

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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Disclaimer: The ACR Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those examinations generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the FDA have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

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

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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	0
CT abdomen and pelvis with IV contrast	Usually Appropriate	⚬⚬⚬⚬
MRI pelvis without and with IV contrast	Usually Appropriate	0
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	0
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	0
MRI abdomen without IV contrast	Usually Not Appropriate	0
MRI abdomen without and with IV contrast	Usually Not Appropriate	0
MRI head without and with IV contrast	Usually Not Appropriate	0
Tc-99m bone scan whole body	Usually Not Appropriate	⚬⚬⚬
US pelvis (bladder)	Usually Not Appropriate	0
MRI head without IV contrast	Usually Not Appropriate	0
X-ray intravenous urography	Usually Not Appropriate	⚬⚬⚬

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

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