RENAL/URINARTY TRACT ULTRASOUND

Patient Prep:

None

Survey:

Perform a real time survey of the Retroperitonium with attention to Renals, Perirenal Structures, Ureters (lower abdominal and pelvic region) and Urinary Bladder.

Use color flow or Doppler to evaluate renal artery/vein patency and to distinguish vessels from dilated collection structures. When hydronephrosis is seen or a ureteral stone is suspected, use color flow to detect ureteral jets in the bladder.

Image Documentation:

Each image must be labeled with the patient's full name, medical record number, accession number, initials of the imaging technologist, organ/area identification, scanning plane and patient orientation if different from supine.

KIDNEYS

Longitudinal Axis Image the:

1. Medial aspect of the renal
2. Medial of the mid-line
3. Midline
4. Midline with measurement of the maximum length and A-P diameters
5. Lateral to the mid-line
6. Lateral aspect of the renal

Transverse Axis Image the:

1. Superior pole
2. Mid superior pole
3. Mid pole
4. Mid pole with measurement of the maximum diameter
5. Mid inferior pole
6. Inferior pole

1. If possible renal echogenicity should be compared to the liver and spleen.
2. Color Doppler imaging may be able to help detect kidney calculi by twinkling artifact.
3. Assess renal cortical thickness.

Ureter

When visualized:

Image in the longitudinal and transverse axis in the lower abdominal and/or pelvic areas. Measure the maximum inner to inner diameter in the longitudinal axis.

When not visualized:

Image in the longitudinal or transverse axis in either the lower abdominal or pelvic area. Annotate NON-VIS on image.

BLADDER

Longitudinal Axis Image

1. Midline
2. Right of midline
3. Left of Midline

Transverse Axis Image

1. Superior
2. Mid
3. Inferior

Measure AP (anterior-posterior) thickness of bladder wall.

Images should demonstrate maximum distention and wall definition.

If a bladder diverticulum is noted provide post void bladder images in.

In pediatric patients less than 2 years image the adrenal glands if possible. Document the size and the shape in the long and short axis.

WHEN HYDRONEPHROSIS IS SEEN OR URETERAL STONE IS SUSPECTED USE COLOR FLOW TO DETECT URETERAL JETS IN THE BLADDER.

WHEN HYDRONEPHROSIS IS SEEN MEASURE RENAL PELVIS ON TRANSVERSE IMAGE OF RENALS.

POST VOID RESIDUAL BLADDER

Pre Void:

Image the maximum distention in the longitudinal axis. In the volume calculation setting measure the length and depth.
Image the maximum distention in the transverse axis. In the volume calculation setting measure the width.
Take an image of the calculation of the total volume.

Post Void:

After the patient voids, repeat the above steps. If the bladder is completely empty image a long and transverse axis view for documentation. Annotate Bladder Empty on these images.

Volume formula Length x Depth x Width x 0.52

PEDIATRIC RENAL

If Pediatric patient (less than 16 years) has a diagnosis of Hydronephrosis, UTI, Reflux (documented) or Enuresis perform pre and post void bladder measurements. Document this information on the Pediatric worksheet. If patient is unable to void document this on the Pediatric worksheet.

When evaluating the bladder be aware that a common problem for pediatric patients is an ureterocele. An ureterocele is a cystic dilation of the intravesical segments of the ureter. It appears as a cystic structure with a thin membrane within the bladder.

PATHOLOGY

Document all pathology or any abnormalities in a minimum of two scanning planes. Images with and without measurements should be taken of these areas along with documentation of blood flow with color flow and/or Doppler.

Revised 05/2010
Revised 08/2016
Revised 12/2019