

	US Renal (includes renal artery stenosis protocol)	
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PURPOSE

Practice parameter for the performance of diagnostic ultrasound of the kidneys and bladder.

SUPPORTIVE DATA

- Obtain a written, verbal, or electronic order from provider
- Verify that written orders are scanned into Epic
- Previous relevant imaging procedures

INDICATIONS

Indication for a renal ultrasound examination include but are not limited to:

- Flank and/or back pain
- Hematuria
- Abnormal laboratory values
- Abnormal finding on other imaging examinations suggestive of kidney or/ or bladder pathology
- Follow up of known or suspected abnormalities in the kidney and/ or bladder
- Evaluation of suspected congenital abnormalities
- Abdominal trauma
- Pre-transplantation and post-transplantation evaluation
- Planning and guidance for an invasive procedure
- Hypertension

CONTRAINDICATIONS

- None

EQUIPMENT LIST

- Real-time ultrasound scanner with transducer of appropriate frequency
- Gel
- Towels
- Patient gown (if applicable)

SAFETY

- Universal precautions for bodily fluids should be observed as per hospital protocol.

- All ultrasound carts are annually checked and are up to date with all state and manufacturer guidelines.
- Exams will be prioritized according to ordering status (STAT, ASAP or Routine)

PATIENT PREPARATION

Retroperitoneal Renal and Renal Transplant Protocol

- Drink 12-20 ounces of clear, non-carbonated liquid 45 minutes prior to exam, to achieve a full bladder
- Do not use bathroom until instructed

Renal Artery Doppler Protocol

- No carbonated beverages, dairy or orange juice 36 hours prior to exam
- Clear liquids only 24 hours prior to exam
- Nothing to eat or drink 8 hours prior to exam

PROCEDURE

1. Check provider's orders for reason for exam and any comments.
2. Review report of patient's most recent ultrasound, relevant imaging or relevant labs if applicable.
3. Start exam in Epic
4. Verify patient by 2 patient identifiers (name, DOB, wristband).
5. Process should be explained to patient.
6. Have patient change into gown if appropriate
7. Perform imaging procedure
8. End exam in Epic

IMAGING PROCEDURE

A normal Retroperitoneal Renal protocol will aim to include the following views:

1. Sag Rt Kidney
2. Sag Rt Kidney w/ Length Measurement + Cortex Measurement
3. Trans Rt Kidney Sup
4. Trans Rt Kidney Mid
5. Trans Rt Kidney Inf
6. Sag Lt Kidney
7. Sag Lt Kidney w/ Length Measurement + Cortex Measurement
8. Trans Lt Kidney Sup
9. Trans Lt Kidney Mid
10. Trans Lt Kidney Inf

11. Rt Bladder Jet (If hydro or unilateral atrophy)
12. Lt Bladder Jet (If hydro or unilateral atrophy)
13. Sag Bladder Prevoid measurement
14. Trans Bladder Prevoid measurement
15. Sag Bladder Postvoid measurement
16. Trans Bladder Postvoid measurement
17. Prostate Volume if subjectively enlarged
18. Document pathological findings with all appropriate additional views to include color doppler and/or pulsed wave doppler

Renal Artery Stenosis Protocol

A normal Retroperitoneal Renal Artery Stenosis protocol will aim to include the following views:

1. Prox Aorta Velocity
2. Bilateral Renal Vein Patency
3. Renal Artery Prox Velocity
4. Renal Artery Mid Velocity
5. Renal Artery Distal Velocity
6. Renal Artery Hilum Velocity
7. Renal Medulla RI Sup Pole
8. Renal Medulla RI Inf Pole
9. Renal Cortex Arcuate Art. RI Sup Pole
10. Renal Cortex Arcuate Art. RI Inf Pole
11. Sag Kidney
12. Sag Kidney w/ measurement
13. Trans Kidney Mid
14. Repeat on other side
15. Document pathological findings with all appropriate additional views to include color doppler and/or pulsed wave doppler

Renal Transplant Protocol

A normal Retroperitoneal Renal Transplant protocol will aim to include the following views:

1. Sagittal Kidney
2. Sagittal Kidney w/ length and cortex measurement
3. Kidney volume measurement
4. Trans Kidney (superior, mid, inferior)
5. Peri-nephric area

6. Color/power Doppler image in sagittal demonstrating perfusion
7. PW Doppler spectral waveforms of segmental arteries (sup, mid, inf pole) with measurement of RI at each
8. PW Doppler spectral waveform of renal artery and vein at hilum
9. PW Doppler of arterial and venous anastomosis
10. PW Doppler of Iliac artery
11. PW Doppler of Iliac vein
12. Pre-void bladder volume measurement
13. Post-void bladder volume measurement
14. Document pathological findings with all appropriate additional views to include color doppler and/or pulsed wave doppler

DOCUMENTATION

1. Written, verbal, or electronic order from provider
2. The worksheet and images need to be scanned into PACS under appropriate exam and put online.
3. Ultrasound images should be labeled with anatomy imaged and orientation (SAG or TRANS)
4. All images are submitted with above documentation for dictation and stored in PACS
5. For all STAT, ER and Urgent Care ultrasound exams, call radiologist for preliminary report to give to ordering provider
6. If it is between 2200 - 0700, submit exam along with proper documentation to teleradiology

REFERENCE

- Approved by Pharmacy and Therapeutics Board on 08/14/2020
- Approved by Medical Executive Team on 09/11/2020
- Approved by Medical Director, Dr. Muneer Desai, on 08/20/2020
- Approved by Radiology Protocol Committee on 3/9/2020
- [ACR Practice Parameters Resolution 32 \(2019\)](#)

References

Reference Type	Title	Notes
Documents referenced by this document		
Referenced Documents	ACR Practice Parameters Resolution 32 (2019)	