Multifocal cutaneous tuberculosis luposa with a 60-year course in a patient with disseminated neoplastic process

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ABSTRACT

Introduction. Tuberculosis luposa, the most common type of cutaneous tuberculosis, usually develops slowly as a single lesion located on the face. There are only a few case reports describing the onset of skin tuberculosis in the site of BCG vaccination.

Objective. Presentation of a case of tuberculosis luposa with unusual course.

Case report. We present a rare case of a 71-year-old patient with multiple foci of tuberculosis luposa lasting for 60 years with unusual location and onset in the site of BCG vaccination. In this case very fast development of the last lesion was probably connected with impaired immunity in the course of the progressing neoplastic process.

Conclusions. At present the diagnosis of cutaneous tuberculosis may be late due to insufficient knowledge of its clinical picture and lack of awareness of increasing frequency of this disease.

INTRODUCTION

Cutaneous tuberculosis (*tbc cutis*) accounts for only 1% of all cases of tuberculosis. Tuberculosis luposa (*tbc luposa*), also known as *lupus vulgaris,* is the most common cutaneous form of tuberculosis. Skin lesions usually involve the skin of the face or lower extremities. Typically, they are isolated and slow-developing [1, 2]. There are no reports on tuberculosis luposa foci running a rapid course over a period of several months. In extremely rare cases, tuberculosis luposa develops as a secondary reaction to BCG vaccination [3, 4].

Small-cell lung carcinoma (SCLC) represents approximately 15–20% of all lung cancers and is nearly always associated with a long smoking history [5]. Small-cell lung carcinoma is a very fast-growing type of cancer and it is usually diagnosed too late.

OBJECTIVE

Presentation of a rare case of patient with multiple foci of tuberculosis luposa which arose originally at the site of BCG vaccination and developed over the course of many years. The last skin lesion progressed over a period of several months concurrently with lung cancer.

CASE REPORT

A 71-year-old white-collar worker with suspected cutaneous tuberculosis was admitted to the Department of Dermatology and Venereology, Medical University of Bialystok, in November 2011. The original skin lesion appeared on the patient's left arm at 10 years of age, after BCG vaccination, and increased in the

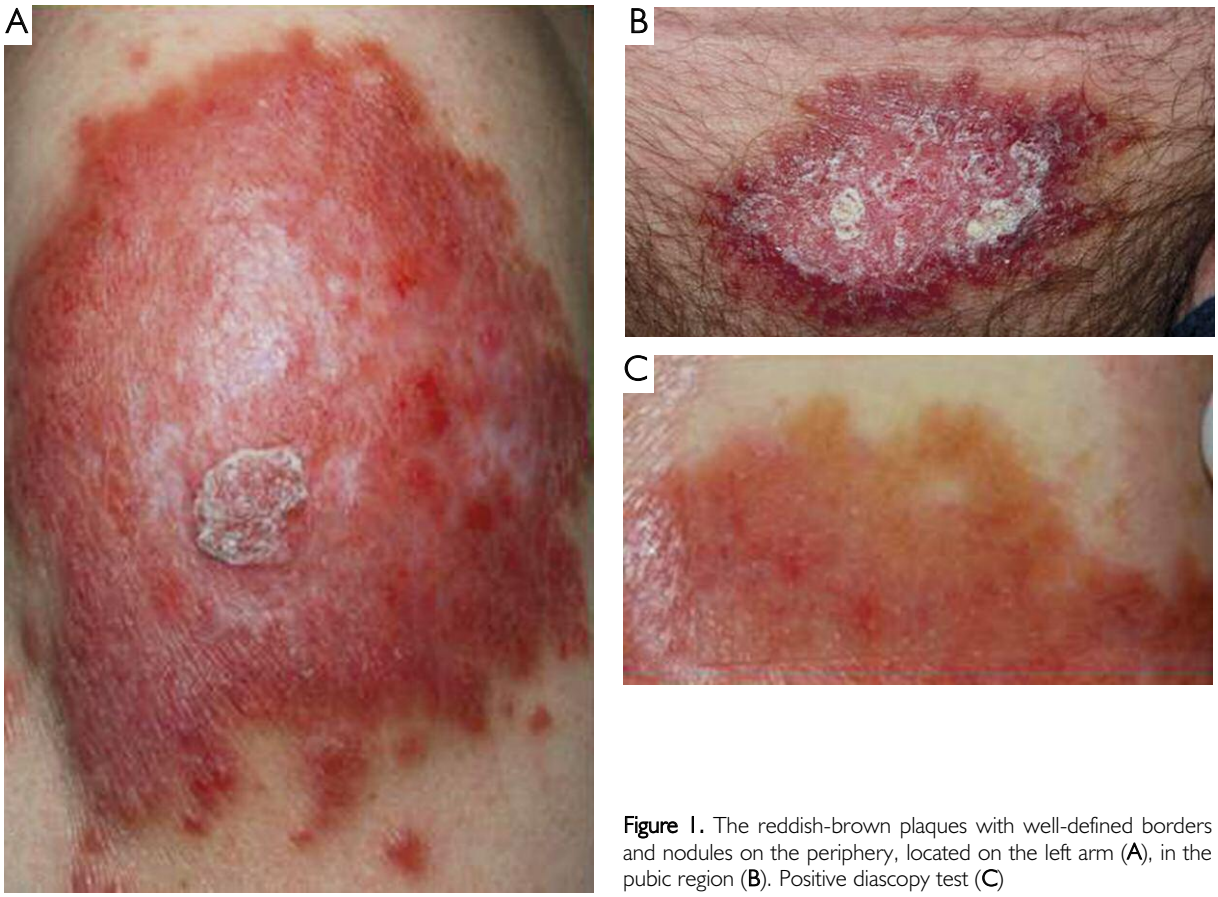

Figure 1. The reddish-brown plaques with well-defined borders and nodules on the periphery, located on the left arm (**A**), in the pubic region (**B**). Positive diascopy test (**C**)

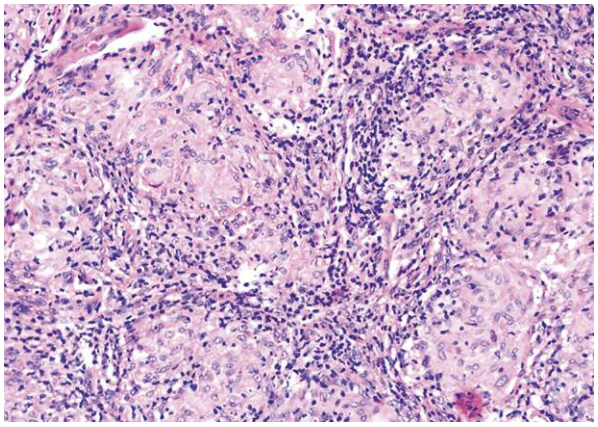

Figure 2. Granulomatous inflammation in histopathological examination

course of time without causing any complaints. A similar lesion arose in the pubic region when the patient was 56 years old. The lesions had not been diagnosed previously. The patient's history included hypertension and a 40-year smoking habit (30 cigarettes a day). Until 16 years of age, the patient lived in the countryside where he had contact with TB infected cattle.

On admission, two pathological cutaneous lesions were identified on the patient's left arm and in the pubic area, with respective diameters of 13 cm and 8 cm. The lesions consisted of soft reddish-brown nodules showing no signs of disintegration (figs. 1 A and 1 B). Diascopy was positive (fig. 1 C). The tuberculin skin test (RT 23) was positive, too (15 mm). Histopathology of the lesions revealed TB granulation tissue (fig. 2), while PCR demonstrated DNA of the *M. tuberculosis* complex. Culture for acid-fast *Mycobacterium* tuberculosis was positive (++). X-ray examination of the chest showed a calcified primary complex. Direct tests and sputum cultures for MTB were negative. In addition, IgG antibodies against *Borrelia burgdorferi* were detected (80 BBU/ml).

During the subsequent stay in the Department, in February 2012, a new focus (2 cm in diameter), resembling the previous lesions, was identified behind the patient's right ear (fig. 3). Following consultations with a specialist in infectious diseases and a pulmonologist, amoxicillin-based borreliosis treatment was administered for 30 days. Afterwards, under supervision from the Pulmonology Outpatient Clinic, the patient received anti-mycobacterial therapy (rifampicin 0.6/day + isoniazid 0.3/day, pyrazinamide 1.5/day and ethambutol 1.5/day) for 2 months, followed by rifampicin 0.3/day and isoniazid 0.15/day every other day for four consecutive months (the dose was reduced due to increased activity of liver enzymes). The lesions regressed leaving skin discolorations (fig. 4).

In May 2012, the patient was admitted to the Cardiology Ward because of pain localized in the chest. Myocardial infarction was ruled out, however diagnostic assessment was extended following the detection of hypocalaemia (1.7 mmol/l). Computed tomography (CT) scan of the abdomen demonstrated lesions corresponding to cancer metastases, while CT scan of the chest (with no abnormalities identified on chest X-ray) revealed a tumour in the right pulmonary hilum (fig. 5). Further diagnostic examinations provided evidence for stage IV of SCLC. As the stage of cancer was very advanced and the patient's overall health status was poor, no cancer treatment was introduced. In July 2012, the patient died.

DISCUSSION

Tuberculosis is caused by acid-fast *Mycobacterium: M. tuberculosis, M. bovis, M. africanum*. In 2006, global TB incidence was 8.8 million, with an estimated 3 million deaths from the disease [6]. Tuberculosis is one of the main causes of deaths from infectious diseases worldwide. The majority of new TB cases occur in South-East Asia. Recently, there has also been a spike in TB infections in developed countries [1].

Tuberculosis luposa may develop as a result of exogenous infection – or may be derived endogenously from TB foci in other body organs. In the case reported here, it is difficult to determine the time when the TB lesion emerged in the lungs. Similarly, it is impossible to assess whether lesions identified in the lungs and on the skin were caused by the same *Mycobacterium tuberculosis* strain. It is likely that the infection was caused by two *Mycobacterium* types: *M. bovis* and BCG. Contact with infected cattle led to the formation of a pulmonary lesion, while BCG vaccination caused a *tuberculosis luposa* changes on the skin. Cutaneous tuberculosis secondary to the administration of BCG vaccine is a very rarely reported complication [3, 4]. Post-vaccination reactions exhibit all the clinical and histopathological signs of *tuberculosis luposa*, a positive tuberculin reaction and good response to specific treatment [2, 7].

Untreated *tuberculosis luposa* develops over the course of years, usually within the skin of the face as an isolated lesion. The patient discussed in the present report had three atypically localized skin lesions. Two of them progressed for years, while the last lesion followed a rapid course, which is an uncommon phenomenon and was probably associated with cancer advancement [8].

Lung cancer is one of the most common cancer types. In Poland, it is the leading cause of death from malignancy in men. Small-cell carcinoma is predominantly linked to smoking: smokers have a 20–30 times greater risk of cancer than non-smokers [5, 9].

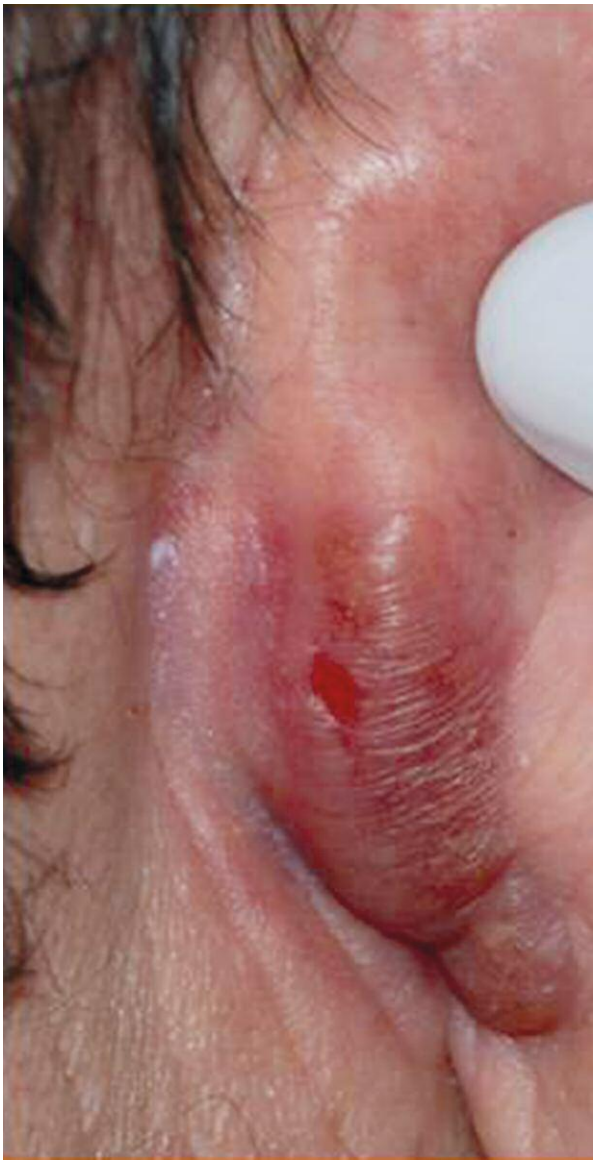

Figure 3. Tuberculosis cutis in the right retroauricular area

Other risk factors include: exposure to occupational carcinogens, radium radiation, environmental contamination, genetic predisposition and COPD [10]. Recent reports point to an increased risk of lung cancer in patients with a history of, or existing, pulmonary tuberculosis regardless of their smoking status, and to a markedly reduced survival in this group of patients due to cancer [10, 11]. The patient discussed here had a calcified primary lesion in the lungs, which may have also contributed to the development of cancer and affected its progression. Small-cell lung carcinoma is a rapidly developing cancer type. In 70% of cases, it is not diagnosed until stage IIIB or IV due to its long asymptomatic period. Treatment options include primarily chemotherapy, and combined chemotherapy and radiotherapy (up to stage IIIB). Surgery is limited to stage I [5]. Median survival in untreated indi-

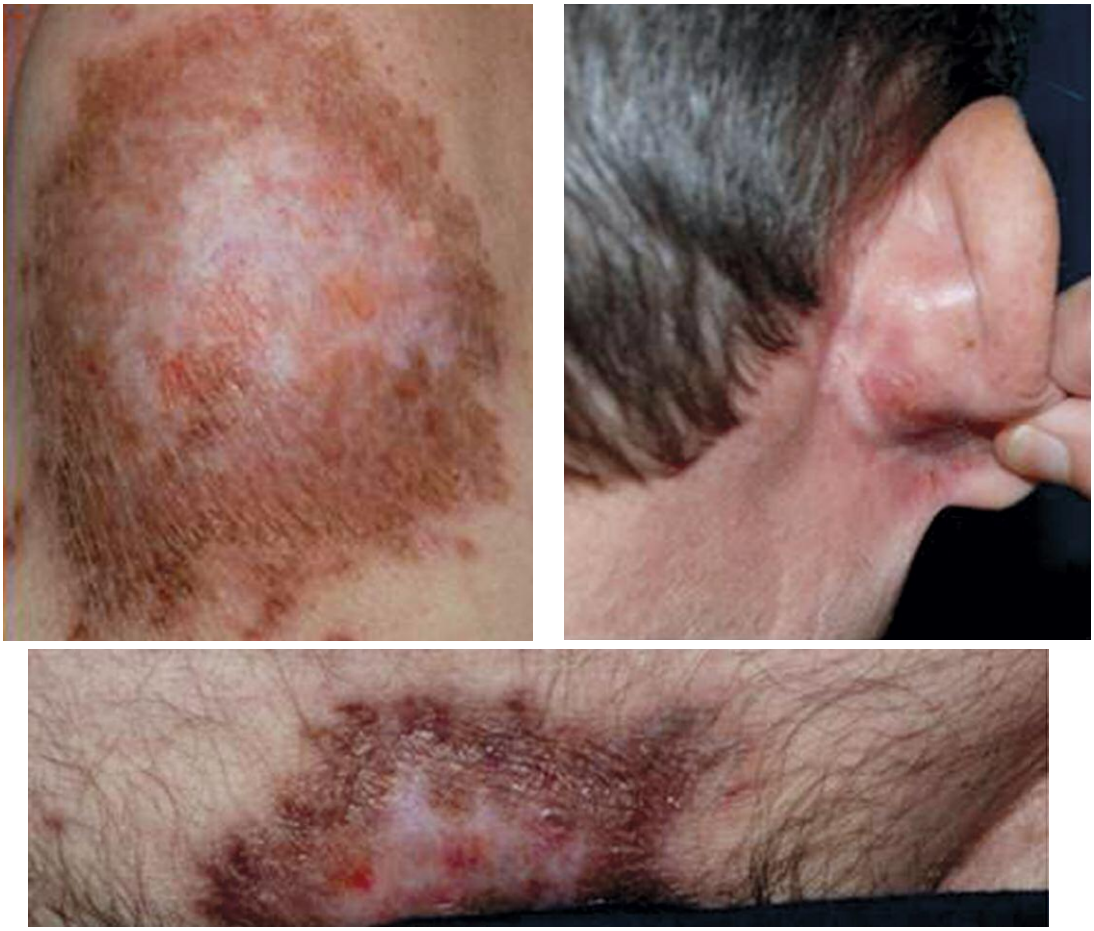

Figure 4. The skin lesions after antituberculotic therapy

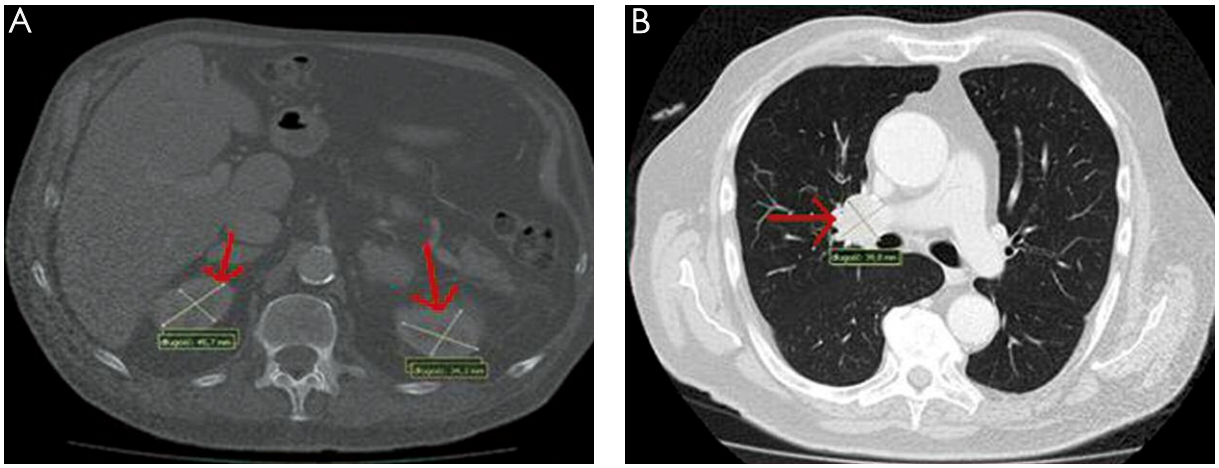

Figure 5. Computed tomography. Metastases in abdominal organs (**A**), tumor in the hilus of the right lung (**B**)

viduals from the time of diagnosis is 2–4 months. The 5-year survival rate in Poland is 14% [5, 12]. Lung cancer may not be immediately evident on X-ray, which hinders early detection [13]. In the presented case, the tumour was only identified by CT.

Both own observations and literature findings show that cutaneous tuberculosis tends to be diagnosed quite late because physicians are not adequately familiar with the clinical presentation of the disease and are not aware of the increased incidence of the condition. The case presented above and literature reports also show that monitoring of patients with a history of tuberculosis for cancer development is a reasonable strategy.

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