

Club de la
URETRA

POSTOPERATIVE URETHROGRAM

WHAT IS IT?: A post-urethroplasty radiological examination that assesses whether there is periurethral extravasation of the contrast agent

WHY IS IT PERFORMED?: To evaluate the watertightness and healing of the urethroplasty

WHEN?: Typically performed 3 weeks after surgery

¿IS THIS TEST NECESSARY?

It has been a topic of debate for more than a decade

- Most studies—primarily focused on bulbar urethroplasty (anastomotic techniques and grafts)—conclude that extravasation at 3 weeks is uncommon and does not influence the risk of postoperative complications or stricture recurrence. Therefore, according to these studies, this examination is **not** necessary, particularly in simpler repairs (1,2,3,4).
- Other authors consider extravasation to have a positive predictive value for long-term recurrence (>1 year), mainly in complex urethroplasties (posterior repairs, augmented anastomotic techniques, intraoperative bleeding, hematoma, infection, radiotherapy, etc.). The severity of the leak appear to be associated with failure, and closer follow-up is recommended in these cases (5,6).
- Identifying intraoperative complexity factors that predict failure of the initial voiding trial may be key to identifying individuals at risk of early recurrence (7).

FOR THOSE WHO PREFERS TO PERFORM POSTOPERATIVE IMAGING

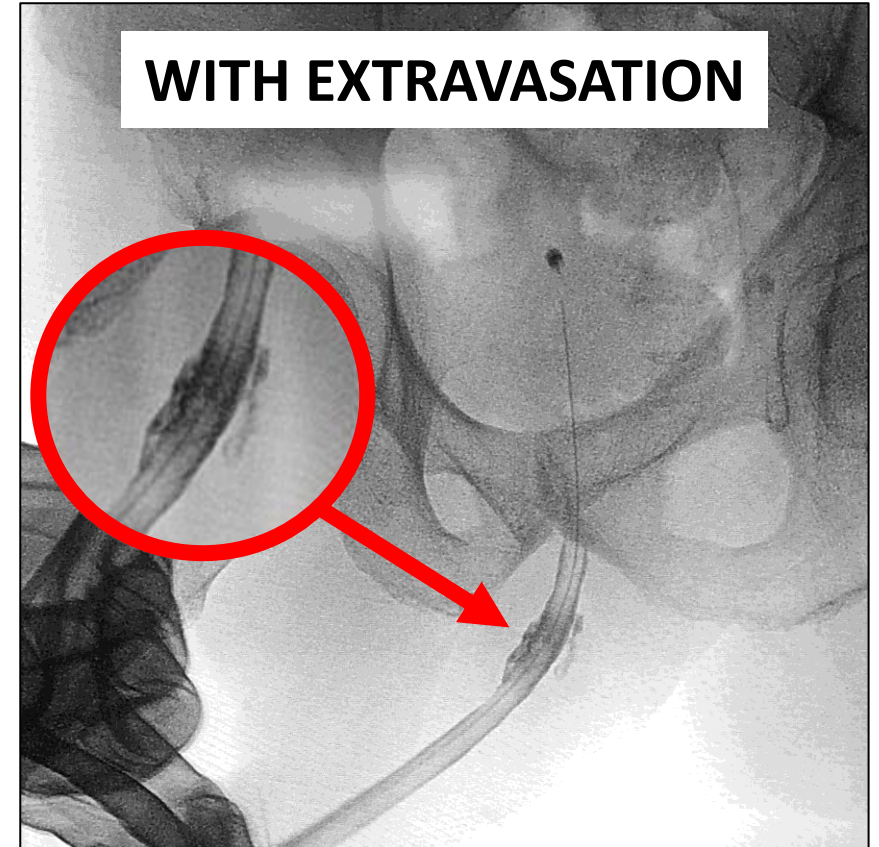
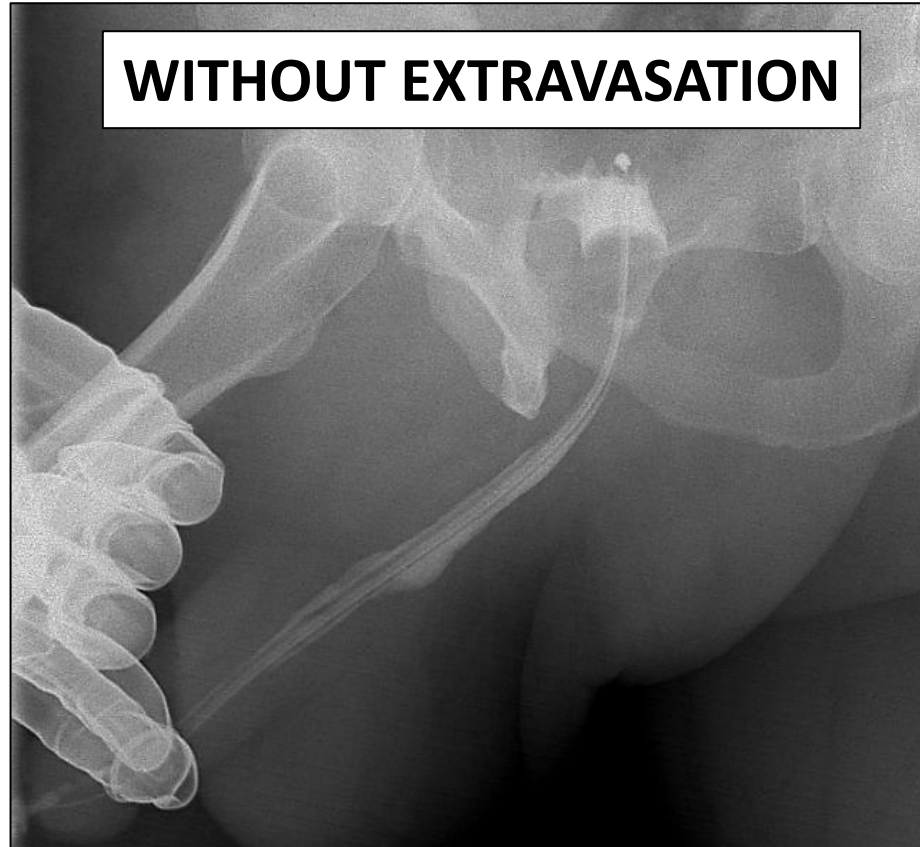
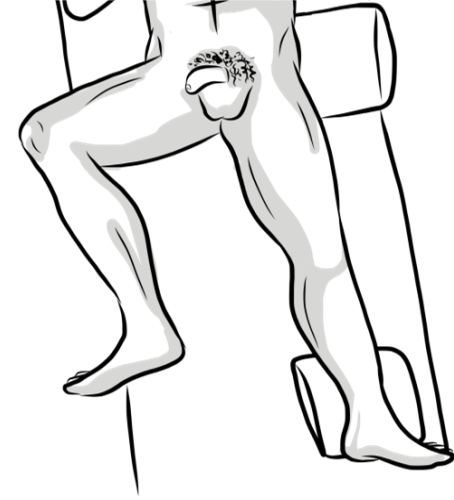
- 3 techniques: - Pericatheter retrograde urethrography
- Retrograde urethrography
- Voiding cysto-urethrography

MATERIALS



PERICATHETER RETROGRADE URETHROGRAPHY

- Positioning is similar to that used for urethrocytography
- 20 ml syringe: undiluted or diluted 50:50 with saline solution
- Insert a cannula or 5-French cath through the urethral meatus, parallel to the catheter
- Retrograde injection **WITHOUT** applying pressure



RETROGRADE URETHROGRAPHY

OPTION 1

- Removal of the urethral catheter
- Retrograde injection, LOW pressure



WITHOUT EXTRAVASATION



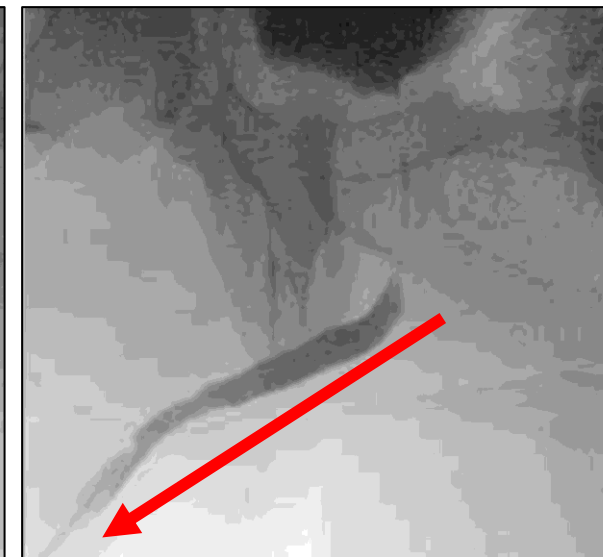
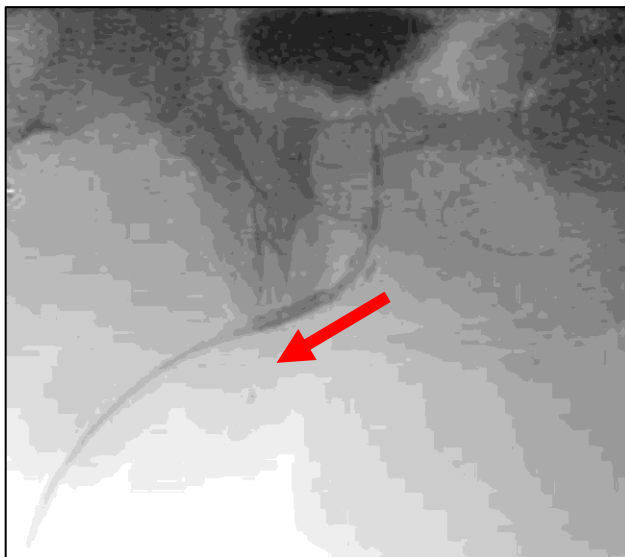
WITH EXTRAVASATION



OPTION 2

“Pull-out-retrograde urethrography”

- Retrograde injection, LOW pressure, through the ORIGINAL catheter while withdrawing



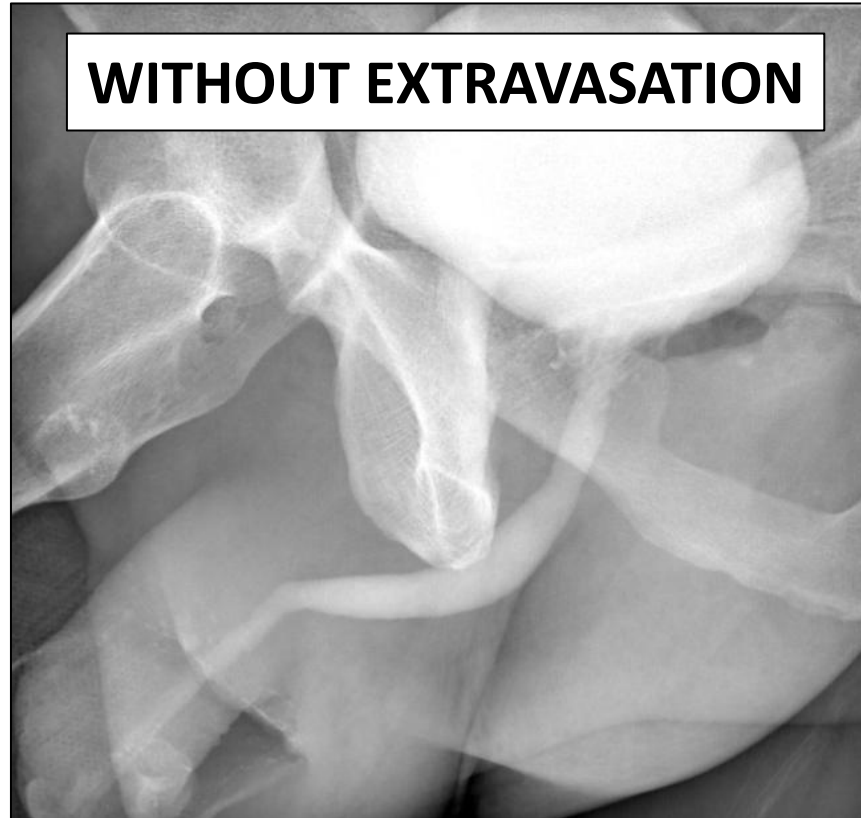
1. Deflate the balloon/ 2. Slowly withdraw the catheter while injecting contrast (undiluted or diluted 50:50 with saline) at low pressure/ 3. Consecutive images

VOIDING CYSTO-URETHROGRAPHY

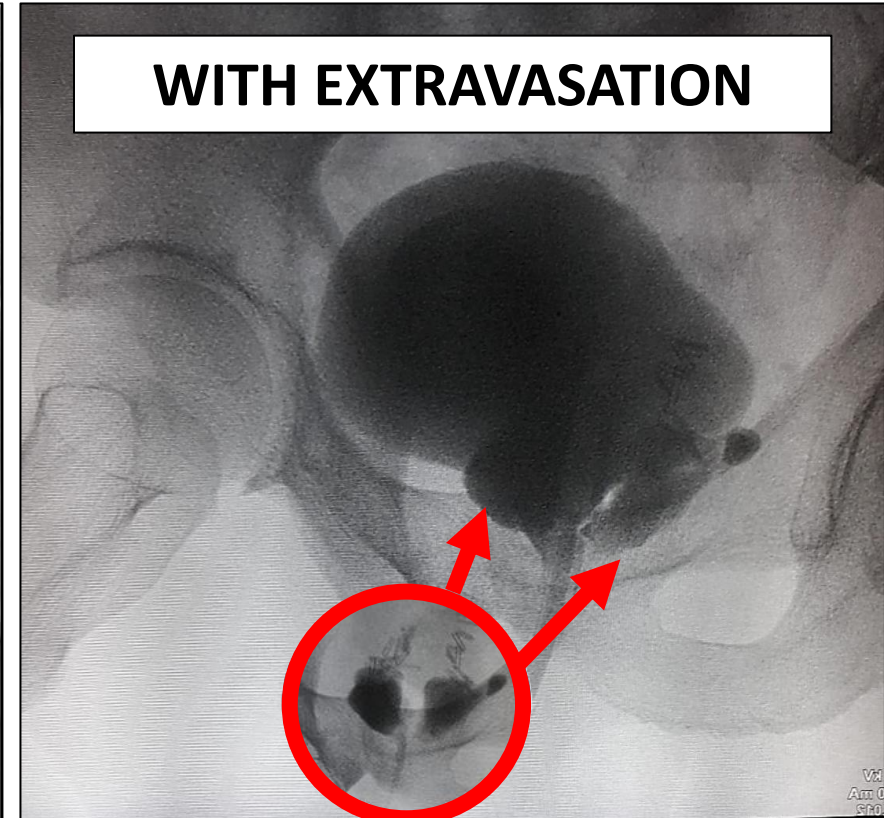
- Bladder filling through the catheter with 250–300 mL (undiluted or diluted 50:50 with saline solution)
- Removal of the urethral catheter
- Performance of the voiding phase



WITHOUT EXTRAVASATION



WITH EXTRAVASATION



BENEFITS

PERICATHETER RETROGRADE URETHROGRAPHY	Possibility of keeping the same catheter in case extravasation is detected.
RETROGRADE URETHROGRAPHY (option 1 and 2)	Possibility of replacing the old catheter with a new one if extravasation occurs
VOIDING CYSTO-URETHROGRAPHY	The contrast fills the urethra with physiological pressure (not under-, or over-pressuring the urethra)

REFERENCES

1. Terlecki RP, Steele MC, Valadez C, Morey AF (2011). **Low yield of early postoperative imaging after anastomotic urethroplasty.** Urology;78(2):450-3. doi: 10.1016/j.urology.2011.01.071.
2. Hoy NY, Wood HM, Angermeier KW (2020). **The Role of Postoperative Imaging after Ventral Onlay Buccal Mucosal Graft Bulbar Urethroplasty.** J Urol;204(6):1270-1274. doi: 10.1097/JU.0000000000001311.
3. Verla W, Waterloos M, Waterschoot M et al (2022). **POIROT trial: post-operative imaging after urethroplasty with peri-catheter retrograde urethrography or trial of voiding with voiding cysto-urethrography.** World J Urol;40(5):1195-1201. doi: 10.1007/s00345-021-03915-y.
4. Calvo CI, Rourke KF (2024). **Routine Imaging After Bulbar Urethral Reconstruction Does Not Impact Surgical Outcomes and May Not Be Necessary.** Urology;186:41-47. doi: 10.1016/j.urology.2024.02.029.
5. Grossgold ET, Eswara JR, Siegel CL, Vetter J, Brandes SB (2017). **Routine Urethrography After Buccal Graft Bulbar Urethroplasty: The Impact of Initial Urethral Leak on Surgical Success.** Urology. 2017 Jun;104:215-219. doi: 10.1016/j.urology.2017.02.015.
6. Patiño, G., Vanni A., Voelzke B. et al. (2020). **Urethrogram: Does postoperative contrast extravasation portend stricture recurrence?** Urology. [145]145:262-268. <https://doi.org/10.1016/j.urology.2020.05.109>.
7. Vetterlein MW, Loewe C, Zumstein V et al (2019). **Characterization of a Standardized Postoperative Radiographic and Functional Voiding Trial after 1-Stage Bulbar Ventral Onlay Buccal Mucosal Graft Urethroplasty and the Impact on Stricture Recurrence-Free Survival.** J Urol;201(3):563-572. doi: 10.1016/j.juro.2018.09.041.