

SLR Minimal Requirements for Acceptable Pediatric Scans

ABDOMEN

Pyloric Stenosis

25 exams, 7 true positive studies

- Longitudinal pylorus (muscle channel length, normal < 15mm)
- Transverse pylorus (muscle thickness, normal < 3mm)
- Demonstrate video clip of normal peristalsis, food passage or no pyloric relaxation
- May include, double mucosal channel, duodenal cap, pylorospasm, “antral nipple” or “target” signs

Intussusception

25 exams, 2 true positive studies

- Demonstrate ileo-cecal valve
- Demonstrate lead point if present
- Doppler evaluation of wall
- May include “target (doughnut)”, “pseudokidney”, or “crescent in a doughnut” signs

Appendicitis

25 exams, 12 true positive studies

- Transverse view with target appearance
- Longitudinal view
 - Graded compression against the psoas muscle
 - Video clip of non-compressible appendix
- Measure:
 - Appendix diameter (normal < 6mm outer to outer wall)
- Video clip of appendix originating from cecum and follow to a blind end (longitudinal and transverse)
- May include appendicolith or periappendiceal fluid collection

ABDOMINAL FAST

25 exams, 7 true positive studies (free fluid)

Show superior and inferior poles of kidney; clear interface between organs

- Hepatorenal aka Morison’s Pouch
- Splenorenal
- Pelvic aka Pouch of Douglas (sagittal and transverse)

BILIARY

25 exams, 12 true positive studies (cholelithiasis)

- Longitudinal gallbladder
- Transverse gallbladder
- Measure:
 - Anterior gallbladder wall thickness (normal <3mm)
 - Common bile duct (normal <6-7mm) with portal vein

BLADDER VOLUME

3 exams

- Bladder sagittal and transverse
- Measure width, height and depth in cm
- Calculate the bladder volume: (W x H x D x 0.7 = volume in ml) using machine software

CARDIAC FAST (Show 2 of 4 views)

25 exams, 2 true positive studies for effusion, 1 true positive study for asystole

Show a clear pericardium-myocardium interface

- Subxiphoid (SX)
- Parasternal Long-Axis (PLA)
- Parasternal Short-Axis (PSA)
- Apical 4 Chamber (A4)

DEEP VENOUS THROMBOSIS (3 views)

25 exams, 7 true positive studies (deep venous thrombosis)

Show either complete or incomplete compressibility of the vessel

Show contralateral side for comparison when positive

Color/spectral Doppler as supporting evidence

- Common femoral vein
- Bifurcation of the superficial and deep femoral veins
- Popliteal vein

INFERIOR VENA CAVA

3 exams

- B mode – measure 2 cm from entry into the right atrium
- M mode – measure max and min during respiratory cycle
- Calculate the caval index: $(\text{max}-\text{min})/\text{max} \times 100\%$

JOINT EFFUSION

25 exams hip, 2 true positive studies for effusion

25 exams knee, 2 true positive studies for effusion

Hip

- Longitudinal proximal femur
- Transverse proximal femur
- Show contra-lateral side for comparison
- Measure
 - Displacement of joint capsule at mid-metaphysis perpendicular to the cortical surface (normal < 3mm, abnormal > 4mm)
- May include convex bowing and distension of the joint capsule

Knee

- Longitudinal anterior suprapatellar bursa
- Transverse anterior suprapatellar bursa
- Measure
 - Anterior-posterior diameter of the suprapatellar bursa (normal = 0 mm)
- If effusion, comment on echogenicity (hyper/hypoechoic, complex)
- Show contralateral side for comparison

LUNG

25 exams, 2 true positive studies for pleural effusion, 2 true positive pneumothorax, 7 true positive for pneumonia

- Batwing pattern (rib-intercostal space-rib) for PTX
 - Document in M-mode: seashore vs. barcode sign
- Fluid above hemi-diaphragm for pleural effusion
 - Document sinusoid sign in M-mode
- B-lines consistent with interstitial lung disease and tissular appearance of consolidated lung

OB-GYN

25 exams of trans-abdominal, 12 true positive studies (intrauterine pregnancy)

25 exams of trans-vaginal, 12 true positive studies (intrauterine pregnancy), 3 true positive ovarian cyst

Show a clear posterior cul de sac; show bladder/uterus interface

- Longitudinal uterus
- Transverse uterus
- Measure endo-myometrial mantle at its minimal thickness (normal \geq 8mm)
 - Document fetal heart rate in M-mode
 - Show adnexa in trans-vaginal scans

OCULAR

5 exams, 1 true positive study (FB, retinal detachment, vitreous hemorrhage, lens dislocation)

- Globe in 2 planes
- Measure optic nerve sheath diameter, 3mm from the optic disk
- Show contralateral side for comparison when positive

RENAL

25 exams, 12 true positive studies (hydronephrosis)

Show the bladder if hydronephrosis is present

- Longitudinal of each kidney
- Transverse of each kidney

SOFT TISSUE

5 true positive cellulitis

5 true positive abscess

5 true positive fracture

5 true positive foreign body

- Show in 2 planes
- Show contra-lateral side for comparison when positive

TESTICULAR ULTRASOUND

10 examinations, 2 true positive for epididymitis, 1 true positive for torsion

- Clear demonstration of testis, epididymis and cord
- Longitudinal of each testicle
- Transverse of each testicle
- Straddle view
 - Power Doppler documentation of arterial and venous waveforms

VASCULAR ACCESS

3 peripheral venous access exams

Show image of needle within vessel lumen