# Pretreatment Staging of Muscle-Invasive Bladder Cancer

Bladder cancer is considered muscle invasive (MIBC) when the tumor extends into the muscles in the wall of the bladder. MIBC may spread to the lymph nodes, bones, lungs, liver, and peritoneum (the lining of the abdomen). Standard treatment is surgery to completely remove the bladder (radical cystectomy) and the surrounding lymph nodes (pelvic lymphadenectomy). Chemotherapy may also be used. CT of the pelvis and abdomen (https://www.radiologyinfo.org/en/info/abdominct) shows the entire urinary tract (CT urography (https://www.radiologyinfo.org/en/info/urography) ) and is used to stage MIBC, look for cancer outside of the bladder, and figure out if surgery is possible.

CT urography with and without contrast is the most appropriate initial imaging test for MIBC. CT can detect the primary tumor and most other tumors except for extremely small tumors.

MRI urography (MRI of the pelvis and abdomen) (https://www.radiologyinfo.org/en/info/mri-abdomen-pelvis) with and without contrast, although more time-consuming, is more sensitive and is good at imaging soft tissues and finding small tumors. It is also appropriate for staging MIBC. When cancer in the lymph nodes is suspected, fine-needle aspiration should be considered to biopsy any suspicious tumors.

All patients with MIBC should get a chest x-ray to look for tumors in the lungs. If any suspicious mass is found on the chest x-ray (https://www.radiologyinfo.org/en/info/chestrad) , it is appropriate to get a chest CT (https://www.radiologyinfo.org/en/info/chestct) with or without contrast.

A PET/CT scan (https://www.radiologyinfo.org/en/info/pet) using fluorine-18-2-fluoro-2-deoxy-D-glucose may also be appropriate to look for spread of the cancer outside of the bladder (metastasis).

These tests are all useful and more than one may be performed.

— By Frank Rybicki Jr., Phyllis Glanc, MD. This information originally appeared in the *Journal of the American College of Radiology*.

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