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Abdominal/Pelvic MRI Protocoling Guide

Abdominal Imaging and Intervention
BWH Radiology

MRI is a problem-solving modality. Its strengths compared to other modalities include improved tissue contrast and multi-planar imaging, without exposure to ionizing radiation. However, its application can be time-consuming; abdominal MR imaging typically also requires the patient be able to breath-hold (30 seconds) effectively.

When MR is applied as a focused imaging examination, the breadth of MR protocols becomes more extensive than for example, with CT. Common applications of BWH MR protocols are discussed below. For uncommon indications, a more tailored approach may need to be prescribed, or clarified with the referring clinician and/or Radiology staff.

Please adhere to broader BWH Radiology MR safety and contrast administration guidelines with regard to allergy history, renal function, pregnancy, and safety of metallic implants.

1. Abdominal MRI Protocols

Organ of Interest	Indication	Protocol	Considerations
Liver	• Lesion characterization • HCC screening	**Liver_Routine C-/C+**	Preferred for initial MR evaluation of liver lesion - Exception: FNH, consider Eovist protocol, below Preferred for HCC screening
	Biochemical abnormality (e.g. hyperbilirubinemia, transaminitis)	**Liver_Panc_MRCP C-/C+**	
	• Known malignancy – treatment planning of known metastatic disease (i.e. resection of pauci-metastatic disease, ablation or radiation planning) • Lesion differentiation: focal nodular hyperplasia (FNH) vs hepatic adenoma • Suspected bile leak	**Liver_Eovist C-/C+**	Most sensitive detection of liver lesions; preferred for assessment of known hepatic metastatic disease - E.g. pre-op/pre-treatment planning for detection of all potential metastases; follow-up assessment of tumor burden/response to therapy Preferred for evaluation of suspected FNH
	Liver Elastography to assess liver stiffness/fibrosis	**Elastography_Focus_Liver C-/C+**	Performed only at BTM Bay 3 (1.5T); protocol includes C-/C+ evaluation of the liver
	Hepatic iron quantification	**Liver_Iron_Quantification C-**	C- protocol; performed only at 1.5T per Gandon method (Univ Rennes website)
Biliary	Choledocholithiasis Cholangitis Biliary/per-biliary cysts	**Liver_Panc_MRCP C-/C+**	
Pancreas	Cystic/solid lesion characterization	**Liver_Panc_MRCP C-/C+**	
	Pre/post secretin imaging for pancreatic duct evaluation	**Pancreas_Secretin_MRCP**	Not commonly used

Kidney	Renal lesion characterization	**Renal_Adrenal C-/C+**	C+ preferred to C- for post-contrast assessment of solid/nodular components
Adrenal	Indeterminate adrenal mass Adrenal adenoma assessment	**Renal_Adrenal C-**	C- preferred to C+; relies on assessment of microscopic fat; unlike adrenal CT adrenal with washout, MR contrast enhancement of adenomas is non-specific

2. Pelvic MRI Protocols

Organ of Interest	Indication	Protocol	Considerations
Uterus	- Fibroids (incl treatment planning) - Adnexal/ovarian mass characterization - Endometriosis	**Pelvis_Female C-/C+**	- Most common female pelvic MR protocol - Dynamic post-contrast imaging in sagittal plane
	Cervical or endometrial cancer staging	**Pelvis_Female_Gyn_ Oblique C-/C+**	- Angled planes; to be checked by Rads prior to post-contrast imaging - Dynamic post-contrast imaging in short-axis oblique plane
	Uterine anomaly assessment	**Pelvis_Female_Gyn_ Oblique C-**	- Angled planes; to be checked by Rads prior to post-contrast imaging
Anus/Rectum	Rectal/anal cancer staging	**Rectal C-/C+**	- Specify rectal versus anal coverage - Dynamic post-contrast imaging in axial plane
Anal Fistula	Anal fistula/fistula-in-ano Perirectal abscess	**Anal fistula C-/C+**	
Bladder	Local disease assessment of known bladder cancer (e.g. mural involvement)	**Bladder C-/C+**	*Consider MR Urogram if upper tract evaluation requested
Defecography	Functional imaging assessment of pelvic floor	**Defecography C-**	Performed only on L1; requires rectal gel administration No IV contrast
Prostate	PSA elevation/prostate lesion screening No prior biopsy or negative prior biopsy	**Prostate_Routine C-/C+**	Performed only on L1 Bay 3 No endorectal coil
	Known/biopsied prostate cancer	**Prostate_Staging_ Endorectal coil C-/C+**	Performed only on L1 Bay 3 Endorectal coil/IM glucagon
Penis/Scrotum	Penile/scrotal mass or pain	**Penile C-/C+**	- Predominantly groin FOV; some pelvic FOV coverage - Tri-plane post-contrast imaging of groin
Male Pelvis	Signs/symptoms Not Otherwise Specified or clearly attributable to a defined organ/ alternative protocol; first consider other organ-specific protocols	**Pelvis_Male_NOS C-/C+**	- Pelvic FOV - Dynamic post-contrast imaging in axial plane
Placenta	Focused assessment of placental anatomy	**Placenta C-**	L1 only; non-contrast Tri-plane T2 and T1FS GRE Coverage to be checked by Rads

3. Abdomino-Pelvic MRI Protocols

Organ of Interest	Indication	Protocol	Considerations
Abdominopelvic cancer staging/ re-staging	Abdominal primary or specific focus	**Abd_Pelvis_Focus_Liver C-/C+**	
	Pelvic primary or specific focus	**Abd_Pelvis_Focus_Pelvis C-/C+**	
Small bowel	Suspected or known inflammatory bowel disease	**Enterography C-/C+**	L1 and BTM only *Small bowel FOV typically does not allow for concurrent assessment of anal fistula/perirectal abscess
Urogram	Urogram; primary bladder tumor	**MRU_Focus_Bladder C-/C+**	Performed only on L1 Lasix 10mg IV
	Urogram; primary upper tract tumor	**MRU_Focus_Kidneys C-/C+**	Performed only on L1 Lasix 10mg IV
Appendix	Suspected appendicitis	**Abd_Pelvis_Appendix C-**	C- typically as pregnant patients cannot receive gadolinium contrast