

Gluteal abscess: An unusual complication of Bacille Calmette-Guérin

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Submission: 16-02-11
Accepted: 22-04-11

Abstract:

Bacille Calmette-Guérin (BCG) has been used extensively as a vaccine against human tuberculosis. Herein, we describe gluteal tuberculosis abscess due to inadvertently injected BCG a patient with bladder cancer.

Key words:

Bacille Calmette-Guérin, bladder cancer, gluteal abscess, tuberculosis

Bacille Calmette-Guérin (BCG) has been used extensively as a vaccine against human tuberculosis for over 70 years. In addition to its role as a vaccine against tuberculosis, BCG has also been used as an immunotherapeutic agent by intravesical instillation in superficial cancer of the bladder.^[1-3] Side effects and complications of such immunotherapy are usually local, self-limited and minor in nature, but occasionally it may result in severe and systemic manifestations.^[2,3]

Herein, we report a gluteal tuberculosis abscess as a consequence of inadvertently injected BCG to a patient with bladder cancer.

Case Report

A 51-year-old man was recommended to have six doses of intravesical BCG instillation for a superficial bladder cancer. BCG was erroneously injected intramuscularly for four weeks. Patient's vital signs at admission were as follows: Temperature 38.8°C, pulse 96/min, respiratory rate 16/min, and blood pressure 132/85 mmHg. On physical examination right gluteal swelling, erythema, tenderness, and indurations were detected. The physical examination findings were unremarkable for other systems. The patient had no other co-morbid disease except type II DM. Ultrasonographic evaluations revealed a hypochoic loculation compatible with gluteal abscess [Figure 1]. Chest radiography and computed tomography did not reveal any active or old TB lesion [Figures 2 and 3]. Tuberculin skin test was negative after 72 h. Abscess microscopy and cultures for acid fast bacilli (AFP) were positive without any other microorganisms. Pyrazinamide-resistant Mycobacterium tuberculosis complex was isolated. Sputum cultures were negative for mycobacterium. With these findings antituberculosis treatment (Rifampicin, Isoniazid, Ethambutol and

Ciprofloxacin) was started together with incision and drainage of abscess. Patient responded well to these treatment and nine months later the patient was fully recovered from the disease.

Discussion

Adverse reactions to BCG vaccination can be categorized into two major categories: Non-infectious and infectious. Most of the reported complications are abnormal primary complexes, either lesions at the injection site or, more commonly, suppurative lymphadenitis. Lesions at the injection site were ulcers, subcutaneous abscesses, or necrotic lesions due to excessive delayed hypersensitivity reactions. Other complications were localized or generalized non-fatal persisting BCG infection, and fatal disseminated BCG infection.^[4,5]

Intramuscular administration of BCG is rare and usually due to an error in the administration. Only a few cases are reported in the literature.^[6,7] The previously reported gluteal tuberculosis cases were not confirmed bacteriologically and treated empirically.^[8] But it is necessary to obtain aspirated pus from abscesses at the site of immunization to confirm that BCG is the cause or to identify other organisms that occasionally cause such reactions. In the presented case aspirated pus was obtained and gluteal tuberculosis was proven by abscess microscopy and cultures. No other microorganisms were seen on abscess microscopy and cultures.

Various interventions including; drainage, needle aspiration, topical or systemic isoniazid, or systemic erythromycin, have been used for post-injection ulcers and abscesses due to BCG.^[2,3] *Mycobacterium bovis* including BCG are known to be naturally resistant to PZA and these features are commonly used to distinguish *M. bovis* from *M. tuberculosis*.^[9] The natural Pyrazinamide

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Website: www.thoracicmedicine.org
DOI: 10.4103/1817-1737.84780

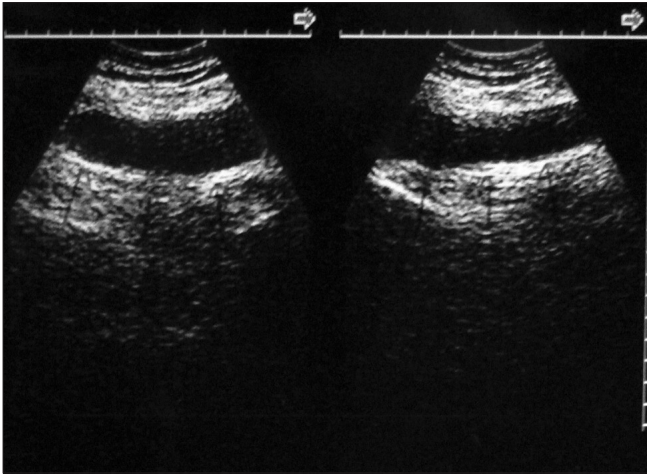


Figure 1: Ultrasonography reveals a well-defined hypoechoic homogeneous mass 10 × 8 cm in diameter

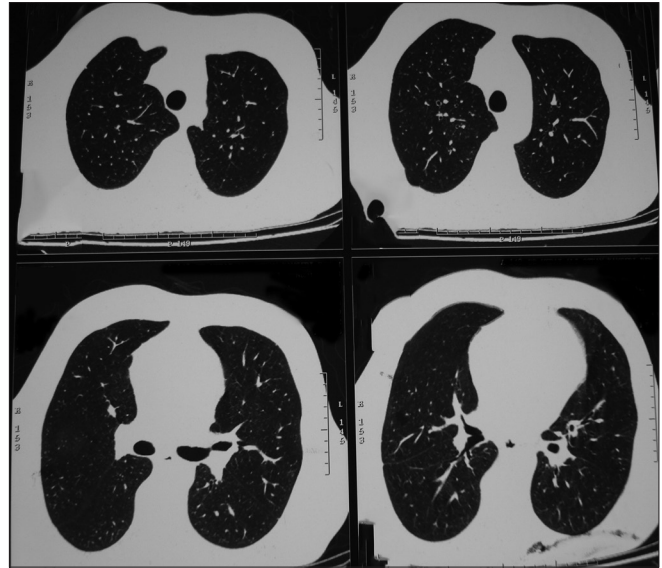


Figure 2: Chest CT scan showing the emphysematous changes

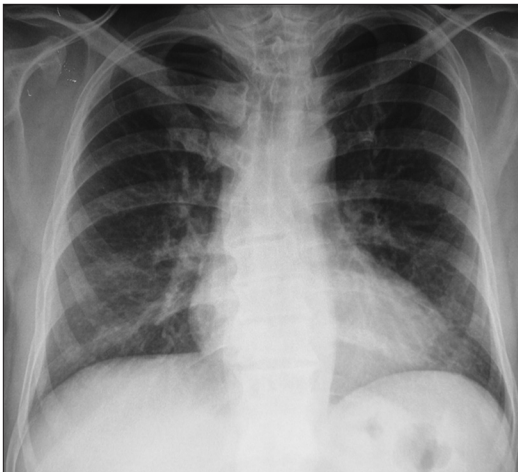


Figure 3: There is no active or old lesion of TB in chest X-ray

resistance in *M. bovis* and BCG is due to a single point mutation of *pncA* gene.^[10] Because of these reasons Pyrazinamide was not used. The present case was treated with daily doses of Rifampicin, Isoniazid, Ethambutol and Ciprofloxacin due to persistent fever.

In conclusion, this case report shows that specific treatment is an invaluable adjunct to drainage in patients with abscess secondary to inadvertently injected BCG. But the most important thing is to prevent such undesired complications by adequate training of the health personnel and patients.

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How to cite this article: Buyukoglan H, Gulmez I, Tutar N, Oymak FS, Kanbay A, Demir R. Gluteal abscess: An unusual complication of Bacille Calmette-Guerin. *Ann Thorac Med* 2011;6:235-6.

Source of Support: Nil, **Conflict of Interest:** None declared.