ACR Appropriateness Criteria® Pretreatment Staging of Muscle-Invasive Bladder Cancer

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Abstract

Muscle-invasive bladder cancer (MIBC) has a tendency toward urothelial multifocality and is at risk for local and distant spread, most commonly to the lymph nodes, bone, lung, liver, and peritoneum. Pretreatment staging of MIBC should include imaging of the urothelial upper tract for synchronous lesions; imaging of the chest, abdomen, and pelvis for metastases; and MRI pelvis for local staging. CT abdomen and pelvis without and with contrast (CT urogram) is recommended to assess the urothelium and abdominopelvic organs. Pelvic MRI can improve local bladder staging accuracy. Chest imaging is also recommended with chest radiograph usually being adequate. FDG-PET/CT may be appropriate to identify nodal and metastatic disease. Chest CT may be useful in high-risk patients and those with findings on chest radiograph. Nonurogram CT and MRI of the abdomen and pelvis are usually not appropriate, and neither is radiographic intravenous urography, Tc-99m whole body bone scan, nor bladder ultrasound for pretreatment staging of MIBC.

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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.
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Conflict of Interest: Dr. Oto reports grants from Philips, grants from Guerbet, grants from Profound Healthcare, and other from Profound Healthcare, outside the submitted work; Dr. Lockhart is Deputy Editor, Journal of Ultrasound in Medicine; Member, ACR Commission on Ultrasound; Book Author, Oxford Publishers.

1546-1440/18/$36.00 ■ https://doi.org/10.1016/j.jacr.2018.03.020

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, Bladder cancer, CT, MRI, Muscle-invasive bladder cancer, Staging, Urothelial carcinoma

J Am Coll Radiol 2018;15:S150-S159.

ACR Appropriateness Criteria® Pretreatment Staging of Muscle-Invasive Bladder Cancer. Variant 1 and Tables 1 and 2.

Variant 1. Pretreatment staging of muscle-invasive bladder cancer.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis without and with IV contrast	Usually Appropriate	☢☢☢☢
X-ray chest	Usually Appropriate	☢
MRI abdomen and pelvis without and with IV contrast	Usually Appropriate	O
CT abdomen and pelvis with IV contrast	Usually Appropriate	☢☢☢☢
MRI pelvis without and with IV contrast	Usually Appropriate	O
FDG-PET/CT skull base to mid-thigh	May Be Appropriate	☢☢☢☢
CT chest with IV contrast	May Be Appropriate	☢☢☢
CT chest without IV contrast	May Be Appropriate	☢☢☢
MRI pelvis without IV contrast	May Be Appropriate	O
CT abdomen and pelvis without IV contrast	May Be Appropriate	☢☢☢☢
CT abdomen with IV contrast	Usually Not Appropriate	☢☢☢
CT abdomen without and with IV contrast	Usually Not Appropriate	☢☢☢☢
CT abdomen without IV contrast	Usually Not Appropriate	☢☢☢
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis with IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis without and with IV contrast	Usually Not Appropriate	☢☢☢☢
CT pelvis without IV contrast	Usually Not Appropriate	☢☢☢
MRI abdomen and pelvis without IV contrast	Usually Not Appropriate	O
MRI abdomen without IV contrast	Usually Not Appropriate	O
MRI abdomen without and with IV contrast	Usually Not Appropriate	O
MRI head without and with IV contrast	Usually Not Appropriate	O
Tc-99m bone scan whole body	Usually Not Appropriate	☢☢☢
US pelvis (bladder)	Usually Not Appropriate	O
MRI head without IV contrast	Usually Not Appropriate	O
X-ray intravenous urography	Usually Not Appropriate	☢☢☢

FDG = fluorine-18-2-fluoro-2-deoxy-D-glucose imaging; IV = intravenous; US = ultrasound.