TRA MEDICAL IMAGING
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Retroperitoneum – Renal Bladder Ultrasound Protocol

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****NOTE for all examinations:**

1. **If documenting possible flow in a structure/mass, all color/Doppler should be accompanied by a spectral gate for waveform tracing**
2. **CINE clips to be labeled:**
   -MIDLINE structures: "right to left" when longitudinal and "superior to inferior" when transverse
   -RIGHT/LEFT structures: "lateral to medial" when longitudinal and "superior to inferior" when transverse
   ****each should be 1 sweep, NOT back and forth****

WHAT TO INCLUDE:

Included anatomy will depend on if the indication is urinary tract related or not. *Specifically, if urinary tract related, do NOT include retroperitoneal vessels. If NOT urinary tract related, all listed retroperitoneal vessels must be included for appropriate billing.*

If indication is related to the urinary tract *(this will be nearly all exams):*

-Kidneys

-Bladder: full always attempted, jets always attempted (**see notes below re: when to have patient void and when to do bladder volumes)**

-NOTE: Aorta does NOT need to be included if the indication is related to the urinary tract

(Male patients – prostate, see below)

If indication is anything else (i.e., NOT related to the urinary tract – very rare; *example indication: renal artery hypertension*):

-Kidneys

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-Bladder (**see notes below re: when to have patient void and when to do bladder volumes)**

-Aorta

-IVC

-Common iliac artery origins

-NOTE: All the retroperitoneal vessels listed above must be included if the indication is NOT urinary tract related.

(Male patients – prostate, see below)

__WHEN should the patient void:__**

(1) Indication = retention, urgency, UTI or similar; or, bladder VERY distended

-Void + pre/post volumes

(2) Hydronephrosis with full bladder seen at time of kidney imaging

-Void and re-assess if hydro persists afterward; pre/post volumes are NOT necessary

-Prostate (in men) does not need to be measured UNLESS indication is: retention, urgency or similar; OR, grossly enlarged

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KIDNEYS:

-Maximum renal length __only__ for all patients (adult and pediatric)

-->AP and Trans measurements and renal volume are not required

-Cortex does **not** need to be measured

-Longitudinal and transverse, with color images in the region of the hilum (mid) – 6 representative images each (including mid color), as follows:

→Longitudinal: Far lateral (should see some perinephric fat), lateral, mid (grayscale and color), medial, far medial (should see some perinephric fat)

→Transverse: High superior (should not see renal sinus), superior, mid (grayscale and color), inferior, low inferior (should not see renal sinus)

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Consider placing the patient prone if renal poles are difficult to fully visualize

-If hydronephrosis or pelvicaliectasis, provide AP pelvis measurement

→ At end of exam, assess if dilatation improves or resolves post-void

-If there is ANY complexity to a mass or cyst, provide CINE images

→If mass is a cyst, must clearly show it to be anechoic, imperceptible wall and increased through-transmission (may need to turn off spatial compounding to show this)

NOTE: When there are multiple simple renal cysts, measure the 1 largest on each side

→ More than one simple renal cyst in a kidney can be measured at the discretion of the sonographer, for example if there are largest ones that are similar in size.

→ All cystic lesions with any complexity should be fully documented and measured.

-If known stent in place:

→ Nephroureteral stent: attempt to visualize proximal coil (ideally in renal pelvis) and distal coil (ideally in bladder).

→If known nephrostomy tube: attempt to visualize coil (ideally in renal pelvis).

→If unable to visualize all or part of the stent, provide representative still images of attempt and CINE through relevant anatomy to document.

***Provide images of right kidney with liver*

***Provide images of left kidney with spleen*

If indication is hematuria, transverse and longitudinal CINE through both kidneys (even if appear initially normal)

BLADDER:

-Longitudinal and transverse of distended bladder always

-Lumen/wall abnormalities: provide CINE if abnormality is present; document if debris/mass is mobile or immobile by changing patient position; demonstrate color/spectral Doppler (or lack thereof)

-Evaluate distal ureter for dilatation or other abnormality

-Document ureteral jets – *please ensure adequate time is spent observing for jets before calling them absent*

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-In men, measure prostate size and volume ONLY when indication is: urinary retention, urgency, or similar; OR, grossly enlarged

****WHEN should the patient void:**

(1) Indication = retention, urgency, UTI or similar; or, bladder VERY distended

-Void + pre/post volumes

(2) Hydronephrosis with full bladder seen at time of kidney imaging

-Void and re-assess if hydro persists afterward; pre/post volumes are NOT necessary

PROSTATE (not all cases):

-In men, measure prostate size and volume ONLY when indication is: urinary retention, urgency, or similar; OR, grossly enlarged (>30 mL).

RETROPERITONEAL VESSELS: *Only when NOT urinary tract indications, for example a Limited Retroperitoneal study for follow-up AAA.*

-All below vessels MUST be included for adequate billing IF the indication is NOT URINARY TRACT RELATED

-Aorta
- → Representative images and measurements (proximal, mid, distal)
- → Provide maximum dimension on worksheet
- → Document atherosclerotic plaque, aneurysm, etc.

-IVC
- → With color
- → Does not need to be measured

-Common iliac artery origins

*** Note: Evaluation of renal artery hypertension is a vascular study, and this protocol does not apply. ***