75 year-old male with history of prostate cancer and rising PSA

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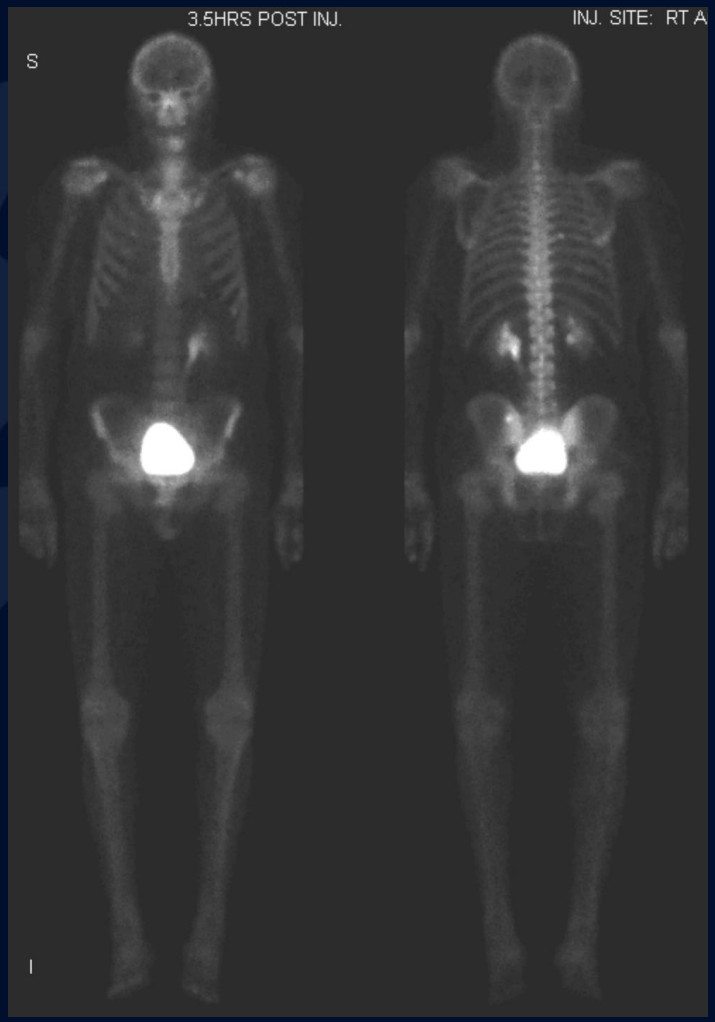
Whole-body Tc99m Bone Scan



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Same-day CT A/P

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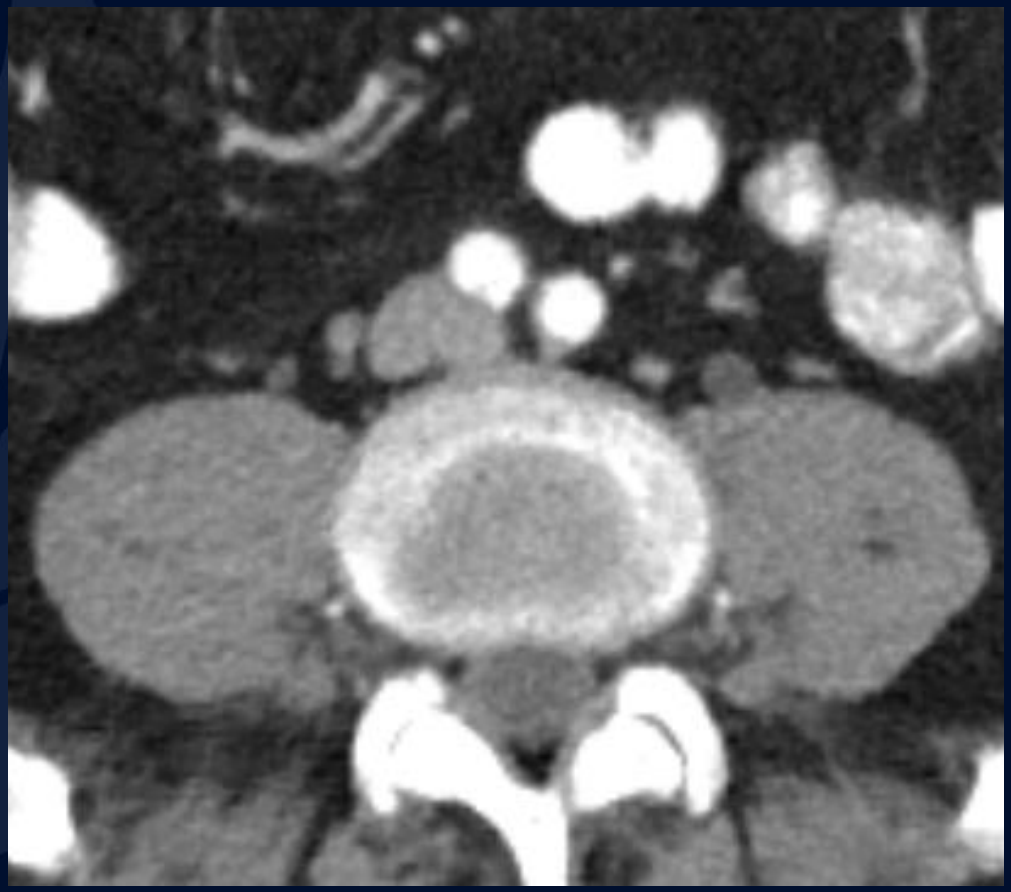
Same-day CT A/P



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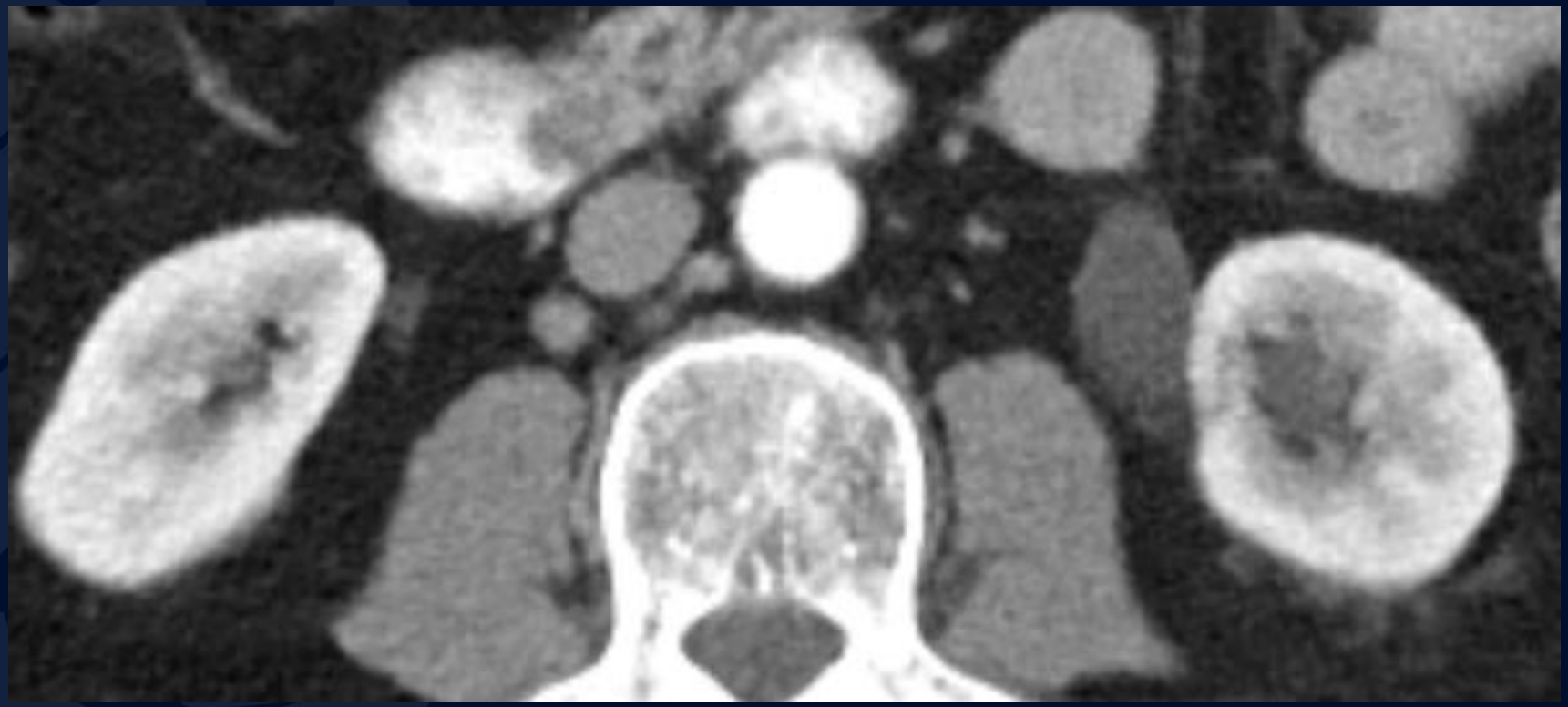
Same-day CT A/P



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Compressive hydronephrosis

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Compressive hydronephrosis

An interesting case of hydronephrosis, evident on bone scan, is presented, with correlate CT exam demonstrating the cause to be extrinsic compression of the distal left ureter by an enlarged left iliac lymph node, presumably involved by prostate cancer metastasis.

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Compressive hydronephrosis

- The appearance on bone scan in this case is nonspecific and could be related to an extrarenal pelvis, ureteral calculus, bladder mass/prostate cancer invasion, or as shown, extrinsic compression.
- Comparison with a prior bone scan demonstrated the prominent tracer column within the collecting system was new, as well as the bone mets, raising suspicion for an obstructive/compressive process as opposed to extrarenal pelvis.

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Hydronephrosis

Dilatation of renal collecting system secondary to impediment of urine flow down the ureter from kidney to bladder.

- In adults, is most commonly intrinsic and related to ureteral calculus.
- In children, is most commonly structural and related to ureteropelvic junction obstruction. This may be intrinsic (valvular) or extrinsic (ureterocele).
- Men can have symmetric/bilateral hydronephrosis secondary to bladder outlet obstruction from BPH/prostate cancer (extrinsic).
- Women may develop extrinsic ureteral compression in pregnancy with resultant hydronephrosis. Gynecologic cancers may also involve the ureters.
- Rarely, hydronephrosis is produced by extrinsic ureteral compression secondary to lymph node enlargement as shown in this case. This has been previously reported in Wegener's Granulomatosis and malignancies.

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Hydronephrosis

- Acutely, can cause flank pain, ureteral colic, and AKI.
- Chronic hydronephrosis/obstruction can lead to renal atrophy and CKD.
- Treatment is to remove the cause of obstruction.
- When complicated by pyonephrosis (infected collecting system with sepsis), must be treated emergently.
- US is best test for initial diagnosis, and will demonstrate renal pelvicalyceal dilatation, renal enlargement, and in some cases, perinephric fluid. Bladder jets can also be assessed; if absent, indicates complete obstruction, and if present, indicates partial obstruction.
- CT is usually warranted to identify the etiology.

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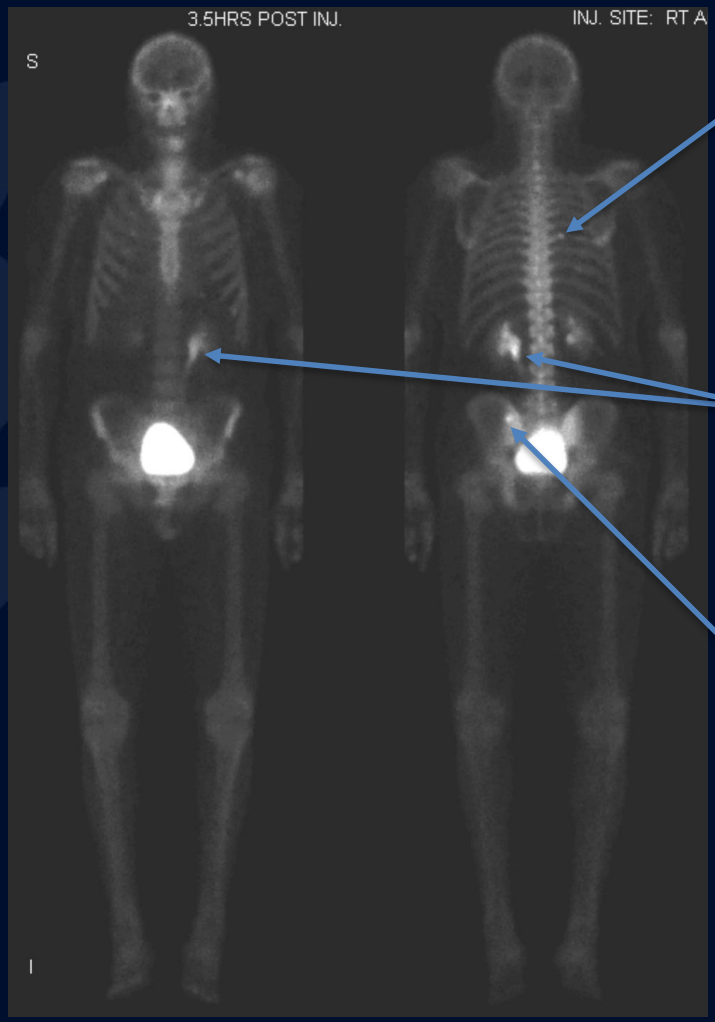
Whole-body Tc99m Bone Scan



Met

Asymmetric distention of left renal collecting system (?hydro)

Met

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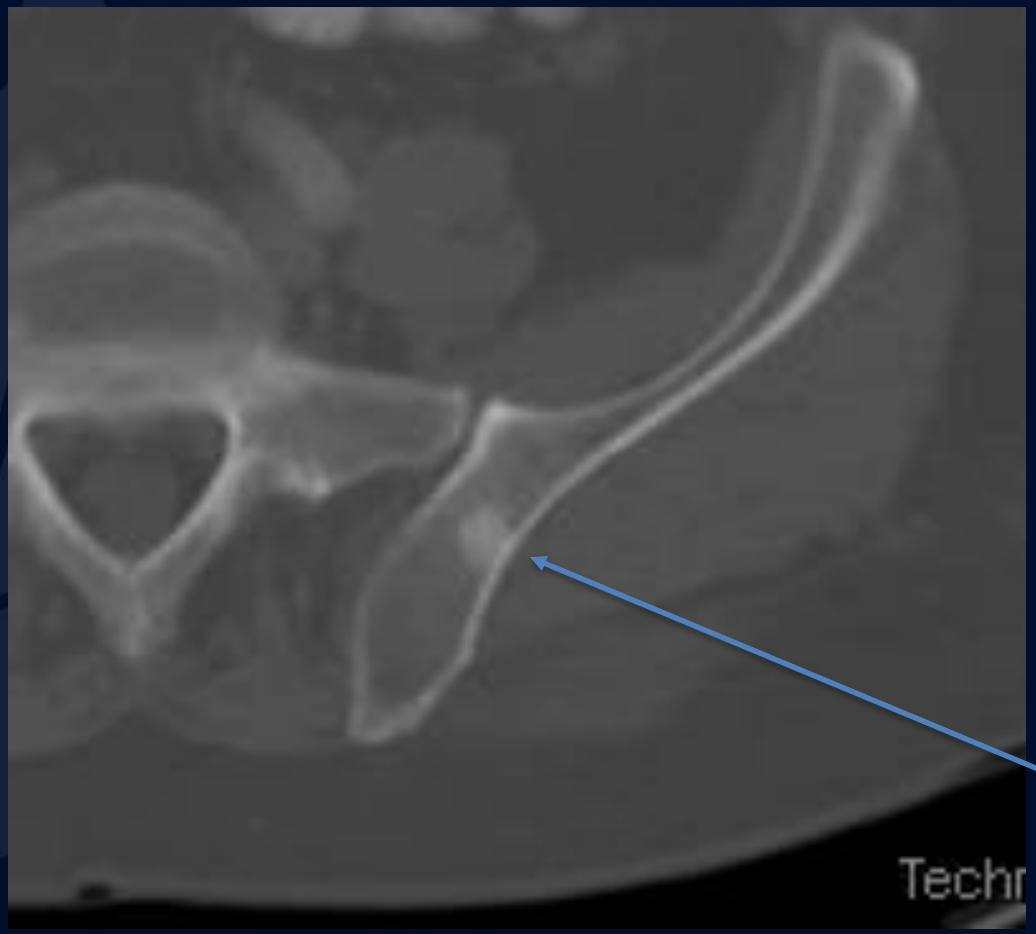
Same-day CT A/P



Met seen on bone scan

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Right ureter

Left ureter (asymmetrically dilated)

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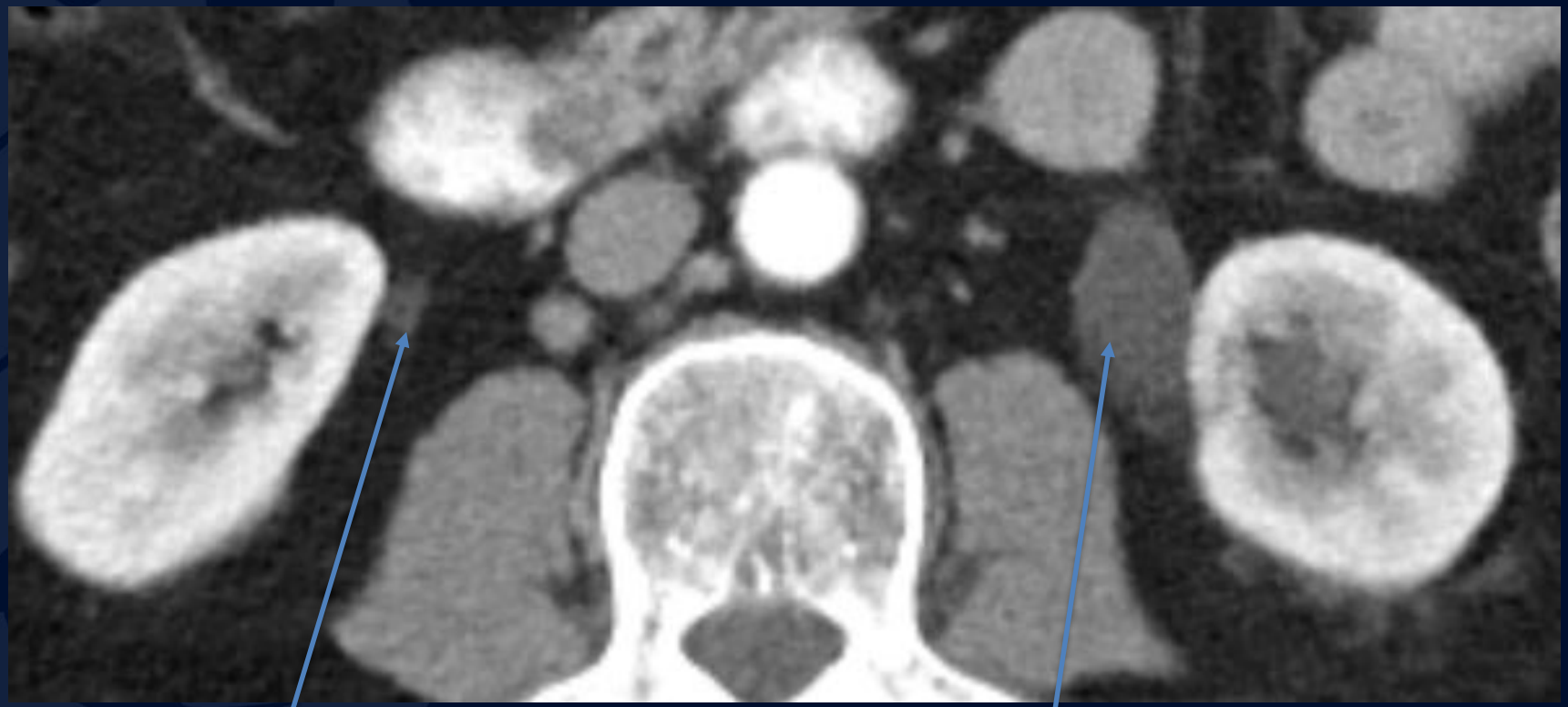
Same-day CT A/P



Right ureter

Left ureter (asymmetrically dilated)

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