ACR Appropriateness Criteria® Pretreatment Staging of Colorectal Cancer

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Abstract

Colorectal cancers are common tumors in the United States and appropriate imaging is essential to direct appropriate care. Staging and treatment differs between tumors arising in the colon versus the rectum. Local staging for colon cancer is less integral to directing therapy given radical resection is often standard. Surgical options for rectal carcinoma are more varied and rely on accurate assessment of the sphincter, circumferential resection margins, and peritoneal reflection. These important anatomic landmarks are best appreciated on high-resolution imaging with transrectal ultrasound or MRI. When metastatic disease is suspected, imaging modalities that provide a global view of the body, such as CT with contrast or PET/CT may be indicated. Rectal cancer often metastasizes to the liver and so MRI of the liver with and without contrast provides accurate staging for liver metastases. This article focuses on local and distant staging and reviews the appropriateness of different imaging for both variants.

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The American College of Radiology seeks and encourages collaboration with other organizations on the development of the ACR Appropriateness Criteria through society representation on expert panels. Participation by representatives from collaborating societies on the expert panel does not necessarily imply individual or society endorsement of the final document. Reprint requests to: publications@acr.org

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The American College of Radiology Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed annually by a multidisciplinary expert panel. The guideline development and revision include an extensive analysis of current medical literature from peer reviewed journals and the application of well-established methodologies (RAND/UCLA Appropriateness Method and Grading of Recommendations Assessment, Development, and Evaluation or GRADE) to rate the appropriateness of imaging and treatment procedures for specific clinical scenarios. In those instances where evidence is lacking or equivocal, expert opinion may supplement the available evidence to recommend imaging or treatment.

Key Words: Appropriateness Criteria, Appropriate Use Criteria, AUC, colorectal cancer staging, rectal cancer imaging, rectal cancer MRI, rectal cancer transrectal ultrasound

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ACR Appropriateness Criteria® Pretreatment Staging of Colorectal Cancer. Variants 1 and 2 and Table 1.

Variant 1. Rectal cancer. Locoregional staging.

Radiologic Procedure	Rating	Comments	RRL
MRI pelvis without and with IV contrast	9		○
MRI pelvis without IV contrast	8	Noncontrast MRI is sufficient for T staging, though with and without is routinely used as well.	○
US pelvis transrectal	8	For suspected early T-stage disease instead of MRI.	○
CT abdomen and pelvis with IV contrast	5	May be appropriate if MRI cannot be performed and tumor is locally advanced.	☢☢☢☢
CT abdomen and pelvis without IV contrast	3	May be appropriate if MRI cannot be performed and tumor is locally advanced.	☢☢☢☢
CT abdomen and pelvis without and with IV contrast	3	May be appropriate if MRI cannot be performed and tumor is locally advanced.	☢☢☢☢
CT colonography	3	Low-dose CTC without IV contrast.	☢☢☢

Note: Rating scale: 1, 2, 3 = usually not appropriate; 4, 5, 6 = may be appropriate; 7, 8, 9 = usually appropriate. CTC = CT colonography; IV = intravenous; RRL = relative radiation level; US = ultrasound.

Variant 2. Colorectal cancer. Staging for distant metastases.

Radiologic Procedure	Rating	Comments	RRL
CT chest abdomen pelvis with IV contrast	9		☢☢☢☢
MRI abdomen and pelvis without and with IV contrast	8	MRI or CT can be used. Usually performed along with a chest CT.	○
FDG-PET/CT whole body	6		☢☢☢☢
MRI abdomen and pelvis without IV contrast	5	Rarely used, but may be appropriate in situations when other exams cannot be performed due to contraindications. Usually performed along with chest CT.	○
CT chest abdomen pelvis without IV contrast	4	Only useful in a few very specific situations.	☢☢☢☢
CT chest abdomen pelvis without and with IV contrast	3	Limited added value of noncontrast series at the expense of increased dose.	☢☢☢☢

Note: Rating scale: 1, 2, 3 = usually not appropriate; 4, 5, 6 = may be appropriate; 7, 8, 9 = usually appropriate. FDG-PET = positron emission tomography using fluorine-18-2-fluoro-2-deoxy-D-glucose imaging; IV = intravenous; RRL = relative radiation level.