

MRI Abdomen Protocol – Truncated MRCP WO CONTRAST

Reviewed By: Spencer Lake, MD

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Contact: (866) 761-4200

Only use: *This is a truncated protocol for use only in re-evaluation of a pancreatic cystic lesion (typically a suspected IPMN) that has already been evaluated with a full, contrast-enhanced pancreas protocol MRI. Please check with body radiologist to confirm the appropriateness of this protocol before performing.*

Only 5 non-localizer sequences will be obtained: Coronal T2, axial T2 FS, MRCP sequence (see two options below), DWI, and axial T1FS

Patient prep: Should be NPO for 4 hours prior to study. Have patient void prior to scan.

Oral contrast: None.

Coil: Body coil.

Coverage: Position the coil such that there is good coverage and signal from the liver and pancreas. Ensure that entire liver and pancreas are covered on all series.

Intravenous contrast: None.

Anti-peristaltic agent: None.

Sequences:

1. Localizer
2. Coronal T2 Ultra fast SE (HASTE, SSFSE, FASE) without fat suppression
 - a. Multi-breath hold as needed
 - b. Complete front to back coverage
 - c. Goal parameters
 - i. Large FOV (400-450 mm)
 - ii. 7 mm thickness, 25% gap (1.5 mm)
3. Axial T2 Ultra fast SE (HASTE, SSFSE, FASE) thin slice with fat suppression

- a. Multiple breath holds as needed
 - b. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct
 - c. Goal parameters
 - i. Slice thickness 3-4 mm, 0% gap
- 4. Coronal 3D T2 TSE (SPACE, CUBE, VISTA)**
- a. Preferred “MRCP” sequence
 - b. Respiratory navigated
 - c. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct
 - d. 3D MIP recons with 2 plane rotation
- 5. Optional: Perform only if 3D T2 (sequence #4) is unable to be performed. Coronal T2 Ultra fast SE (HASTE, SSFSE, FASE) thin slice with fat suppression**
- a. Alternative “MRCP” sequence
 - b. Multiple breath holds as needed
 - c. Slices should include coverage of the intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct
 - d. Goal parameters
 - i. Slice thickness 3-4 mm, 0% gap
- 6. Axial DWI with ADC map**
- a. Free breathing
 - b. Slices extend from dome of liver to inferior aspects of liver and pancreas to include all intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct
 - c. Mandatory parameters
 - i. B = 0/100/500/1000 and ADC map
- 7. Axial T1 Ultra fast GE with fat suppression (VIBE, LAVA, TIGRE) precontrast**
- a. Breath hold
 - b. Slices extend from dome of liver to inferior aspects of liver and pancreas to include all intrahepatic biliary tree, extrahepatic biliary tree and pancreatic duct
 - c. Goal parameters
 - i. Slab slices \leq 3 mm

Appendix:

Table 1 Summary of MRCP imaging parameters

Parameter	T2-weighted breath-hold HASTE (liver down to ampulla)	3D T2-weighted FSE with respiratory triggering	T2 weighted breath-hold HASTE fat-saturated thick slab
TR/TE (ms)	1,000/83	1,800/678	4,500/752
Number of averages	1	1	1
Flip angle	150	180	180
Field of view (mm)	350 × 263	380 × 380	350 × 350
Matrix size	256 × 146	384 × 380	384 × 300
Slice thickness (mm)	7 mm	1.5 mm	40 mm
Slice gap (mm)	0.7 mm	0 mm	N/A
Number of slices	20	40	1
Acquisition plane	Axial	Coronal oblique	Coronal
Half-Fourier factor	5/8	Phase-encoding: off Slice-encoding: 6/8	Phase encoding: 7/8
Parallel imaging acceleration factor	2	2	2
Receiver bandwidth (Hz/pixel)	391	260	150
Turbo factor	146	127	307
Oversampling	None	Slice: 20%	Phase: 33%

HASTE half-Fourier acquisition single shot turbo spin echo, *FSE* fast spin echo

References

1. Griffin, N., Charles-Edwards, G. & Grant, L. A. Magnetic resonance cholangiopancreatography: the ABC of MRCP. *Insights Imaging* 3, 11–21 (2011).