

Diagnostic Imaging Pathways - Lower Urinary Tract Symptoms

Population Covered By The Guidance

This pathway provides guidance on the imaging of adult patients with lower urinary tract symptoms.

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Quick User Guide

Move the mouse cursor over the **PINK** text boxes inside the flow chart to bring up a pop up box with salient points.

Clicking on the **PINK** text box will bring up the full text.

The relative radiation level (RRL) of each imaging investigation is displayed in the pop up box.

SYMBOL	RRL	EFFECTIVE DOSE RANGE
	None	0
	Minimal	< 1 millisieverts
	Low	1-5 mSv
	Medium	5-10 mSv
	High	>10 mSv

Pathway Diagram

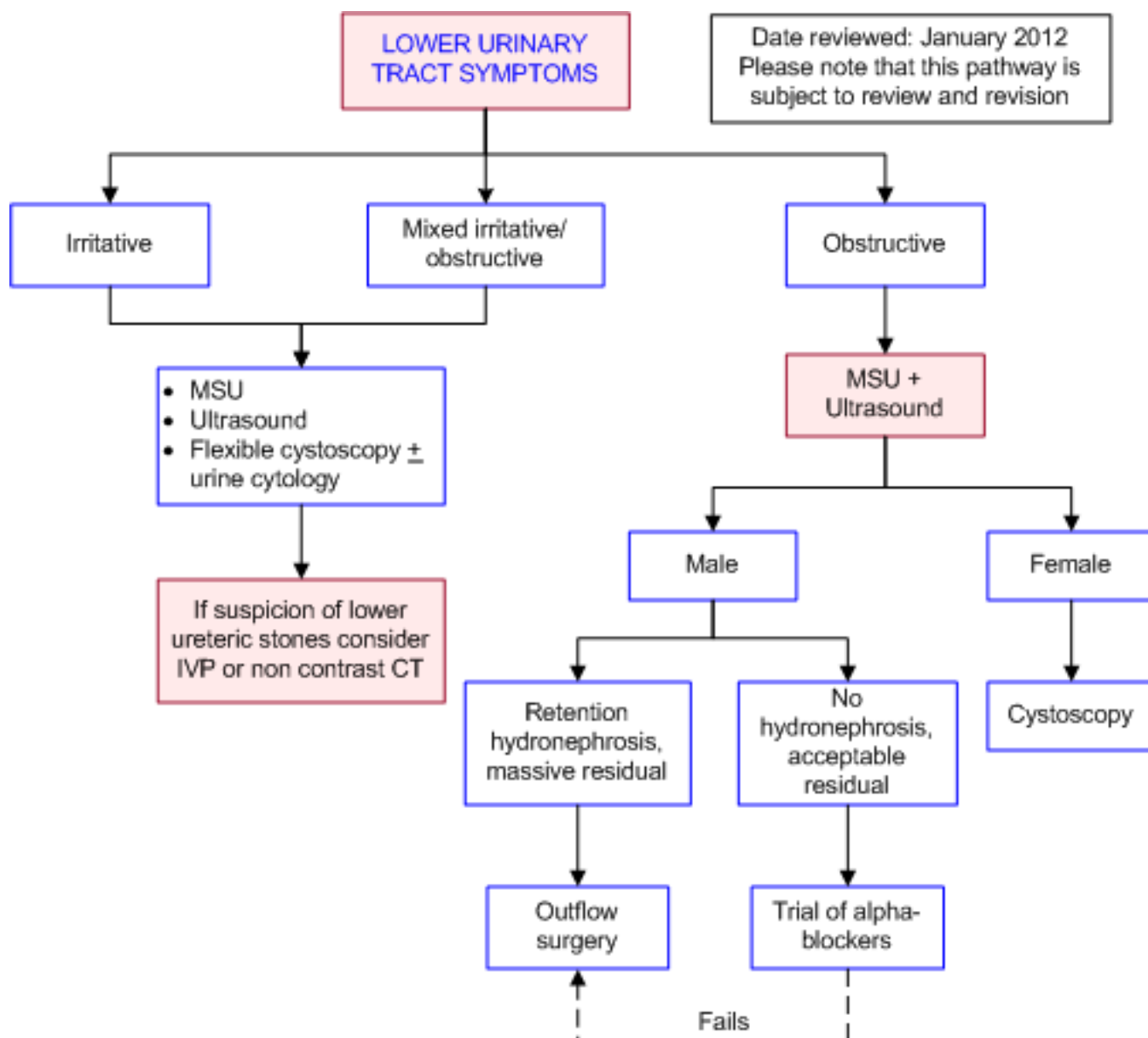
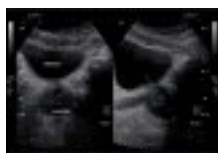


Image Gallery

Note: These images open in a new page

1



Prostatitis

Image 1 (Ultrasound): Bulky prostate of approximately 49mL.

2



Neurogenic Bladder

Image 2 (Ultrasound): Thick-walled bladder consistent with neurogenic bladder.

Teaching Points



- Lower Urinary Tract symptoms (LUTS) may be irritative and/or obstructive
- Ultrasound is indicated in all patients to assess the upper tracts (for hydronephrosis) and the bladder post-void residual volume
- MSU is performed routinely
- Cystoscopy may be required
- If there is a suspicion of urinary calculi, non-contrast enhanced CT scan may be performed

Examinations

- [Lower Urinary Tract Symptoms \(LUTS\)](#)
- [Ultrasound](#)
- [Intravenous Pyelogram \(IVP\)](#)

Intravenous Pyelogram (IVP)

- Routine use is not indicated in every patient with symptoms of lower urinary tract symptoms [1,5,6](#)
- Indicated in patients with other associated findings such as [1,2](#)
 - Stones on plain films
 - Haematuria
 - Atypical history
- Imaging of upper urinary tract with IVP allows [1](#)
 - Determination of the presence, degree and cause of upper urinary tract obstruction (hydronephrosis)
 - Evaluation of the bladder
 - Detection of incidental upper tract (renal or ureteral) malignancies or stones
- Limitations - less sensitive for evaluation of lower urinary tract
- Disadvantages - requires the use of contrast agent and involves exposure to ionising radiation

Lower Urinary Tract Symptoms (LUTS)

- Lower urinary tract symptoms (LUTS) is the complex of obstructive and irritative urinary symptoms [1](#)
- Symptoms include urinary hesitancy, poor "stream", straining, frequency, incomplete bladder emptying, urgency, terminal urinary dribbling, and nocturia [1](#)
- LUTS may be caused by a variety of factors including changes in the bladder, prostate, urethra or upper urinary tract. Common causes include urinary tract infection, benign prostatic hypertrophy, urethral stricture, neurogenic bladder, bladder neck contracture, prostate and bladder cancer [1](#)
- Management of patients with LUTS is based on making a diagnosis and subjective measurements of symptom severity and bother [1](#)

Ultrasound

- Transabdominal ultrasound is indicated in all patients with LUTS and renal insufficiency [1,2](#)
- Allows
 - Assessment of upper tract changes such as hydronephrosis
 - Determination of post-void residual [3](#)



- Superior to IVP in detecting secondary changes of the bladder outlet obstruction such as bladder wall thickening [4](#)
- Advantages - non-invasive, no ionising radiation and does not require the use of contrast agent

References

References are graded from Level I to V according to the Oxford Centre for Evidence-Based Medicine, Levels of Evidence. [Download the document](#)

1. Grossfield GD, Coakley FV. **Benign prostatic hyperplasia: clinical overview and value of diagnostic imaging.** Radiol Clin North Am. 2000;38(1):31-47. (Review article)
2. Scheckowitz EM, Resnick MI. **Imaging of the prostate: benign prostatic hyperplasia.** Urol Clin North Am. 1995;22(2):321-32. (Review article)
3. Roehrborn CG, Chinn HK, Fulgham PF, et al. **The role of transabdominal ultrasound in the evaluation of patients with benign prostatic hypertrophy.** J Urol. 1986;135(6):1190-3. (Level II evidence). [View the reference](#)
4. Cascione CJ, Bartone FF, Hussain MB. **Transabdominal ultrasound versus excretory urography in preoperative evaluation of patients with prostatism.** J Urol. 1987;137(5):883-5. (Level II/III evidence)
5. Wasserman NF, Lapointe S, Eckmann DR, et al. **Assessment of prostatism: role of intravenous urography.** Radiology. 1987;165(3):831-5. (Level II/III evidence)
6. De Lacey G, Johnson S, Mee D. **Prostatism: how useful is routine imaging of the urinary tract?** Br Med J. 1988;296(6627):965-7. (Level II evidence). [View the reference](#)

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