Results of Inadvertent Administration of Bacillus Calmette-Guerin for Treatment of Transitional Cell Carcinoma of Bladder

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INTRODUCTION

Intravesical instillation of bacillus Calmette-Guerin (BCG) is a known treatment method in superficial bladder cancers after transurethral resection of the bladder tumor (TURBT).[1] Moreover, its polysaccharide nucleotide is used in the treatment of asthma.[2] However, the most familiar usage of the BCG to the public is vaccination against tuberculosis (TB) as a subcutaneous injection or oral administration.[3] Physicians should explain method of its use to the patients in order to avoid wrong injection and its side effects. In this study, we present a patient with transitional cell carcinoma (TCC) of the bladder in whom 4 vials of BCG were wrongly injected intramuscularly.

CASE REPORT

A 60-year-old man with a history of TURBT was recommended to have 1 course (6 doses) of intravesical BCG instillation. However, the patient traveled to another city and the injection was done erroneously; 2 vials of BCG (120 mg) were intramuscularly injected 2 weeks after TURBT with an interval of 12 hours. After the second injection, the patient experienced severe headache, sweating, and fever. The following day, 2 other vials of BCG were injected in the gluteal muscles and headache and sweating developed again. Three days after the intramuscular injections, the patient experienced pain and induration in the site of injections and severe pain in the hypogastric area. He referred to his own physician and inravesical instillation of BCG was administered. The first and second intravesical BCG vials, diluted in 50 milliliters of normal saline were used intravesically about 3 and 4 weeks after the TURBT.

He presented to our center almost 1.5 months after the TURBT. On physical examination, pain, erythema, tenderness, and induration were detected bilaterally in the gluteal muscles. Ultrasonographic evaluations revealed no abscess. Urinalysis showed abundant red blood cells, 15 to 16 white blood cells per high-power field, and fungal mycelium. Mantoux screening test was negative after 48 hours. Morning urine samples and gastric lavage in 3 consecutive days were negative for mycobacterium tuberculosis. Chest radiography was performed and no active or old lesion of TB was detected. On the intravenous urography, delay in the secretion of the right kidney, dilatation in the pyelocaliceal system and the right ureter, and irregularities in the ureteropelvic junction were

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detected. According to the consultation with the experts in TB, oral isoniazid, 300 mg/d, and rifampin, 600 mg/d, were started for the patient. The classic treatment of bladder TCC was continued after making sure that no side effect of BCG administration remained.

DISCUSSION

For achieving useful results by BCG therapy for the superficial bladder tumors, its appropriate use is crucial. Otherwise, unwanted side effects may develop. This necessitates giving complete information to the patients. Bacillus Calmette-Guerin is generally used subcutaneously, and sometimes, its oral or intranasal administration is used for vaccination. Its intravesical instillation is applied for the superficial bladder tumors.[1-3]

Side effects of subcutaneous injection of BCG are usually restricted to the injection area, and systemic involvement is rarely seen.[4,5] The adverse effects include lymphadenopathy, local scar, and systemic TB. To our knowledge, intramuscular injection of BCG has only been reported in 2 patients.[6,7] In one of those patients, abscess was formed in the muscle which was resolved by conservative treatment.[7] The amount of injected solution was very lower in these cases in comparison with ours. Due to the scarcity of intramuscular injection of BCG, the treatment and follow-up strategies of the affected patients is not clear yet. In our patient, in spite of 2 injections of BCG in the gluteal muscles and then, instillation into the bladder, no paraclinical findings indicative of the disease were found. However, empirical treatment with oral isoniazid and rifampin was initiated and continued for 3 months according to the consultation with the specialists in infectious diseases. During this period, no sign of TB or gluteal abscess was detected. The literature lacks evidence to support our treatment of TB for the patient. However, due to the large amount of injection and the history of fever, pain, tenderness, swelling, and redness in the gluteal region during the first days after injections, we preferred to perform prophylactic treatment with isoniazid and rifampin. After 8 months, no complication was detected. However, some gastrointestinal problems, delayed intravesical treatment with BCG, loss of time and money of the patient, and negative psychological effects on the patient were the consequences of the inadvertent intramuscular injections of BCG. Such problems are the things that should be prevented by educating the patients and the health care personnel. On the other hand, there is an interesting question to be brought forward: does the intramuscular injection of BCG affect—either negatively or positively—the clinical course of bladder cancer?

CONFLICT OF INTEREST

None declared.

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