A Case of Disseminated BCG after Bladder Cancer Treatment?

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Introduction

Bladder cancer is the most common malignancy of the urinary system with intravesical BCG infusions being a mainstay of treatment. This is a case of a patient who received such treatment and presented to the ED for stroke-like symptoms and was incidentally found to have chest imaging concerning for disseminated BCG

Case

A 91-year old male with a past medical history of bladder cancer status post intravesical BCG therapy and end stage renal disease on dialysis presented to the ED for stroke-like symptoms and hypotension. The patient was receiving dialysis when he had sudden onset right sided weakness, dysarthria, and confusion. By the time the patient arrived in the ER, he had significant improvement in his symptoms. The patient had a CT head and CTA head and neck performed as part of the stroke protocol. TNK was declined. CTA head and neck incidentally showed numerous pulmonary lesions concerning for miliary tuberculosis or metastatic disease. A chest x-ray and chest CT were performed for further evaluation and the imaging was more consistent with miliary TB. The patient was immediately placed in airborne precautions, placed in a negative pressure room, the health department was notified, and infectious disease was consulted.

Per chart review, it was determined the patient had intravesical BCG treatment for his urothelial carcinoma. Disseminated BCG is a known, albeit rare, complication of this treatment. Per infectious disease, the patient didn't need to be in airborne precautions due to it being non-tuberculoid mycobacteria. There was initial discussion of initiating triple therapy and pulmonology was consulted for endobronchial ultrasound bronchoscopy. The nodules were deemed too small for biopsy. Quantiferon, histoplasmosis, blastomycoses, and aspergillus laboratory studies were all negative; therefore, anti-TB drugs weren't initiated. Because the patient didn't have fevers, chills, or an elevated WBC count, infectious disease didn't think this was disseminated BCG.

Imaging

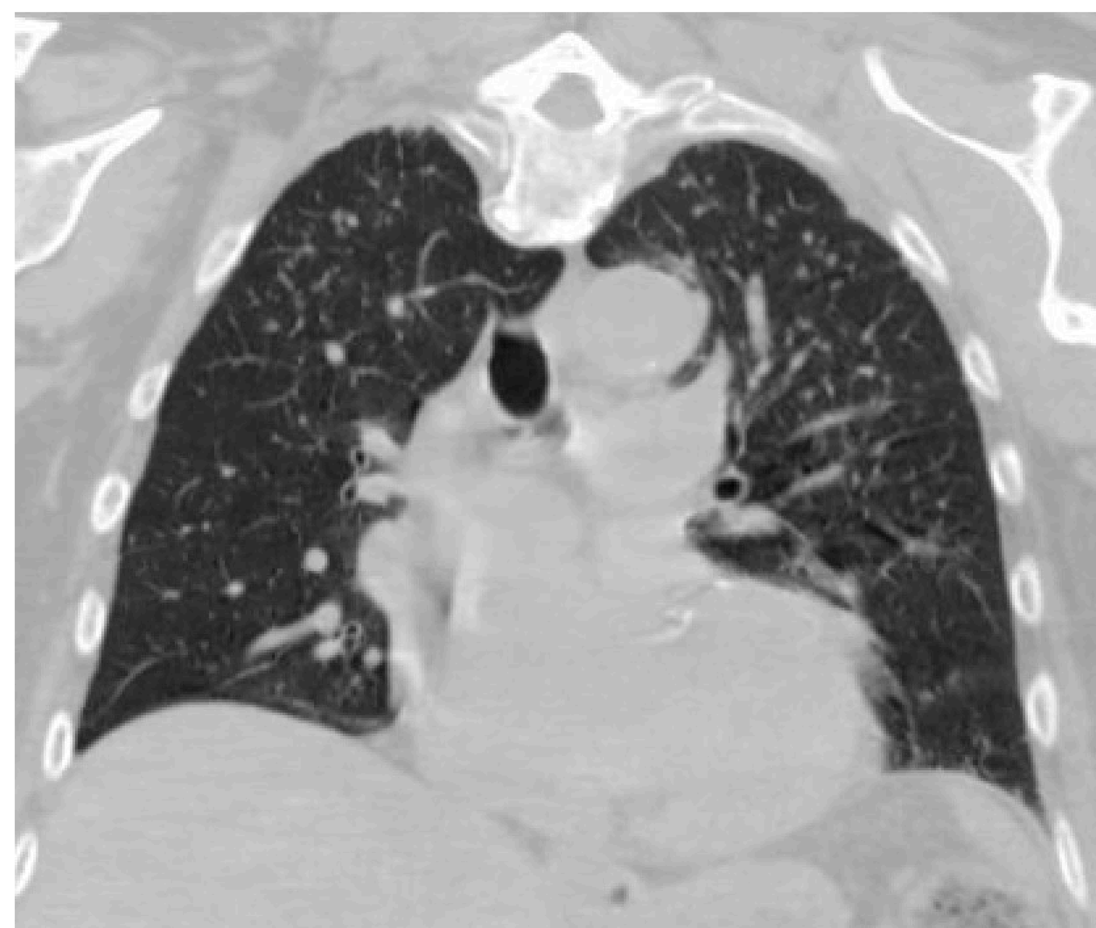

Image 1. CT Scan of Chest without Contrast

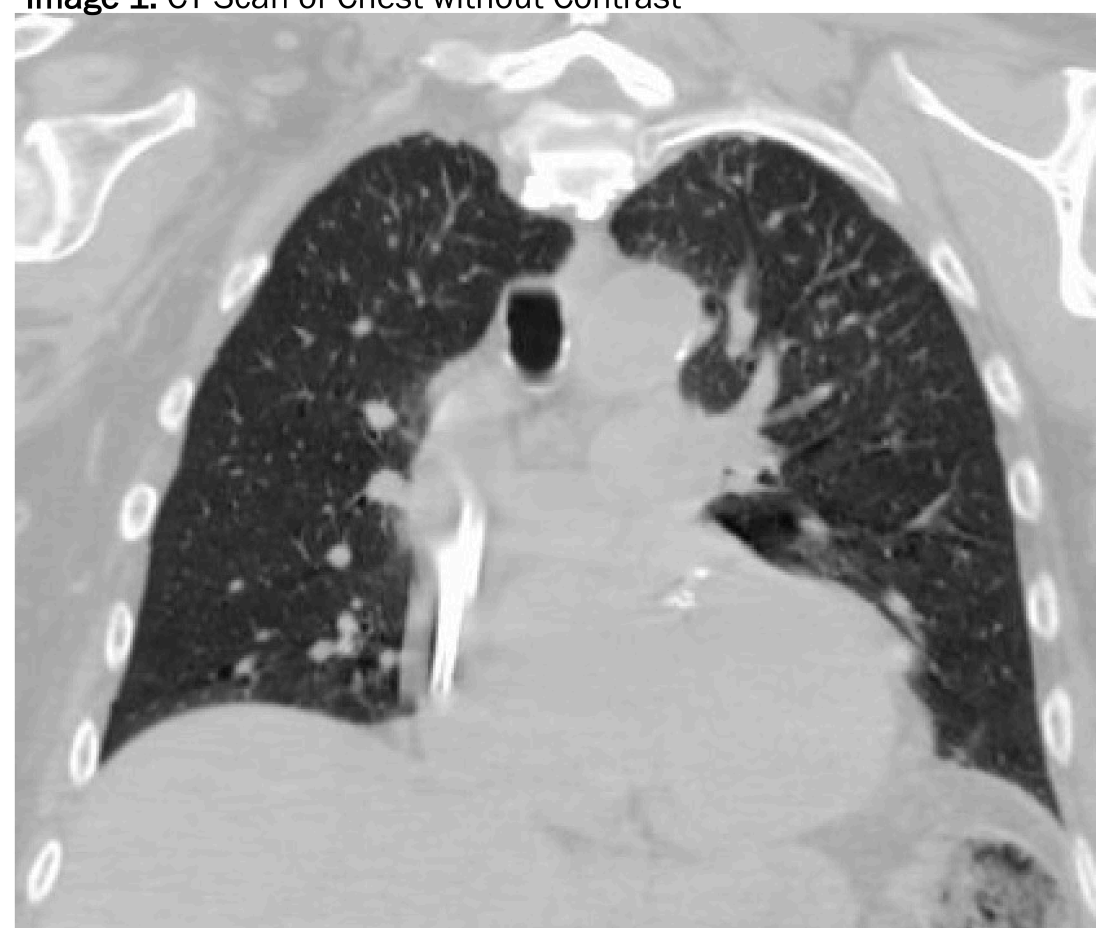

Image 2. CT Scan of Chest without Contrast

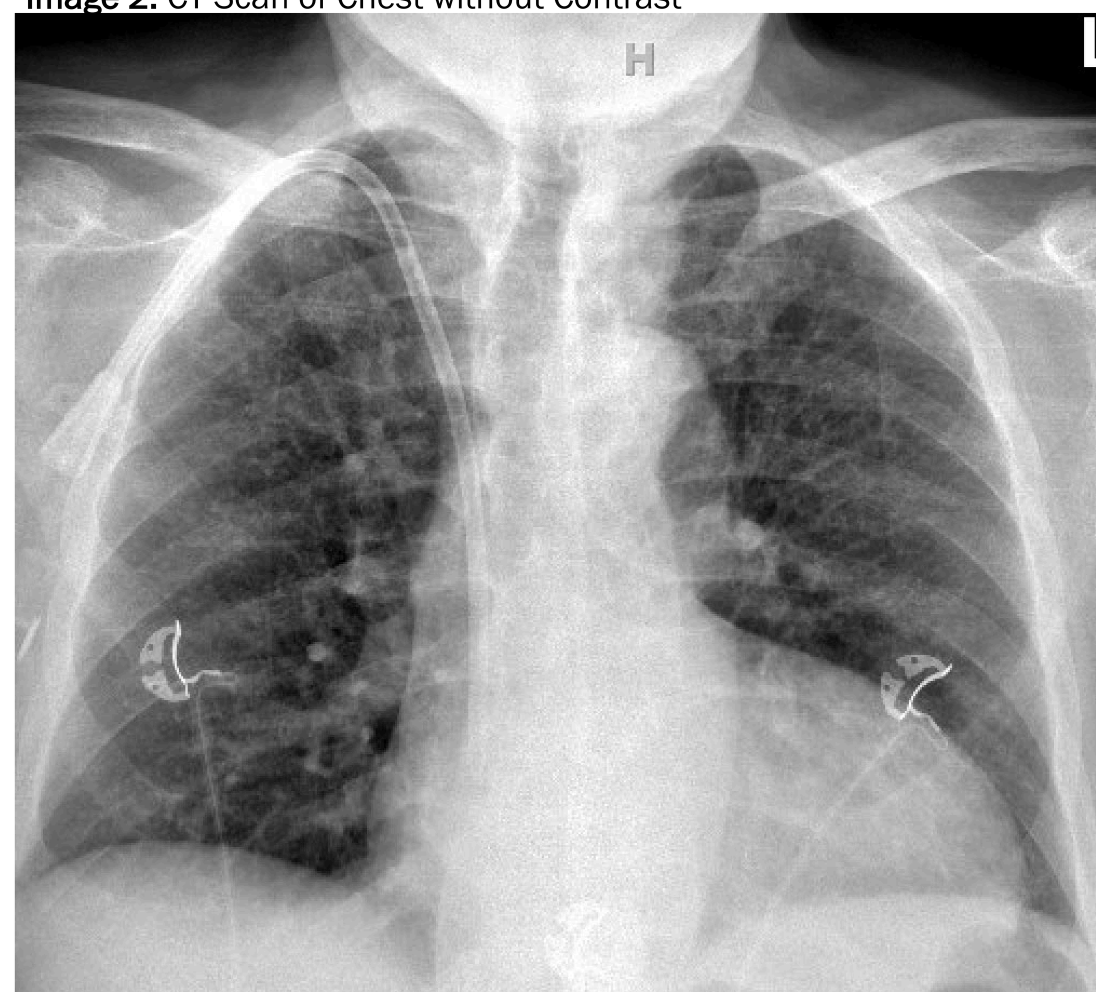

Image 3. Xray of Chest

Conclusions

Bladder cancer is the most common site of malignancy of the urinary tract system. Treatment options for superficial uroepithelial cancer include transurethral resection of bladder tumor or intravesical therapy if the malignancy is high risk for muscle invasion. Intravesical therapy is a catheter infusion therapy of a large molecular compound. The drug is directly applied to the bladder tumor while limiting transmucosal absorption and systemic toxicity due to the size of the compound. Commonly used agents are mitomycin, epirubicin, and gemcitabine, or BCG. BCG is a live attenuated Mycobacterium bovis and is considered to be the superior intravesical therapy for treatment of bladder cancer. If these therapies fail, a cystectomy must be performed.

A known, but infrequent, side effect of BCG immunotherapy is disseminated BCG. Disseminated BCG can present with renal, liver, bone, or pulmonary involvement, specifically miliary tuberculosis. Miliary tuberculosis is extremely rare making up only 0.3-0.7% of complications. Diagnosis can be challenging as serology may be negative so one must have a high clinical suspicion and obtain a thorough past medical history. Nonetheless, acid fast staining of sputum and blood should be performed. Treatment includes quad therapy for 4 months and corticosteroids.

References

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