Cavernous pulmonary tuberculosis 14 months after intravesical Bacillus Calmette-Guerin (BCG) therapy in a patient with recurrent bladder cancer

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Introduction

Bacillus Calmette-Guerin (BCG) is an attenuated strain of Mycobacterium bovis, used as vaccine for tuberculosis control and as intravesical instillation in the treatment of superficial bladder cancer (1, 2). We describe a case of cavernous pulmonary tuberculosis, diagnosed 14 months after the 78-year-old patient had completed intravesical BCG therapy for recurrent superficial bladder cancer (Fig.1).

• In April 2013 the patient reported increasing productive cough and dyspnea of exertion.

• A pulmonary X-ray and a computed tomography (CT) scan showed a cavity in the left lung (Fig.2, Fig. 3) and the patient was admitted to hospital with suspicion of pulmonary tuberculosis.

• Acid-fast rods were detected in sputum and bronchial secretions with microscopy and a polymerase chain reaction (PCR; Cobas TaqMan MTB test; Roche Diagnostics, Basel, Switzerland) for Mycobacterium tuberculosis complex (MTBC) was positive.

• Bacterial cultures became positive for MTBC on day 15 and by using GenoType MTBC (Hain LifeScience GmbH, Nehren, Germany) Mycobacterium bovis BCG was identified.

• Spoligotyping revealed a spoligo signature similar to M. bovis bovis, distinguishing only in two positions (Fig. 4).

• Therapy was initiated on day 2 of hospitalization with a four drug regimen containing isoniazid, rifampicin, pyrazinamide and ethambutol. After confirmation of the characteristic pyrazinamide-resistance of Mycobacterium bovis BCG in drug susceptibility analysis the patient was set on a three drug regimen containing isoniazid, rifampicin and ethambutol.

Discussion

Intravesical BCG instillation is the first-line treatment for non-muscle invasive bladder cancer (3), which is one of the most common malignancies in men (4, 5). Whereas local side effects after BCG instillation are common (6), disseminated adverse events are a rare, but serious complication (7). Until 2013, worldwide only a few cases of pneumonia and miliary tuberculosis, related to intravesical BCG-instillation, have been published (7, 8). Therefore early diagnosis and treatment is necessary. Hence, tuberculosis should be included in differential diagnosis in patients with history of intravesical BCG instillation.

Fig. 1 Time course of disease, beginning 2005 with the diagnosis of superficial bladder carcinoma. (TURP (Transurethral Resection of the Prostate))

Fig. 2 Posterior-anterior and laterally chest radiography showing a cavity in the posterior portion of the right upper lobe, approximately 4 cm in diameter holding.

Fig. 3 Computed tomography (CT) scan showing the presence of extensive irregular thick-walled subpleural cavities.

Fig. 4 Spoligotyping signature of the patient strain and a M. bovis bovis

References


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