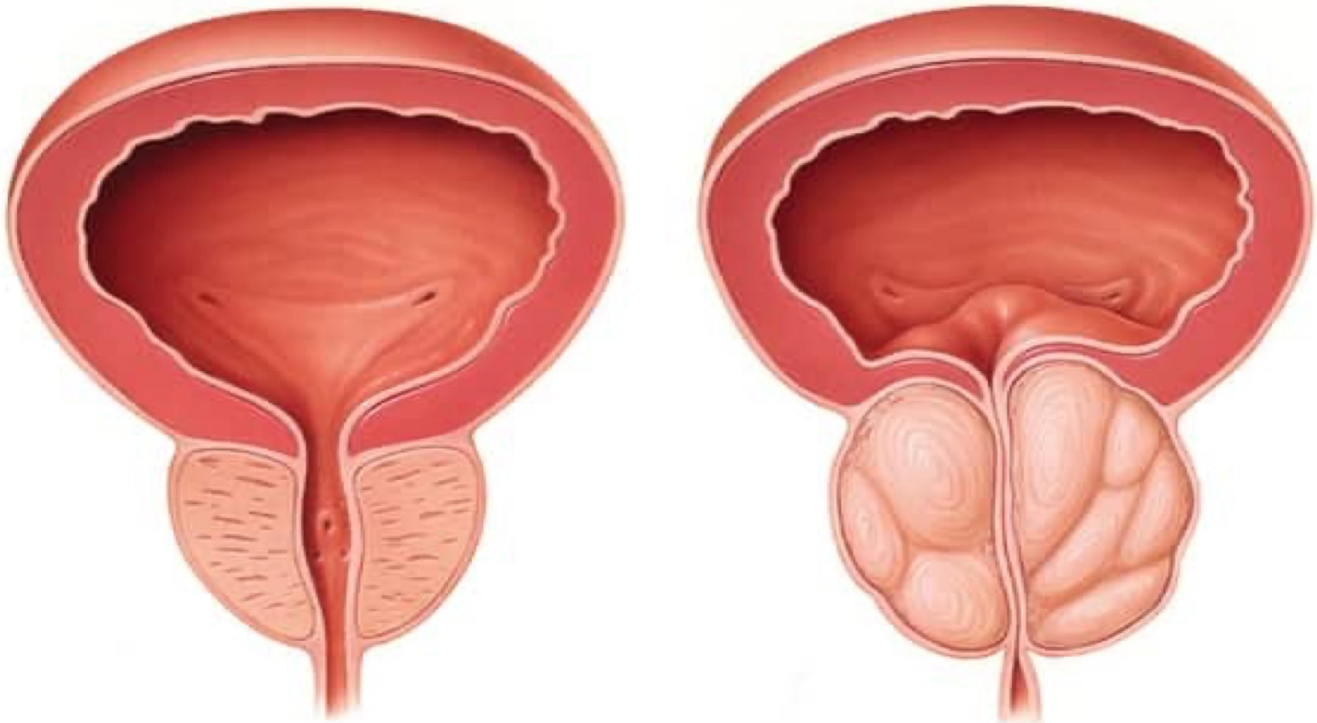
Overlapping area of Symptomatic BPH

Prevalence

Histological prevalence rates of BPH at autopsy

Age - yrs	%
<30	0
41-50	23
51-60	42
61-70	71
71-80	82
>80	88

Berry et al J Urol 1984:



Normal Prostate

Enlarged Prostate

Symptoms

Voiding LUTS

- Hesitency
- Poor steam
- Straining
- Incomplete emptying
- Terminal dribbling
- Double micturition

Storage LUTS

- Frequency
- Urgency
- Overflow incontinence
- Nocturia

Primary care Assessment

- History
  - LUTS - storage vs voiding
  - General medical history to identify other causes of LUTS
  - Review medications
- IPSS and QoL score
  - 0-7 mild; 8-19 moderate; 20-35 severe

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IPSS

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	Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	**Your score**
Incomplete emptying Over the past month, how often have you had a sensation of not emptying your bladder completely after you finish urinating?	0	1	2	3	4	5	
Frequency Over the past month, how often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5	
Intermittency Over the past month, how often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
Urgency Over the last month, how difficult have you found it to postpone urination?	0	1	2	3	4	5	
Weak stream Over the past month, how often have you had a weak urinary stream?	0	1	2	3	4	5	
Straining Over the past month, how often have you had to push or strain to begin urination?	0	1	2	3	4	5	
Nocturia Over the past month, many times did you most typically get up to urinate from the time you went to bed until the time you got up in the morning?	0	1	2	3	4	5	

Quality of life due to urinary symptoms	Delighted	Pleased	Mostly satisfied	Mixed – about equally satisfied and dissatisfied	Mostly dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition the way it is now, how would you feel about that?	0	1	2	3	4	5	6

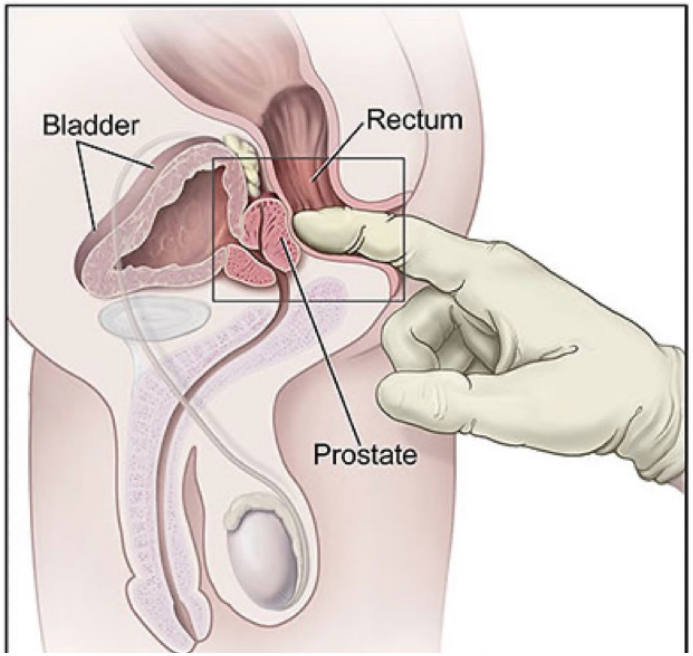
Examination

Abdomen - palpable bladder

External genitalia - Meatal stenosis or palpable urethral mass

DRE - prostate or rectal malignancy

Anal tone - neurogenic causes



- Urine dip
  - Blood, glucose, protein, leuk and nitrites
- Frequency volume chart
  - Patients with bothersome LUTS
  - Polyuria > 3L/day
  - Nocturnal polyuria > third of daily output during 8 hours of sleep

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URINARY INPUT/OUTPUT CHART
FREQUENTLY-ASKED QUESTIONS

What is an output chart?
This chart is designed to assess how much fluid you drink, as well how much and how often you pass urine in a given 24-hour period. It will help us diagnose and treat your urinary symptoms.

The chart should be completed over three to seven consecutive, fairly typical days; you can choose any days to suit yourself.

What do I need to fill in the chart?
You will need a measuring jug in order to measure the urine you pass. This should be calibrated in millilitres (ml) and should hold at least 500ml.

How do I fill in the chart?


Record how much you drink (in millilitres, if possible) and enter this in the appropriate time-slot of the "**In**" section.

Each time you pass urine, measure the amount in your jug and record it in the "**Out**" section. If you are unable to measure the amount for any reason, simply put a tick in the appropriate box.

Put a line across the daily column at the time you go to bed, so we can tell how many times you have to get up at night to pass urine.

What do I do if I have any urine leakage?
If you have any leakage, please mark the box accordingly:

+ for a small amount
++ for a moderate amount
+++ for a large amount

What should I do with the completed chart?
Please bring this chart with you when you come to your next clinic appointment (with your urologist or specialist nurse). If there are any other points that you think are important, write them down on a separate piece of paper.

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DATE	/ /			/ /			/ /			/ /			/ /			/ /			/ /		
DAY	1			2			3			4			5			6			7		
	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet
06.00																					
07.00																					
08.00																					
09.00																					
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22.00																					
23.00																					
M'night																					
01.00																					
02.00																					
03.00																					
04.00																					
05.00																					
TOTAL	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet	In	Out	Wet

Your name ..... and hospital number .....

PSA

- prostate Ca can present with LUTS
- Should be offered to patients whom diagnosis of prostate Ca will alter clinical management.
- Offer if Prostate feels abnormal or if patient has a strong family history
- Offer to patients concerned about prostate Ca after appropriate counselling

Renal functions

Check if you suspect renal impairment

- Palpable bladder
- Enuresis
- Recurrent UTI's
- History of stones

Management in 1ry care

After initial assessment in non-bothersome LUTS

- Reassurance, lifestyle changes and information
- Review of symptoms
- Offer medical treatment

When to refer

- Bothersome LUTS after failure of drug management
- Complicated patients
  - Recurrent UTI's
  - Retention
  - Renal impairment
  - Suspected urological cancers (2WW referrals)

Referral through eRS

Male LUTS DoS

Male Lower Urinary Tract Symptoms – LUTS (Charing Cross Hospital) - ICHT

Clinic Type – Male Lower urinary tract symptoms (Male LUTS)

Clinical term searches are as follows;

- Male Lower Urinary Tract Symptoms (Male LUTS)
- BPH
- Benign Prostate Hyperplasia
- Overactive Bladder (OAB) symptoms in men
- Retention
- Bladder outflow obstruction
- Urethral stricture

Conditions Treated:

- Male LUTS not responding to conservative management or drug treatment, in the absence of red flag symptoms of suspected cancer (haematuria and raised PSA) which should be referred according to the cancer network guidelines.

- LUTS complicated by recurrent UTI's, urinary retention or renal impairment

Procedures Performed:

- TURP (Transurethral resection of the Prostate)
- TURis/Bipolar TURP (Transurethral resection of the Prostate in Saline)
- HoLEP (Holmium Laser Enucleation of the Prostate)
- Urolift
- Rezum
- Prostate Artery Embolisation (PAE)
- Suprapubic catheters
- Long term catheters
- Urethral stricture procedures
- Urethral dilatation

Exclusions:

- Women
- Patients with suspected cancer should be referred according to the cancer network guidelines.
- Patients under 16

Suggested Investigations - As per NICE male LUTS guidelines:

- Physical examination including DRE
- Urine dipstick
- Complete a urinary frequency volume chart
- PSA testing if LUTS are suggestive of bladder outlet obstruction secondary to Benign prostatic enlargement, abnormal feeling prostate on DRE or to patients concerned about prostate cancer

- Offer conservative treatment and lifestyle advice.
- Offer trial of medical treatment/or combination as appropriate:

  Alpha blockers: to men with moderate to severe LUTS.

  Anticholinergics: to men to manage the symptoms of OAB

  5-alpha reductase inhibitor: to men with LUTS who have prostates estimated to be larger than 30 g or a PSA level greater than 1.4 ng/ml, and who are considered to be at high risk of progression (for example, older men)
- Consider completing an IPSS questionnaire & a F/V chart

Management in 2ry care

One stop male LUTS clinic

- Pilot 1st trialed in November 2017
- Now current model for seeing (the majority of) new LUTS patients
- 2-3 clinics per week
- Consultation and diagnostics performed on the same day
- Can reduce the pathway by 35 weeks (New to follow up lead time)
- High clinical discharge rate (32%)
- Significantly reduced follow up rate (5%)
- Increased patient and staff satisfaction
- Patients have definitive decisions made at clinic appointment

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WCE 2019

29 October - 2 November

ABU DHABI, UAE

ENDOUROLOGICAL SOCIETY

Held in conjunction with:

8th Emirates International UROLOGICAL Conference

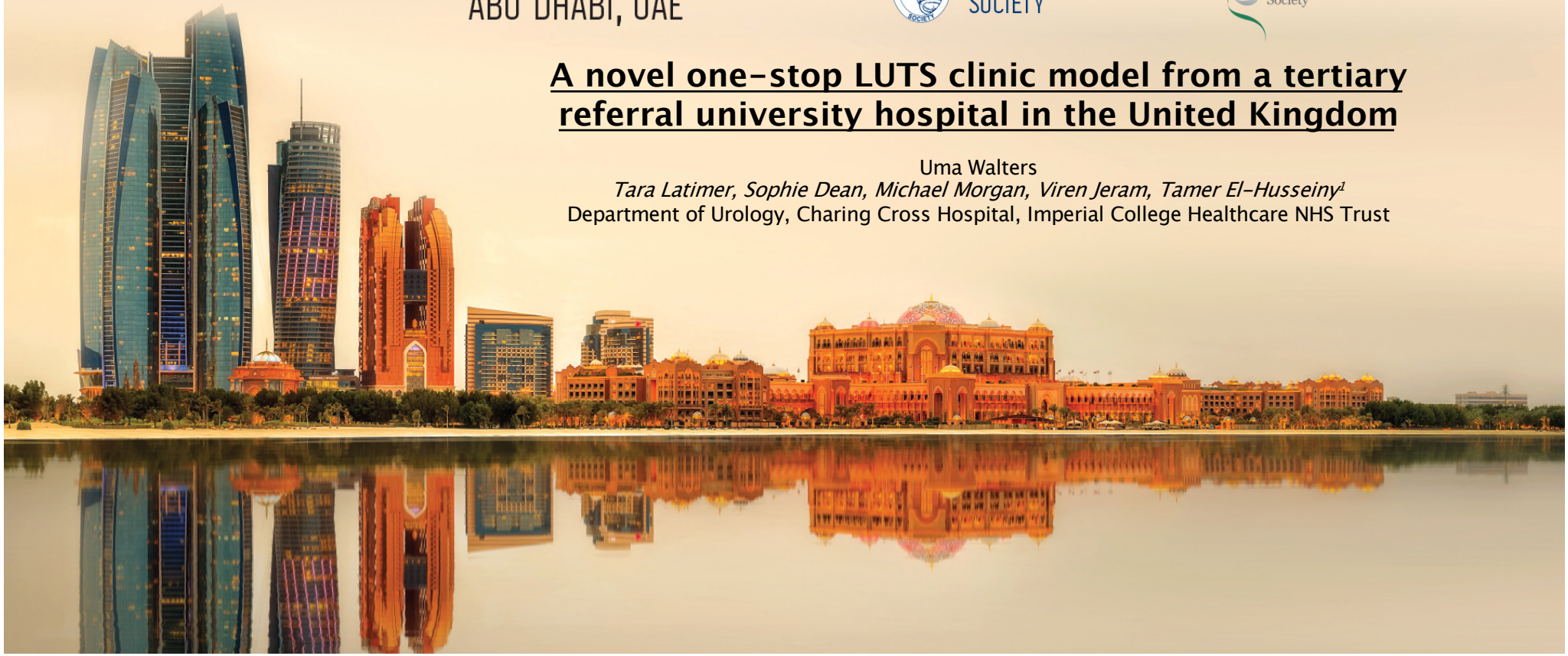
Emirates Urological Society

A novel one-stop LUTS clinic model from a tertiary referral university hospital in the United Kingdom

Uma Walters

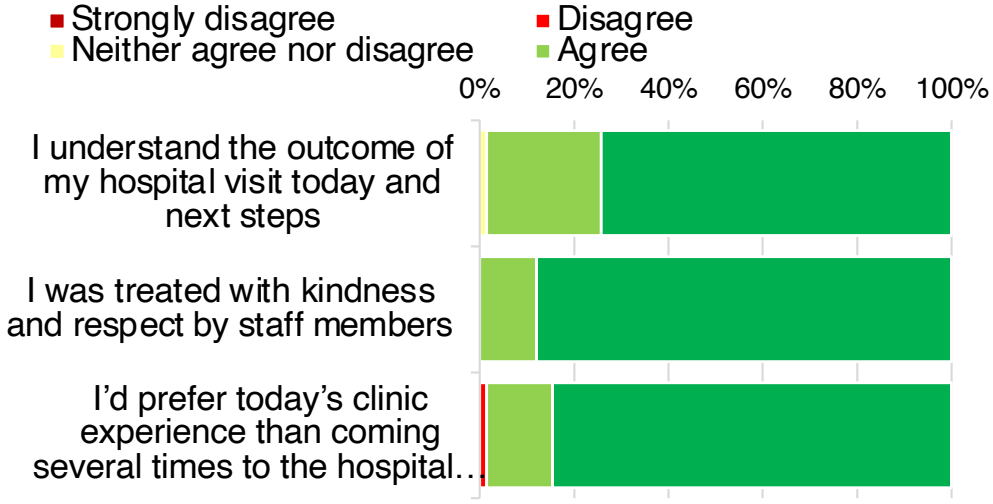
Tara Latimer, Sophie Dean, Michael Morgan, Viren Jeram, Tamer El-Husseiny[1]

Department of Urology, Charing Cross Hospital, Imperial College Healthcare NHS Trust



- LUTS are a substantial reason for presentation to Urology clinics in the UK
  - Overstretched, limited available resources
  - Current pathway – new appointment wait: 22 weeks, follow up appointment: 55 weeks
- This QIP compared a novel one-stop clinic to the current LUTS clinic pathway
- Method:
  - Retrospective audit from March – May 2018
  - Current LUTS clinic Vs. Novel one-stop clinic
  - One-stop clinic (consultations before and after diagnostic tests – all on the same day)
- Results:
  - 298 patients current clinic pathway, 109 patients one-stop clinic
  - 98% patients preferred the one-stop clinic
  - 100% satisfied or extremely satisfied

	Current (%)	One-stop (%)
Follow up	60	5
Decision for surgery	10	57
Clinical discharge	25	32
% of LUTS patients	55	96
DNA/cancel	19	2



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One stop male LUTS clinic model

GP referral
after appropriate initial management in 1ry care

Referral triaged

Send patient:
- Letter confirming appointment
- Details of one-stop LUTS clinic
- Bladder diary
- IPSS questionnaire
- IIEF-5 questionnaire

Patient list vetted by Urologist before clinic – required tests specified + list given to clinic nurse
- Urine dip +/- MSU
- Uroflowometry + PVR (if no catheter)
- Blood tests: renal function + PSA (if not performed by GP)
- TRUS Prostate volume – if no previous volume measurement
- Flexible cystoscopy – if candidate for Urolift or other indications e.g. haematuria or history of bladder cancer

Discharge with advice/medical management
GP to refer if progressive symptoms/or patient requests surgical treatment

V/C follow-up with Urologist or LUTS CNS
e.g. after further investigations or if patient undecided on surgical treatment option

Consultation with Urologist

Surgery
- TURP
- Urolift
- Rezum
- HoLEP
- PAE

Further investigations
- Urodynamics
- USS/MRI if required
- CT angio if required for PAE workup

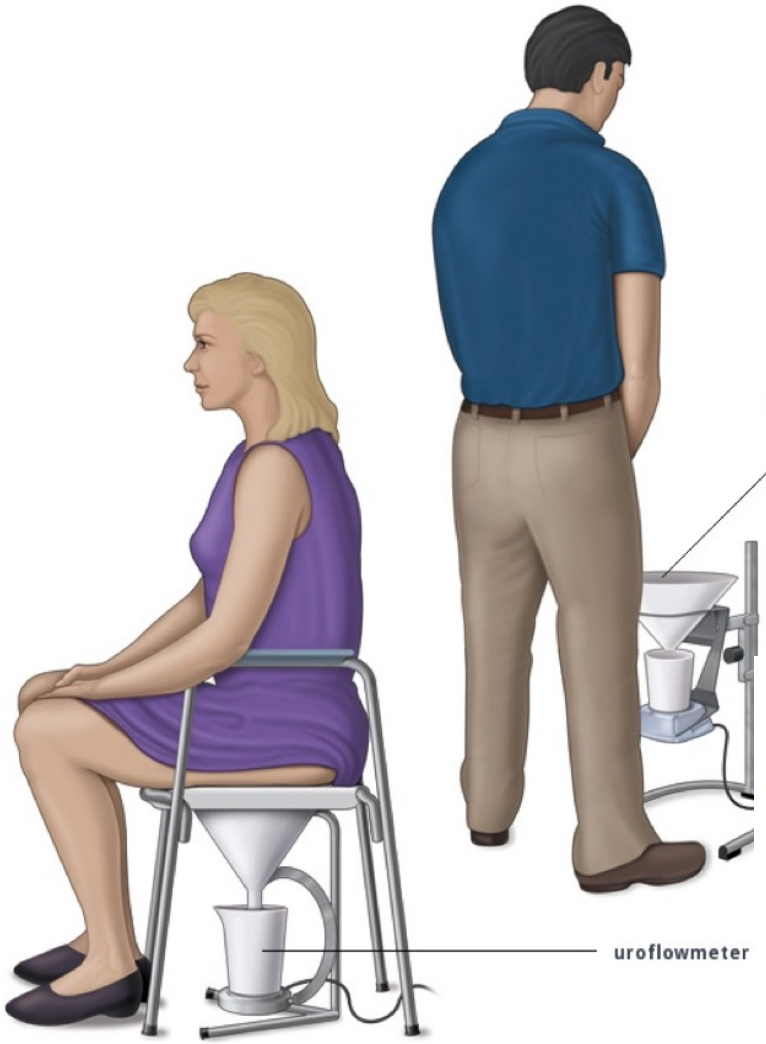
2ry care assessment

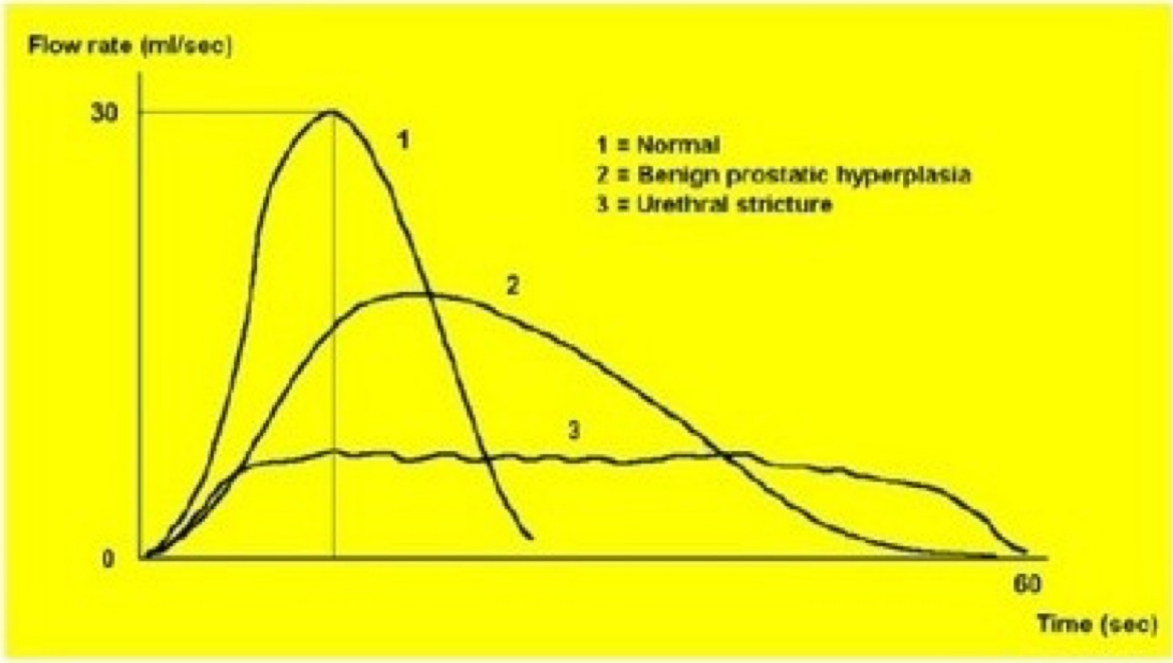
- Same as primary care
  - History
  - Examination
  - DRE
  - IPSS
  - Urine dip
  - Freq/vol chart
  - PSA
  - ?renal function

Plus:

  - Flow rate & PVR
  - UDS/VUDS
  - Flexi cystoscopy

Uroflowmetry
&
Postvoiding residual


uroflowmeter
uroflowmeter


Flow rate (ml/sec)
30
0
1
2
3
1 = Normal
2 = Benign prostatic hyperplasia
3 = Urethral stricture
60
Time (sec)

Cystoscopy

Indications:

- haematuria
- urethral stricture
- malignancy
- Deciding on type of treatment to offer.

Upper tract imaging

Imaging of the upper tracts is recommended in:

- haematuria
- UTI
- poor renal function
- history of stones

Urodynamics

- If initial evaluation, uroflowmetry and PVR are not suggestive of BOO, urodynamics can be considered especially if surgery is being considered
- Consider urodynamics if:
    - cannot void >150 mls
    - max flow rate >15mls/s
    - <50yrs or >80yrs
    - PVR >300
    - suspicious of neurogenic bladder dysfunction
    - bilat hydronephrosis
    - previous radical pelvic surgery
    - previous failed surgery

Medical Treatment

- Offer when conservative measures have not been successful or are not appropriate
- Take into account co-morbidities and current treatments
- Offer an alpha blocker to men with moderate to severe LUTS
  - Tamsulosin
  - Alfuzosin
  - Terazosin
  - Doxazosin
- 5 ARI for men with prostate > 30g or PSA >1.4 ng/ml and are at a high risk of progression (eg. older men)

- Consider combination of alpha blocker and 5ARI for men with moderate to severe LUTS and prostates > 30g or PSA > 1.4ng/ml
- Consider an anti cholinergic and/or Beta 3 agonist for men with storage symptoms despite an alpha blocker
- Prior to initiation of an anti cholinergic PVR should be assessed
- Consider a late afternoon loop diuretic for men with nocturnal polyuria
- Consider low dose oral desmopressin for patients with nocturnal polyuria if other medical causes have been excluded and other treatments have failed

Surgical treatment

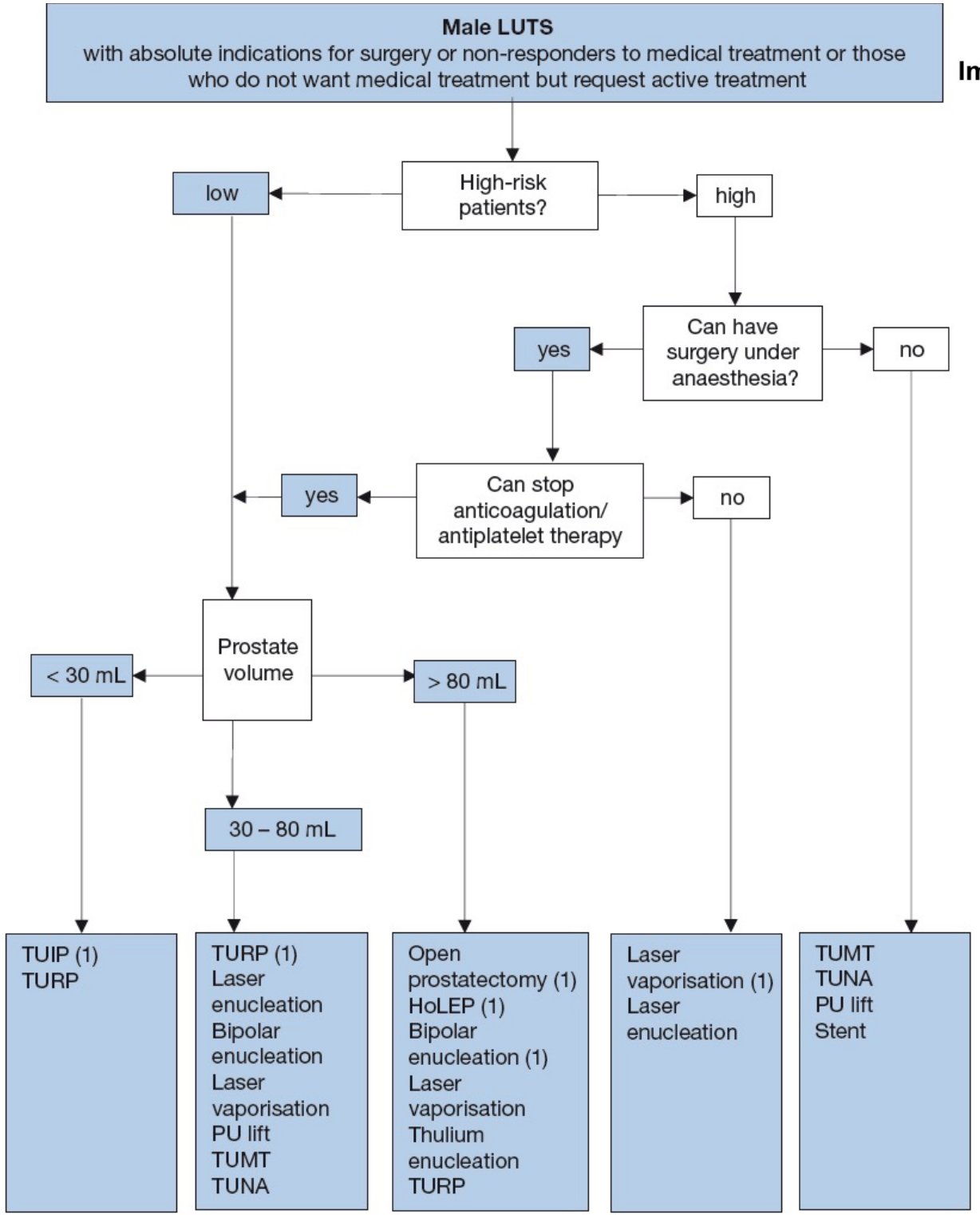
- Offer if symptoms are severe or drug and conservative measure have failed or are inappropriate .
- Discuss alternatives and outcomes from surgery.

BPH Surgery at Imperial Urology
What do we offer…

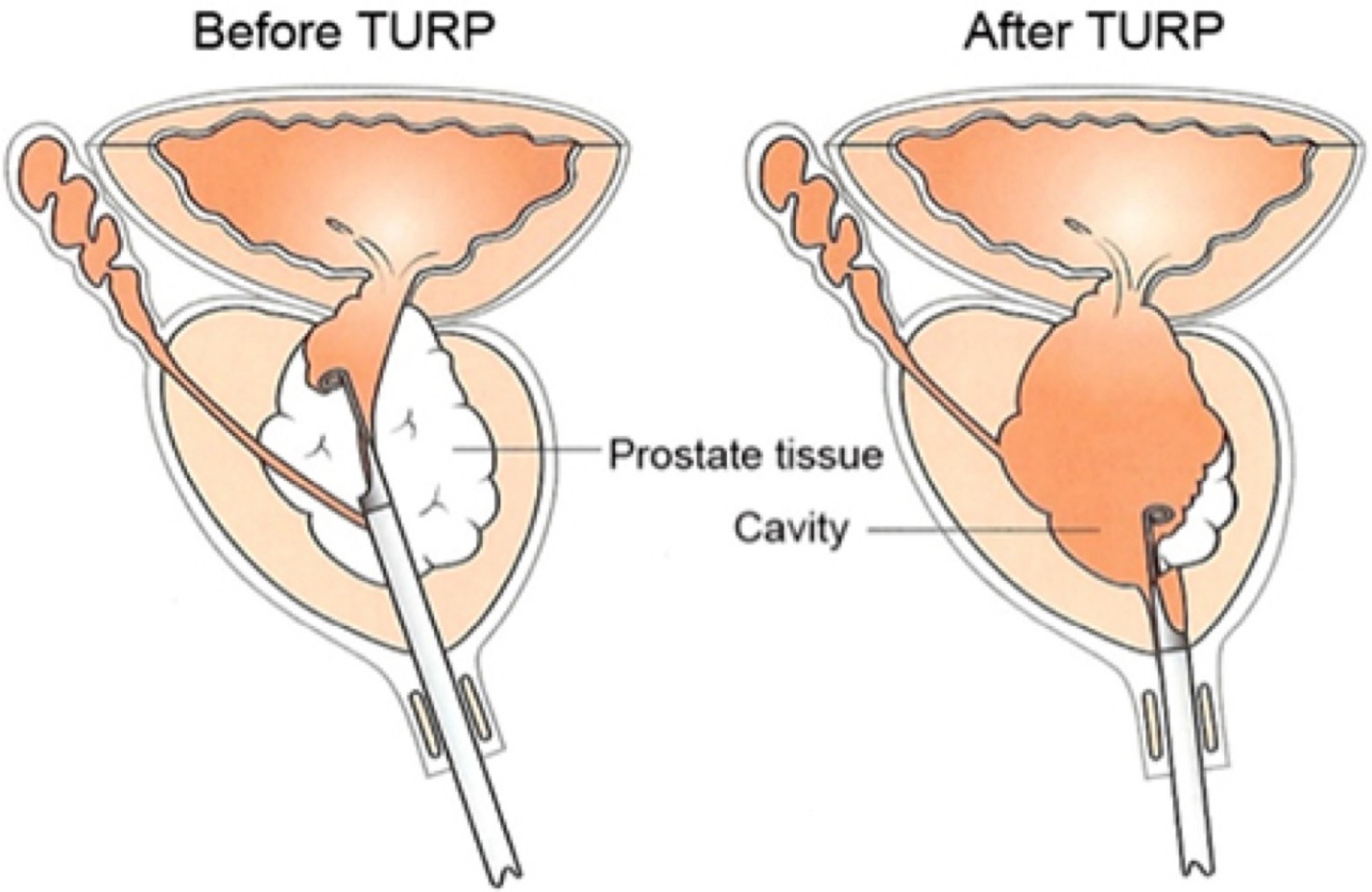
- TURP - Monopolar/Bipolar
- HoLEP
- Urolift
- Rezum
- Prostatic stents
- Prostate Artery Embolisation (PAE)

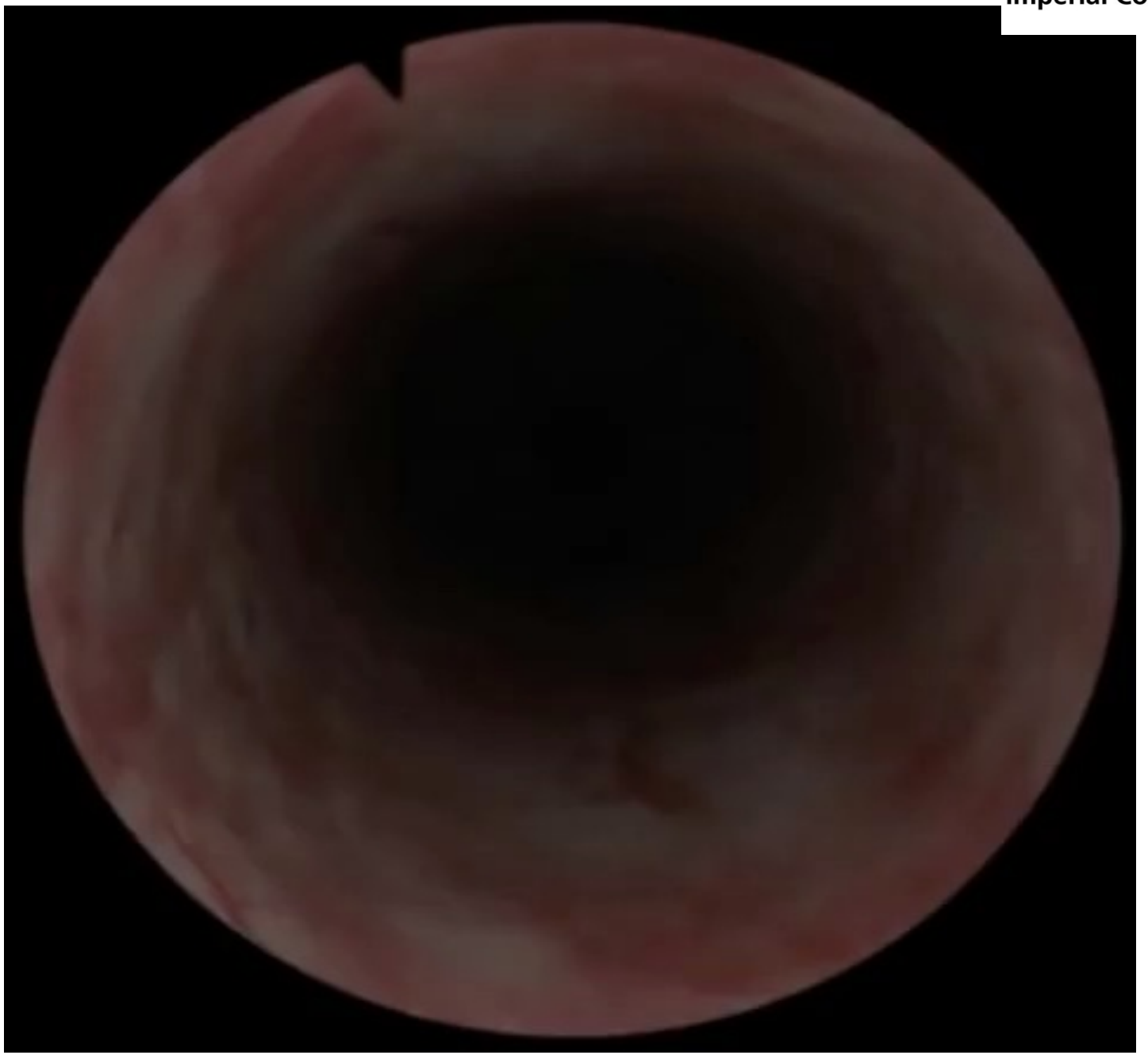
How do we decide…??

- Prostate size/anatomy
- Patient fitness
- Patient preference


Male LUTS
with absolute indications for surgery or non-responders to medical treatment or those who do not want medical treatment but request active treatment
High-risk patients?
low
high
Can have surgery under anaesthesia?
yes
no
Can stop anticoagulation/ antiplatelet therapy
yes
no
Prostate volume
< 30 mL
30 – 80 mL
> 80 mL
TUIP (1)
TURP
TURP (1)
Laser enucleation
Bipolar enucleation
Laser vaporisation
PU lift
TUMT
TUNA
Open prostatectomy (1)
HoLEP (1)
Bipolar enucleation (1)
Laser vaporisation
Thulium enucleation
TURP
Laser vaporisation (1)
Laser enucleation
TUMT
TUNA
PU lift
Stent

TURP





Monopolar TURP

- Electrical current passes from the active electrode (connected to the resectoscope loop) to a grounding pad attached to the patient.
- Glycine used for irrigation

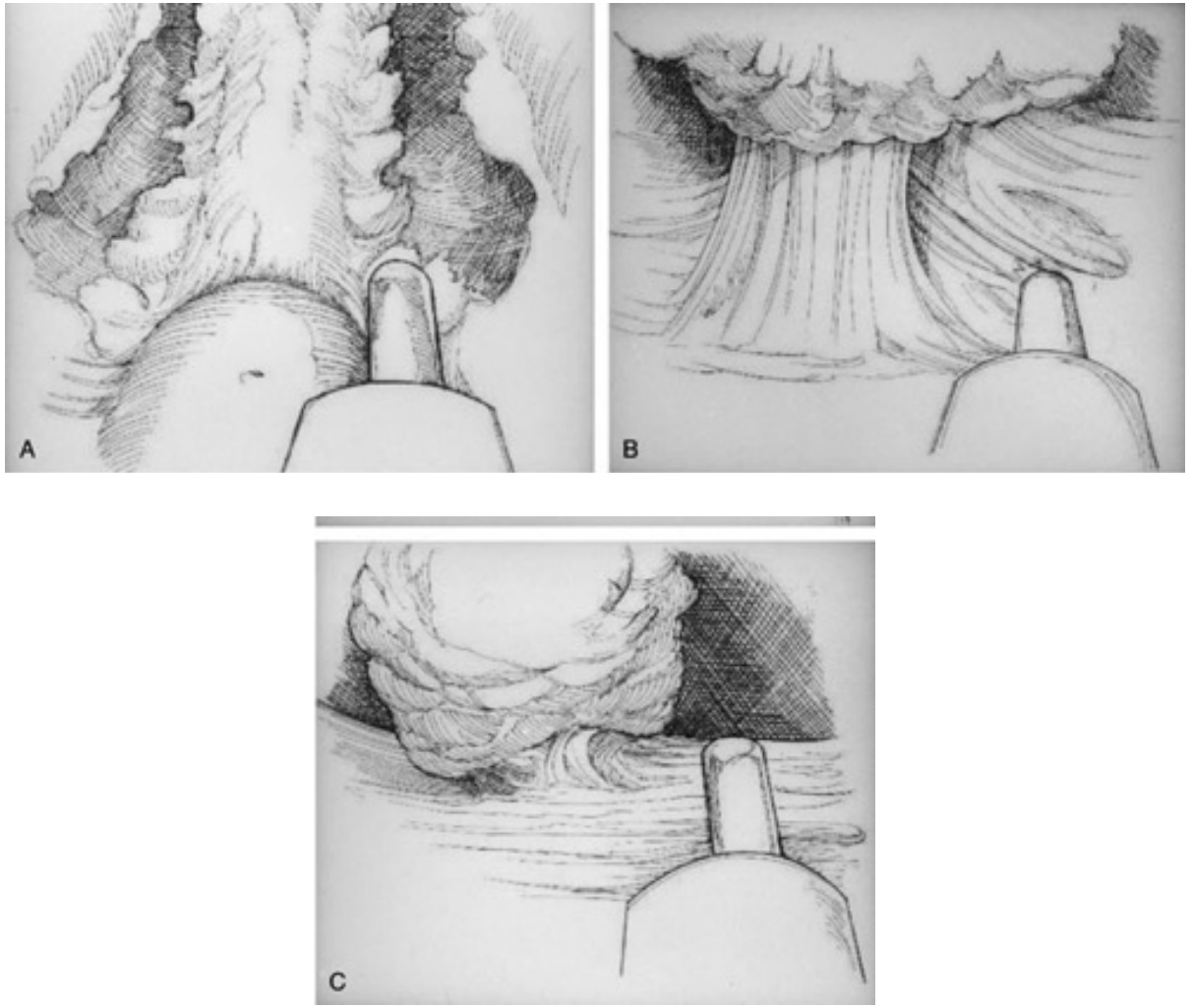
Bipolar TURP

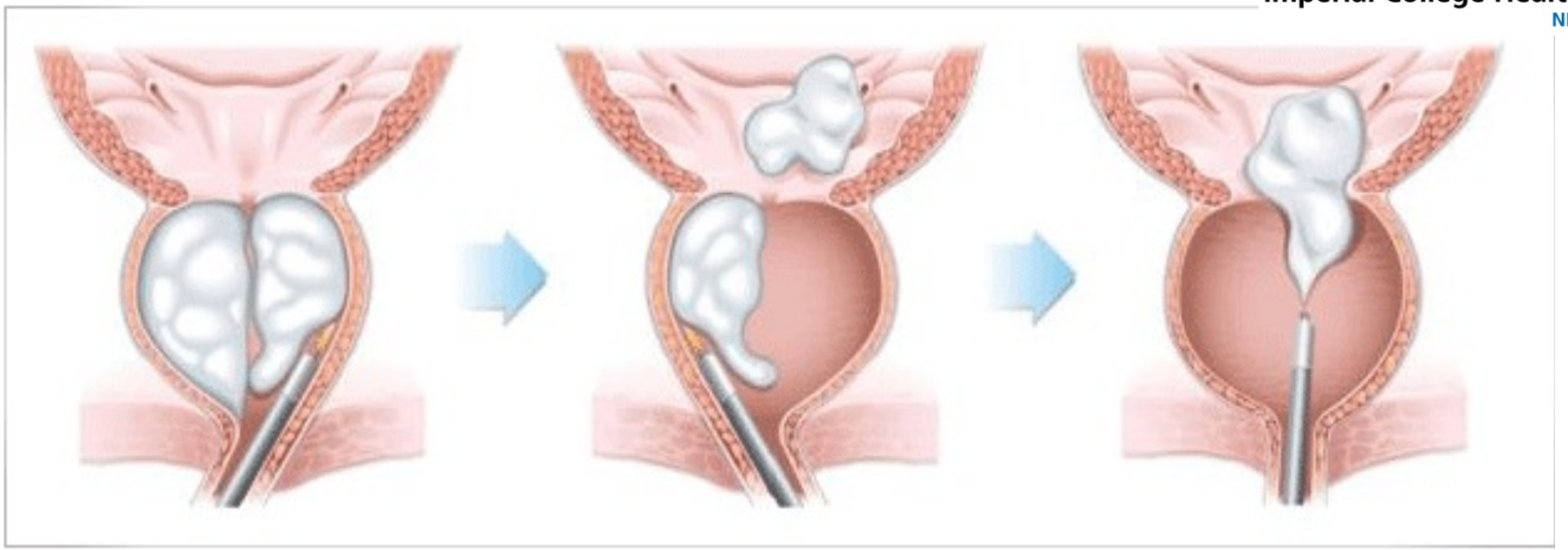
- The ground electrode is placed inside the sheath of a resectoscope, allowing the cutting current to pass directly between the wire loop and the sheath, or is built into the electrode itself.
- Allows the use of physiological conductive solutions (NS) as an irrigating fluid.
- No TURP syndrome

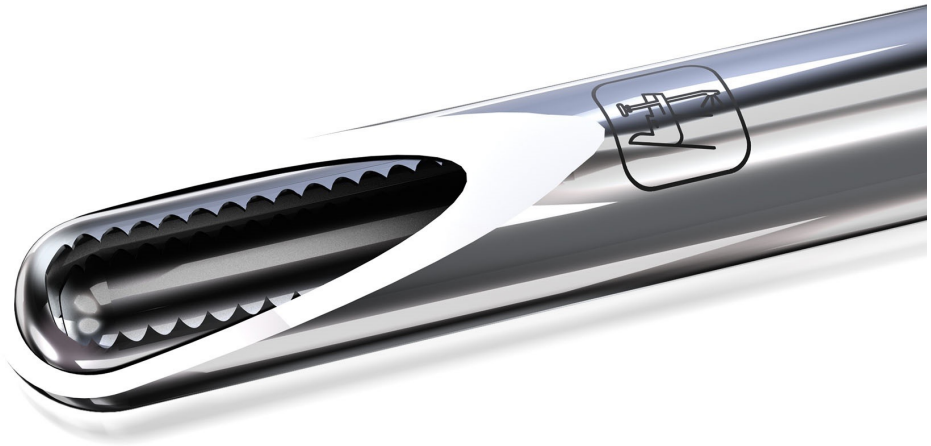
TURP - side effects

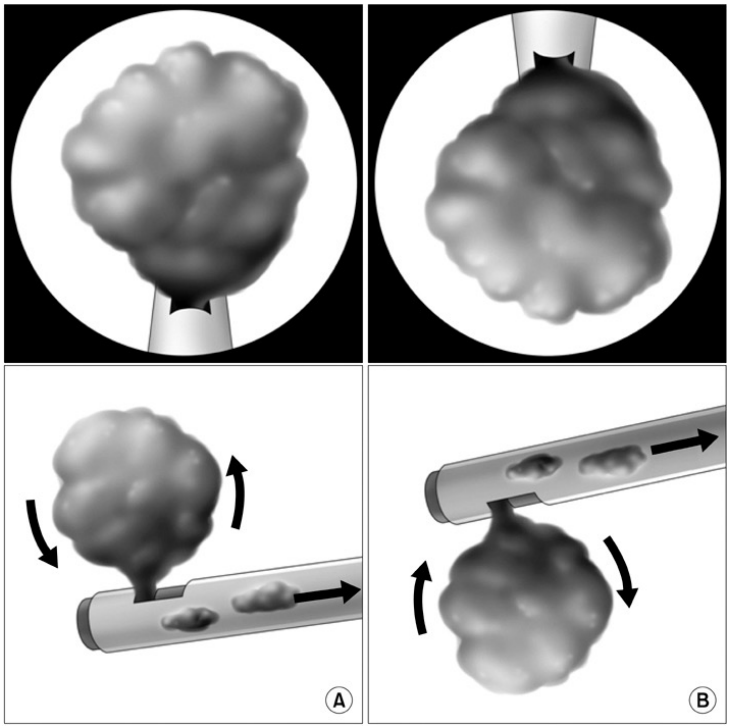
- ED 5-10%
- Retrograde ejaculation > 80%
- Re-treatment 10% at 10 years
- Bleeding requiring a blood transfusion 1-2%
- Incontinence <5%
- Urethra stricture <5%
- TUR syndrome <1%

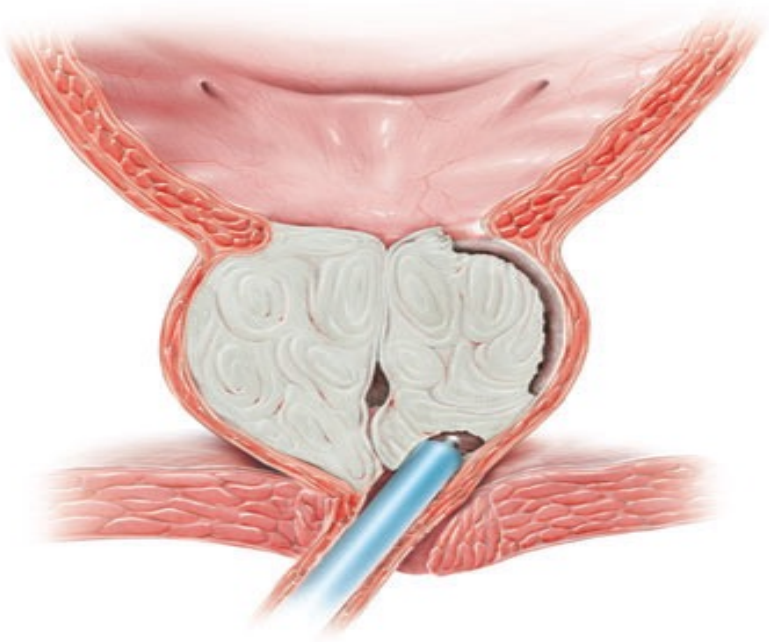
HoLEP
(Holmium laser enucleation of the prostate)

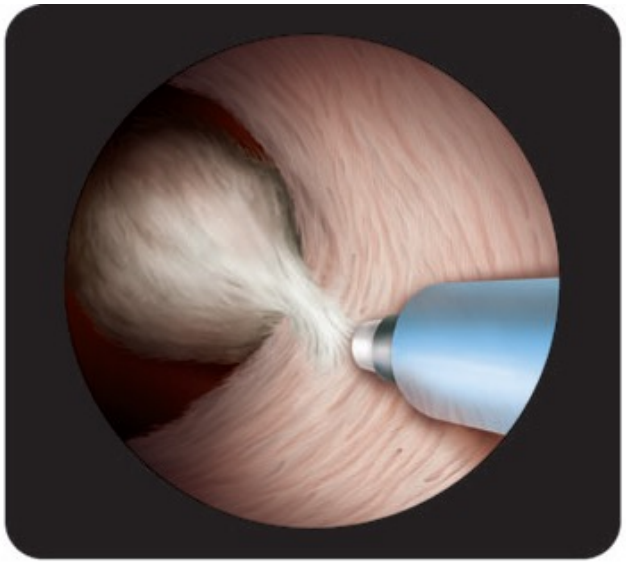


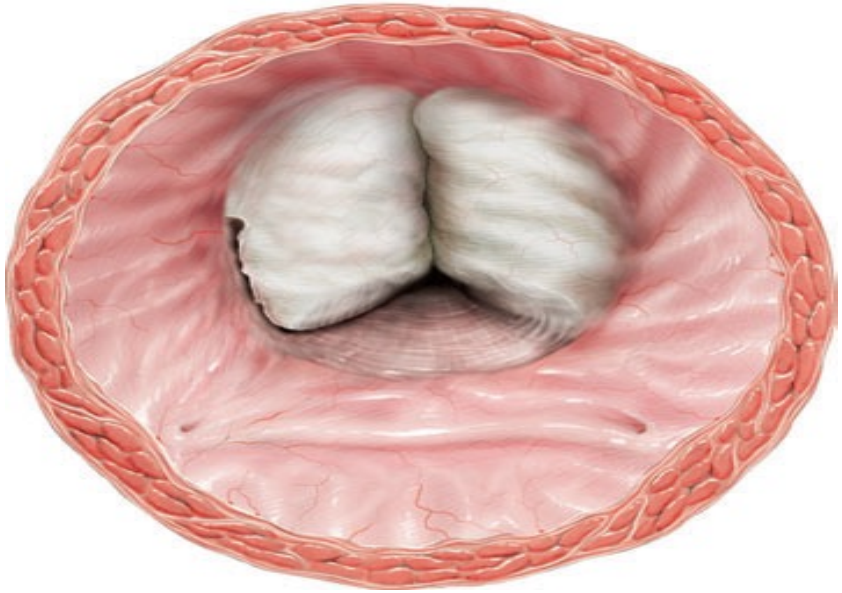


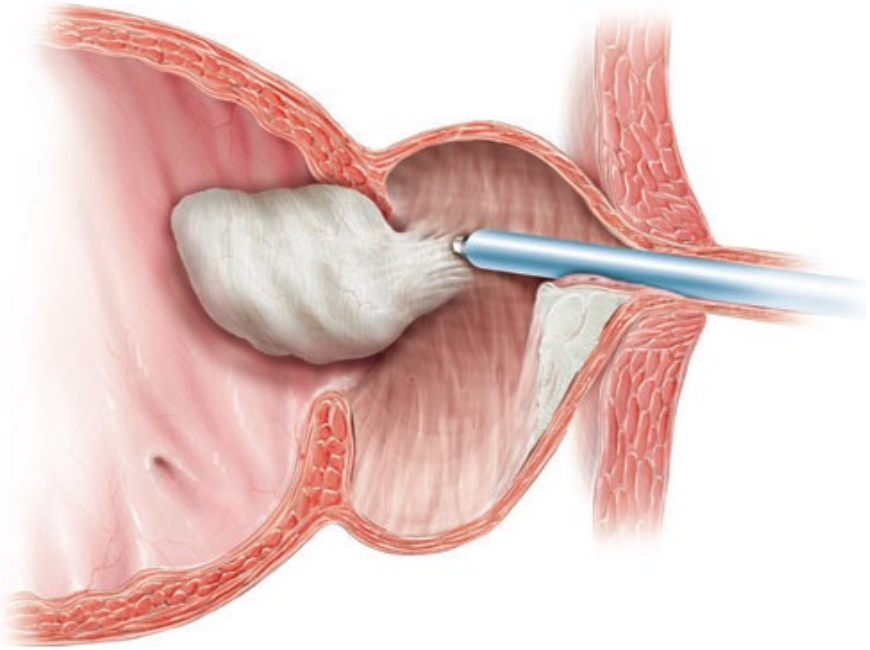



A
B









HOLEP - the evidence

HOLEP Vs TURP

5 RCT's

- Shorter hospital stay 1,2,4
- Shorter catheterisation time 1,2,4,6,8
- Reduced blood loss 6
- Increased tissue resected 4
- Less re-treatment rate 4.3% Vs 8.8%
- Longer operation time 1,2,4,8
- Equal: Efficacy (objective and subjective) 1,2,4,5,6,7,8 Impact on sexual function 3

1. Montorsi et al J.Urol 2004
2. Rigatti et al Urology 2006
3. Briganti et al J Urol 2006
4. Tan et al J.Urol 2003
5. Gilling et al Eur Urol 2006
6. Gupta et al BJUI 2006
7. Ahyai et al Eur Urol 2007
8. Mavuduru et al Urol Int 2009

HoLEP Vs Open prostatectomy

- 3 RCT
  - Shorter/less
    - Hospital stay
    - Catheter duration
    - Blood loss
  - Equal
    - Efficacy @ 2 years
    - Efficacy @ 5 years
    - Complication rate @ 5years

1. Naspro et al Eur Urol 2006
2. Kuntz et al J Endouol 2004
3. Kuntz et al Eur Urol 2008

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Holmium laser prostatectomy

Understanding NICE guidance – information for men considering the procedure, and for the public

What has NICE decided?

NICE has considered the evidence on holmium laser prostatectomy. It has recommended that when doctors use it for men with BPO, they should be sure that:

- the patient understands what is involved and agrees (consents) to the treatment, and
- the results of the procedure are monitored.

NICE has also noted that there is a need to make sure that doctors wishing to undertake this procedure are specially trained. The British Society of Urological Surgeons will be issuing training standards for doctors.

November 2003

Lower urinary tract symptoms in men: management

Clinical guideline [CG97] Published date: May 2010 Last updated: June 2015 Uptake of this guidance

- If offering surgery for managing voiding LUTS presumed secondary to BPE, offer monopolar or bipolar transurethral resection of the prostate (TURP), monopolar transurethral vaporisation of the prostate (TUVP) or holmium laser enucleation of the prostate (HoLEP).

- Perform HoLEP at a centre specialising in the technique, or with mentorship arrangements in place.

- Less blood loss, shorter catheter time & hospital stay

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Urolift

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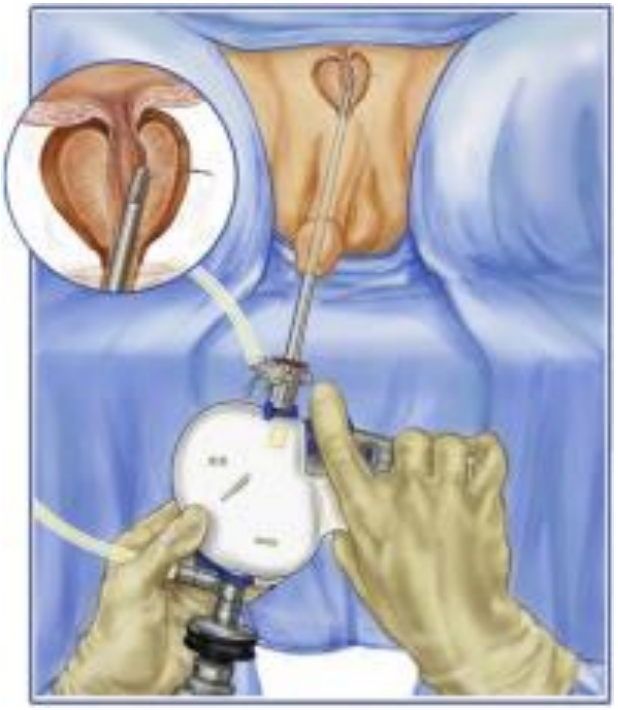
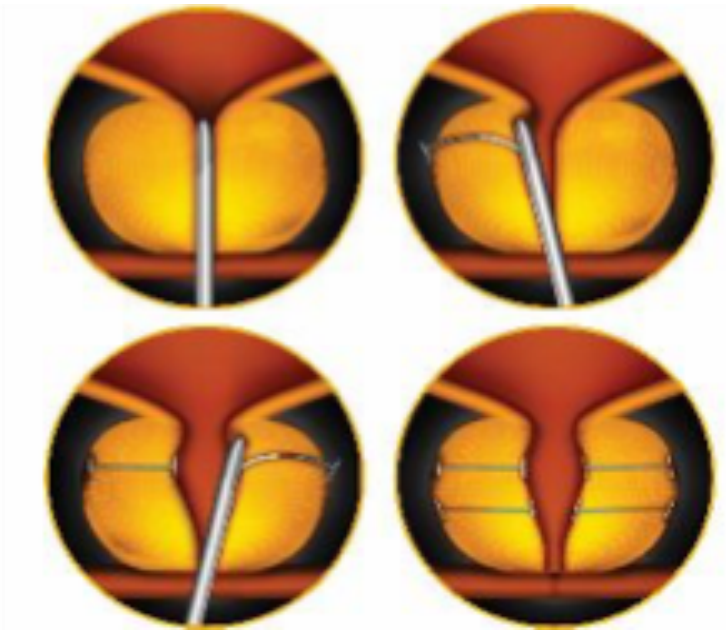
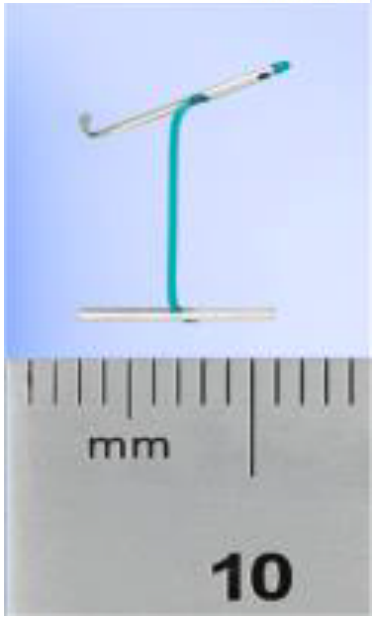
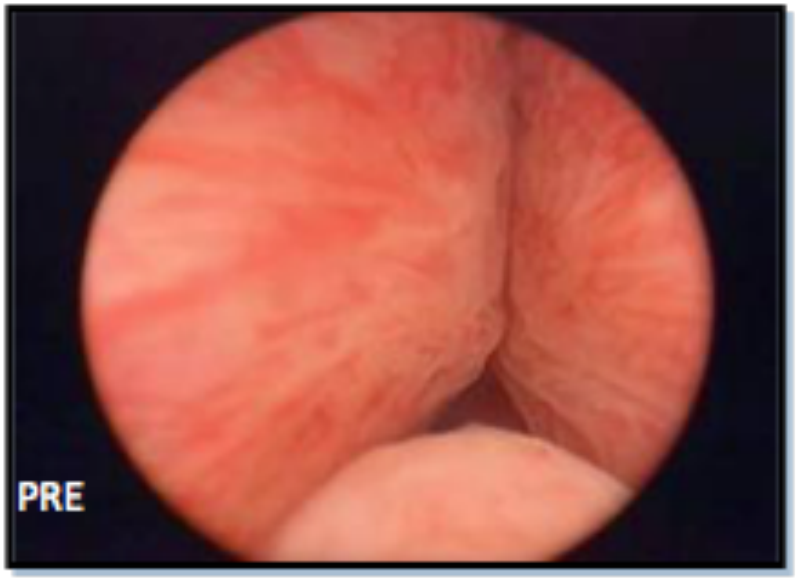
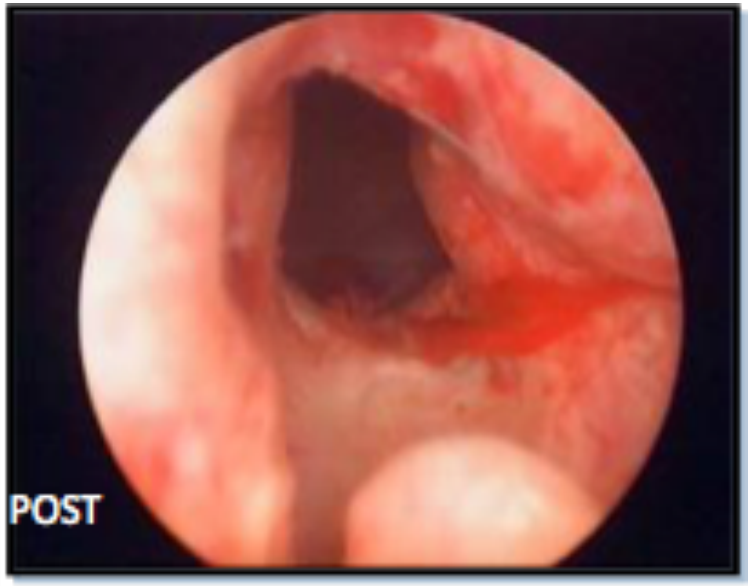










Urolift (prostatic urethral lift)

- Ambulatory minimally invasive, day-case treatment
- Urolift is a short, <15-min procedure, performed under local anaesthetic and/or occasionally light sedation.
- Avoids the complications associated with tissue resection/enucleation/evaporation, and also avoids permanent side effects, such as sexual dysfunction.
- No catheter post op
- Post op MRI artefacts

Five year results of the prospective randomized controlled prostatic urethral L.I.F.T. study

Imperial College Healthcare NHS Trust

- Prospective multicentre RCT
- 19 centers in North America and Australia, 206 subjects ≥ 50 years old with (IPSS) > 12,(Qmax) ≤ 12 mL/s, and Pvol 30 cc-80 cc were randomised
- Improvement in IPSS, QOL, and Qmax were durable through 5 years with improvements of 36%, 50%, and 44% respectively durable up to 5 years.
- Surgical re-treatment was 13.6% over 5 years.
- Adverse events were mild to moderate and transient.
- Sexual function was stable over 5 years with no de novo, sustained erectile or ejaculatory dysfunction.

NICE guidance

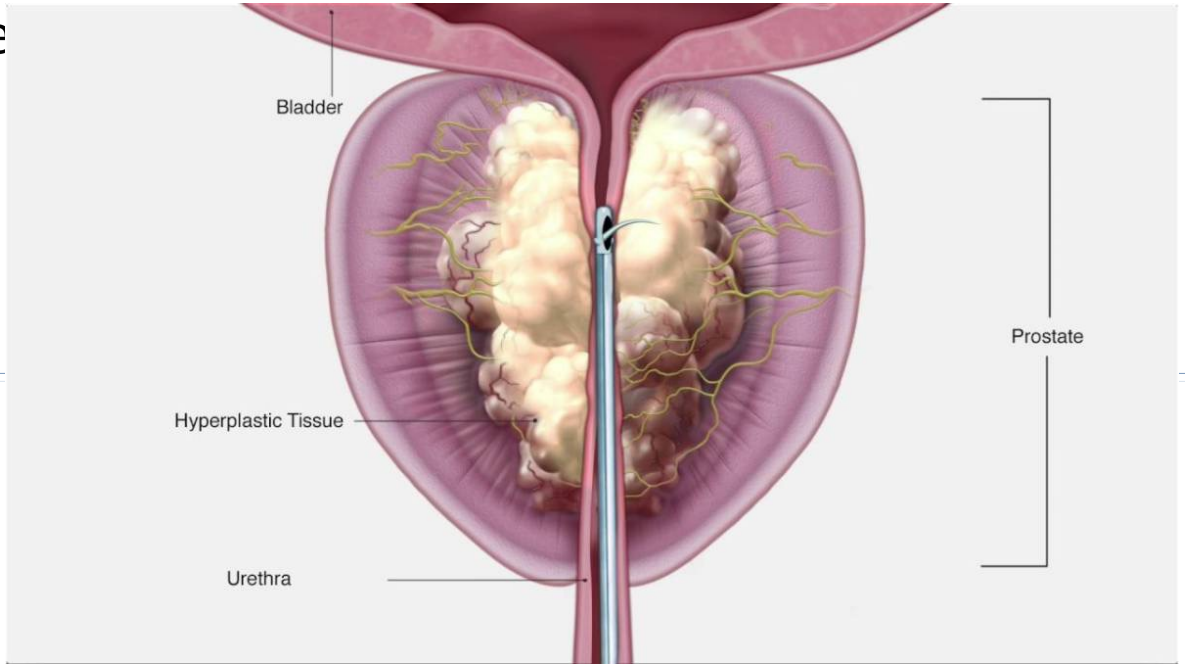
Home › NICE Guidance › Conditions and diseases › Urological conditions › Lower urinary tract symptoms

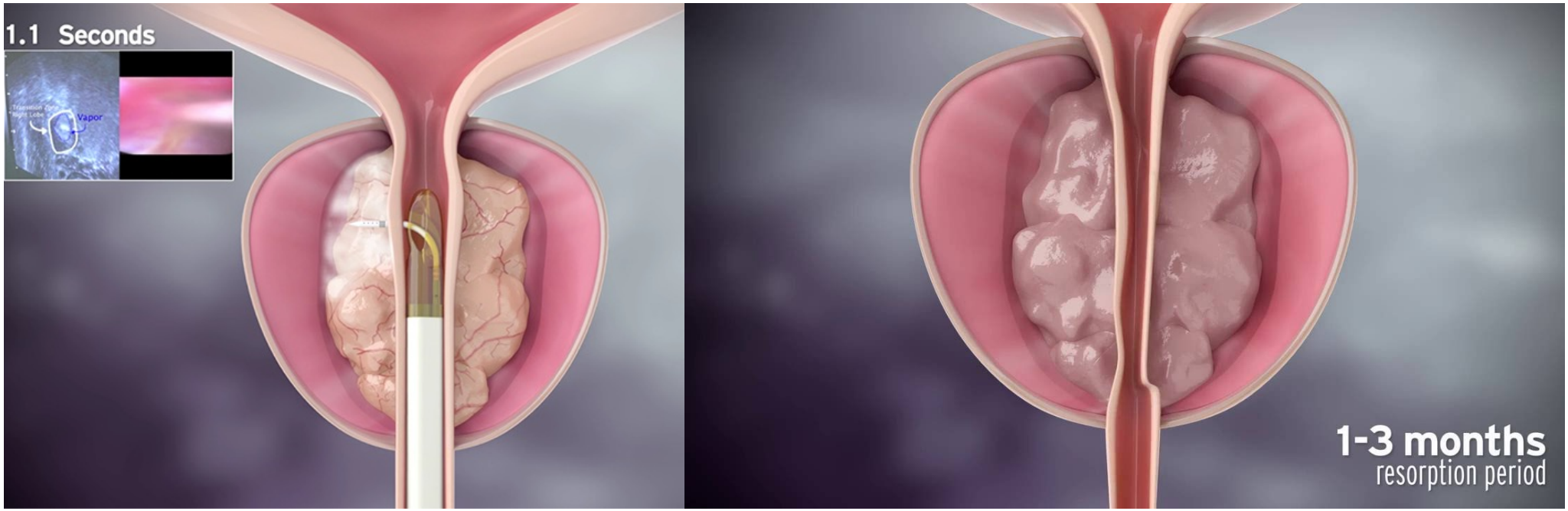
UroLift for treating lower urinary tract symptoms of benign prostatic hyperplasia

Medical technologies guidance [MTG58]
Published: 04 May 2021 Register as a stakeholder

- Evidence supports the case for adopting the UroLift System for treating LUTS due to BPH
- The UroLift System relieves LUTS & avoids risk to sexual function, and improves quality of life.
- It can be done as a day-case or outpatient procedure for people aged 50 and older with a prostate volume between 30 and 80 ml.
- Cost modelling shows that the UroLift System is likely to be cost saving compared with standard treatments, because of reduced length of stay and procedure time

REZUM


Bladder
Prostate
Hyperplastic Tissue
Urethra


1.1 Seconds
Vapor
1-3 months
resorption period

THE JOURNAL of UROLOGY®
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Final 5-Year Outcomes of the Multicenter Randomized Sham-Controlled Trial of a Water Vapor Thermal Therapy for Treatment of Moderate to Severe Lower Urinary Tract Symptoms Secondary to Benign Prostatic Hyperplasia

Kevin T. McVary, Marc C. Gittelman, Kenneth A. Goldberg et al.

- 197 patients
- IPSS >/= 13 & Qmax </= 15
- P vol = 30-80cc
- 2:1 ratio allocation to treatment and control arms
- IPSS reduced by by 48%, QoL improved by 45%
- surgical re-treatment rate was 4.4% over 5 years

Imperial Endourology

NICE National Institute for Health and Care Excellence

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Menu

Read about our approach to COVID-19

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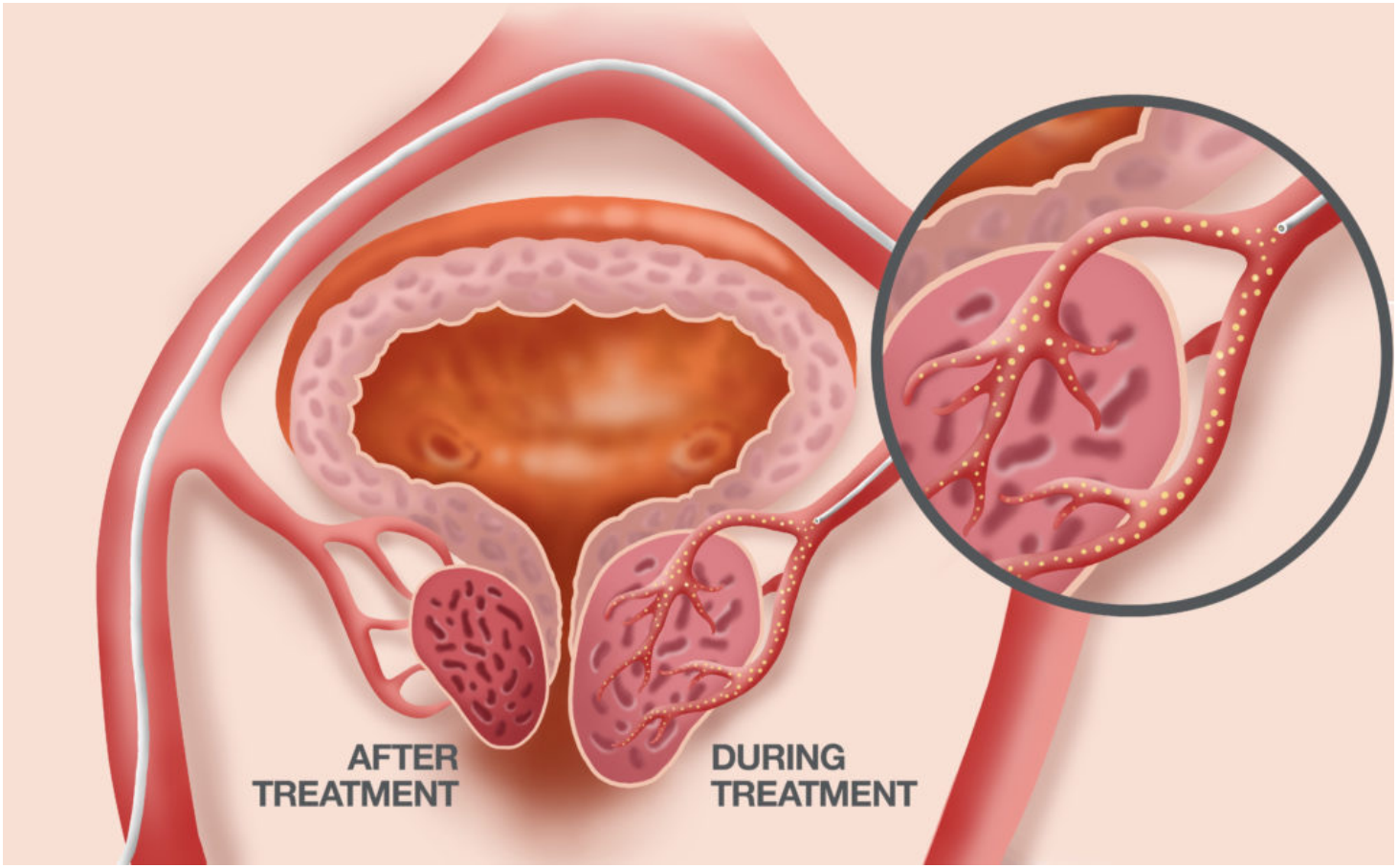
Rezum for treating lower urinary tract symptoms secondary to benign prostatic hyperplasia

Medical technologies guidance [MTG49]

Published: 24 June 2020 Register as a stakeholder

- Offer to patients with moderate to severe LUTS. IPSS >/=13
- P vol 30-80cc

Prostate Artery Embolisation (PAE)



Imperial College London

BJUI BJU International

NHS Imperial College Healthcare NHS Trust

Original Article | Open Access

Efficacy and safety of prostate artery embolization for benign prostatic hyperplasia: an observational study and propensity-matched comparison with transurethral resection of the prostate (the UK-ROPE study)

- 305 patients across 17 UK urological/interventional radiology centres
- 216 of whom underwent PAE and 89 of whom underwent TURP.
- The primary outcomes were International Prostate Symptom Score (IPSS) improvement in the PAE group at 12 months post-procedure, and complication data post-PAE
- At 12 months - PAE 10 points ↑ Vs 15 points for TURP
- PAE had a reoperation rate of 5% before 12 months and 15% after 12 months (20% total rate)
- Low complications rate - one had sepsis, one required a blood transfusion, four had local arterial dissection and four had a groin haematoma. Two patients had non-target embolization that presented as self-limiting penile ulcers.
- Retrograde ejaculations PAE 24%

Questions?