CASE REPORT

Ruptured Aortic Aneurysm Secondary to Psoas abscess after Intravesical Bacilli Calmette-Guérin

Ashish Khandelwal, MD, Ankur Gupta, DM, Vivek Virmani, FRCR, Kanika Khandelwal, MBBS

Fellow University of Ottawa, Diagnostic Imaging, 321-1833 Riverside Dr Ottawa, Ontario K1G 0E8 Canada

SUMMARY

Bacillus Calmette-Guérin (BCG) is a live attenuated strain of *Mycobacterium bovis* that has been used as effective treatment for early-stage transitional carcinoma of the urinary bladder. We present a case of a 68 year old man who had an abdominal aortic aneurysm following BCG therapy for bladder cancer. Contrast enhanced computerized tomogram (CECT) of abdomen and pelvis revealed bilateral hypodense lesions suggestive of psoas abscesses. In addition, a saccular abdominal aortic aneurysm measuring 4x3.6 cm involving infrarenal aorta with surrounding hematoma was seen. At surgery, he was found to have a psoas abscess and hemorrhage. He underwent ligation of the aorta and an axillary-bifemoral bypass. He was given one year of anti-tubercular therapy to which he responded clinically.

INTRODUCTION

Bacillus Calmette-Guérin (BCG) is a live attenuated strain of *Mycobacterium bovis* that has been used for vaccination against tuberculosis. BCG has also been used as effective treatment for early-stage transitional carcinoma of the urinary bladder [1]. Although intravesical therapy with BCG is considered safe, serious complications including hematuria, granulomatous pneumonitis, hepatitis, and life-threatening BCG sepsis can occur [2].

BCG-related vascular infections are rarely reported. Mycotic aneurysms are localized irreversible arterial dilatations due to endothelial destruction by an infection.

Case

We present a case of abdominal aortic aneurysm following BCG therapy for bladder cancer. 68-year-old male underwent contrast enhanced computerized tomogram (CECT) of abdomen and pelvis (Figure 1) for work-up of persistent gross hematuria 3 years back. CECT at that time showed diffuse circumferential wall thickening of the bladder, predominantly involving superior and lateral walls without any intraabdominal metastasis and adenopathy. Further, on histopathology, he was diagnosed with carcinoma-in-situ of urinary bladder. He received intravesical instillation of bacille Calmette-Guérin (BCG) 1-8 x 108 colony forming units weekly for six sessions for treatment. Post-treatment repeat biopsy was negative, and the patient remained asymptomatic on regular follow-up examinations for next three years.

Early last year, he presented with acute onset severe abdominal pain and hypotension. He gave history of fever and night sweats over 2 months. Ultrasound done in the emergency room showed bilateral psoas collections. CECT of abdomen and pelvis was revealed bilateral hypodense lesions suggestive of psoas abscesses, larger on left side measuring 6.5x5 cm. In addition, a saccular abdominal aortic aneurysm measuring 4x3.6 cm involving infrarenal aorta with surrounding hematoma was seen (Figure 2). Patient was immediately taken for surgery. Intraoperatively, he was found to have a psoas abscess and hemorrhage. He underwent ligation of aorta and axillary-bifemoral bypass. The cultures grew *Mycobacterium bovis* with sensitivity to isoniazid, rifampin, and ethambutol. Excised aortic plaque revealed atherosclerosis complicated by organizing thrombus,acute inflammatory changes with necrosis and clusters of rodlike acid-fast bacilli.

Post-operatively, he developed acute kidney injury requiring hemodialysis and progressed on to end stage renal failure and continues to be dialysis dependent. He was given one year of anti-tubercular therapy to which he responded clinically. A follow up CECT examination showed complete resolution of retroperitoneal abscess.

DISCUSSION

Intravesical instillation of BCG was first introduced by Morales and associates in 1976 [1]. The mechanism of BCG antitumor activity is unknown, but likely involves a nonspecific stimulation of the immune system resulting in tumor cell death.The incidence of systemic complications range from 0-3% and occurred at a higher frequency whenever there is a breach in the integrity of urogenital mucosa [2]. BCG immunotherapy complications are classified as early and late based on onset of symptoms after BCG therapy. A complication within three months of BCG therapy is classified as early, whereas complication after one year is classified as late. Most of early complications are confined to lower urinary tract like cystitis, hematuria, and prostatitis. Systemic complications in immunocompetent patients are uncommon and may include sepsis, hepatitis, and pneumonitis [2, 3]. Our patient developed bilateral psoas cold abscesses as a result of disseminated BCGitis. Retroperitoneal

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Corresponding Author: Ashish Khandelwal, Fellow University of Ottawa, Diagnostic Imaging, 321-1833 Riverside Dr Ottawa, Ontario K1G 0E8 Canada
Email: drashish83@gmail.com

Fig. 1 : Contrast enhanced computerized tomogram axial sections of pelvis shows diffuse circumferential wall thickening, predominantly involving superior and lateral walls.

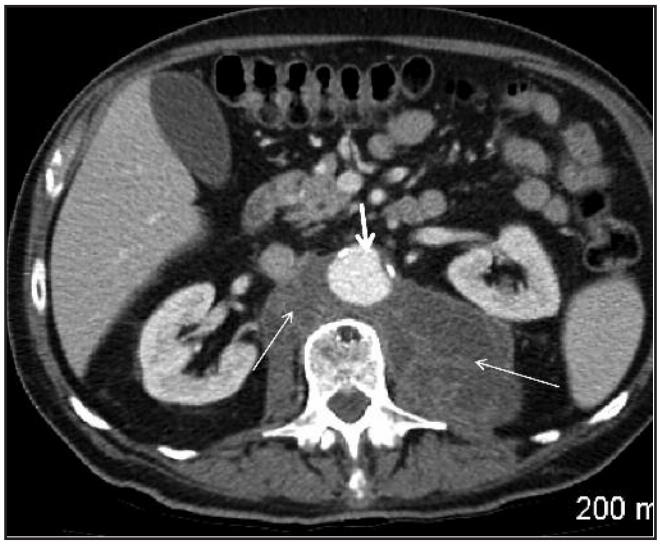

Fig. 2 : Contrast enhanced computerized tomogram of abdomen shows bilateral psoas abscesses (thin arrows), larger on left side with a saccular ruptured infrarenal abdominal aortic aneurysm (thick arrow).

abscess after intravesical BCG therapy is rare [3]. Only 13 cases of BCG-related *M. bovis* infection of abdominal aorta have been reported till date [4]. The mode of infection of aorta could be due to hematogenous, lymphatic or a direct spread from psoas abscess.

Psoas abscess in association with mycotic aneurysm rupture after intravesical BCG therapy is scarce in world literature. The association should be kept in mind in order to prevent fatal consequences by early diagnosis with aid of imaging. It is also vital to keep in mind that the side effect of treatment can occur long after the therapy is given, even when patient is in complete remission for primary tumor.

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