

An Uncommon Presentation of Tuberculosis with Cervical Pott's Disease Initially Suspected as Metastatic Lung Cancer

Roberta Buso^{1,2}, Marcello Rattazzi^{1,2}, Massimo Puato¹ and Paolo Pualetto^{*,1,2}

¹Department of Medicine, University of Padova, Italy

²Medicina Interna I[^], Ca' Foncello Hospital, Azienda ULSS 9, Treviso, Italy

Abstract: Cervical Pott's disease is a rare clinical condition whose diagnosis is usually delayed. We report a case of lung tuberculosis (TB) and cervical Pott's disease mimicking a metastatic lung cancer. The patient presented with persistent cervical pain. Radiologic examinations showed the presence of a lytic lesion of C3 vertebral body, associated with spinal cord compression. A CT scan of the thorax showed a lung nodule highly suspicious for malignancy in the apical region of right lung upper lobe. Neurosurgical decompression was performed. Unexpectedly, histological analysis showed the presence of an inflammatory infiltrate suggestive for TB infection. The patient was immediately treated with antituberculous drugs. Atypical forms of spinal TB, such as cervical TB, can be misdiagnosed as primary or metastatic cancers and lead to delay of treatment initiation that could be fatal. Awareness of this uncommon TB presentation is important to prevent morbidity and mortality associated with spinal cord injury and disease dissemination.

Keywords: Tuberculosis, Pott's disease, cervical spine.

INTRODUCTION

Tuberculosis (TB) continues to be a health problem even in Western countries. Although TB progressively declined in Italy from 1950 to 1980, in the last 30 years the incidence of the disease has remained stable. Nowadays, in our country, the highest incidence of TB is observed among immunocompromised patients (such as HIV-positive individuals), the elderly population and among subjects migrating from countries with high prevalence of the infection. In particular, the majority of new cases were observed among immigrants aged 25 to 34 years within two years after resettlement [1]. The majority of TB cases are due to reactivation of infections acquired in the high-prevalence setting from which the immigrants originate. Of note, migrants with TB can display clinical features that differ from those observed in Italian patients [2].

Lung is the most frequent site of TB infection. However, in about one-third of cases, extra-pulmonary localizations can be observed. In particular, the involvement of the skeletal system during TB infection (Pott's disease) is documented in 1% to 3% of the cases. Vertebral TB is the most common form of skeletal tuberculosis (50% of all cases) [3] and usually affects the thoracic and lumbar spine. Typically, the infection is restricted to the vertebral body while dissemination to the posterior elements is uncommon [4]. Moreover, TB localization at the cervical spine is a rare event.

We report and discuss the case of a man native from Philippines with lung TB and cervical Pott's disease initially diagnosed as metastatic lung cancer.

PATIENT HISTORY

A 50-years-old man, native of Philippines, was admitted to hospital because of one-month long history of persistent cervical pain. He had migrated in Italy two years before admission and did not report any relevant anamnestic data. In particular, he had never smoked, had no weight loss in the past months, and he and his family had no clinical history of TB.

At admission, the patient was in excellent performance status, afebrile, without any neurological, cardiac, respiratory or abdominal clinical signs; he reported intense pain in the cervical spine associated with mobility impairment of the neck. Laboratory investigations were normal except for mild normocytic anemia (Hb 13.4 g/dl; MCV 88 fL) and a modest increase in the levels of inflammatory markers (CRP 1.40 mg/dl; ESR 75 mm/h; alfa2 globulin 14%). Anti-HIV antibodies were negative.

A cervical spine X-ray showed lysis of the vertebral body of C3. A CT-scan revealed that the erosion of the vertebral body extended to the posterior vertebral wall, the right pedicle and the transverse foramen. An MRI examination of the spine confirmed the CT findings and showed the presence of spinal cord compression. All the radiological images strongly supported the initial hypothesis of a metastatic cancer involving C3 (Fig. 1). For this reason, a total body CT scan was performed and showed the presence of a nodule in the apical region of the right lung upper lobe. The lesion appeared with spiculated borders and was highly suspicious for malignancy (Fig. 2). The abdomen and the

*Address correspondence to this author at the Department of Medicine, University of Padova, Medicina Interna I[^], Ospedale Ca' Foncello, Via Ospedale 1, 31100 Treviso, Italy; Tel: +390498211867, +390422322207; Fax: +390498754179; E-mail: ppualetto@ulss.tv.it

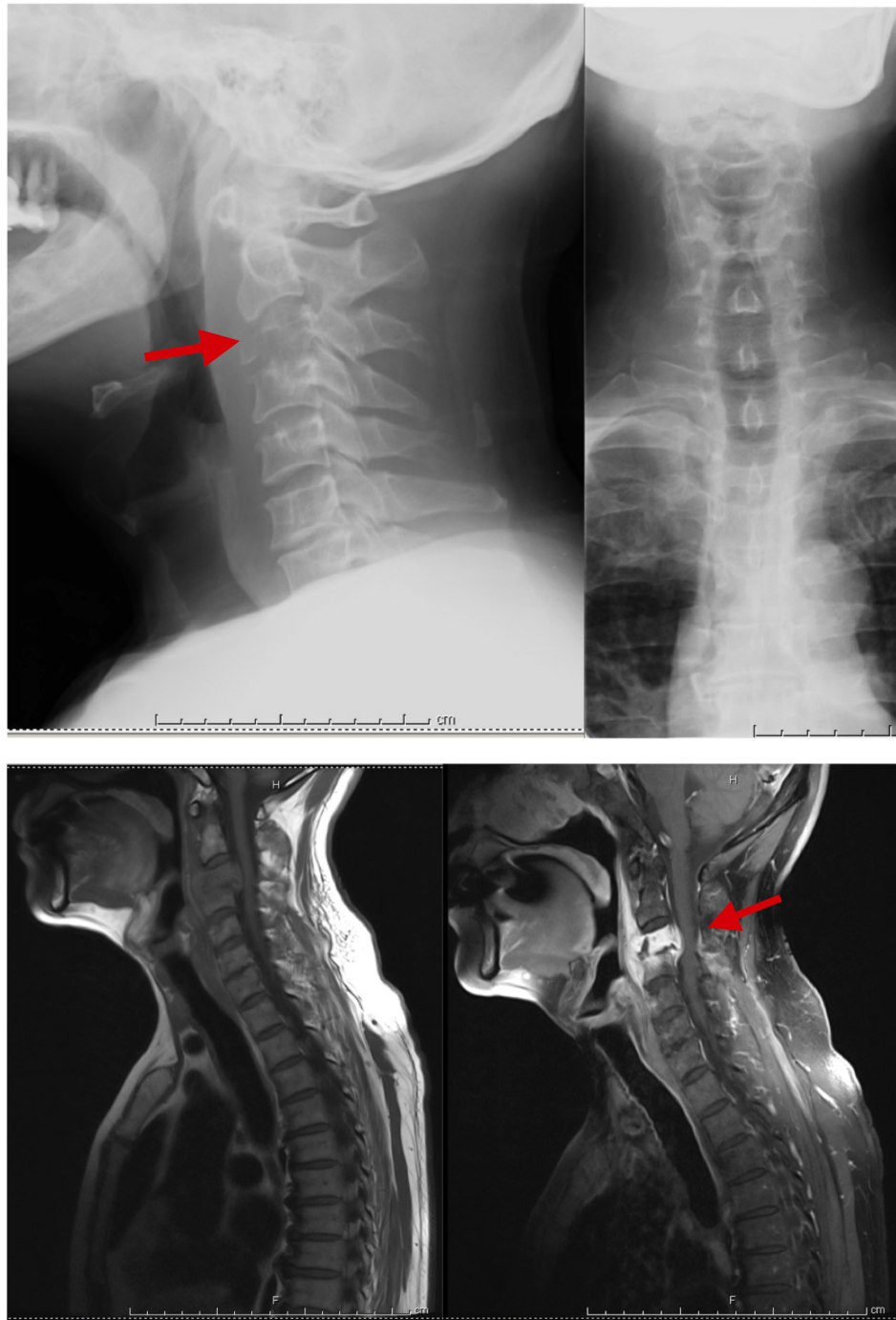


Fig. (1). Cervical spine imaging. Lytic lesion of the vertebral body of C3 (arrow, upper panel) associated with spinal cord compression (arrow, lower panel).

brain were normal. A bone scan was performed and did not show any abnormal skeletal accumulation of the radioactive tracer. Additional investigations such as bronchoscopy and the nodule biopsy were considered at high risk because of the cervical spine disease and the unfavourable position of the lesion within the lung. The patient was transferred to the Neurosurgery Department and underwent extended curettage of C3 and vertebral body reconstruction.

Macroscopically, the pathological bone tissue appeared as grey, amorphous material. Intraoperative histological examination of the lesion was suggestive of an inflammatory

process, without evidence of neoplastic tissue. Additional histological and immunocytochemical analyses of the bone biopsy showed extensive infiltration of lymphocytes, histiocytes and granulocytes, with rare granulomas surrounded by giant cells and sparse necrotic area. A Ziehl-Nielsen stain was negative. In light of the biopsy findings we considered TB as an alternative diagnosis. Both QuantiFERON-TB Gold test and the search for acid-fast bacilli in the gastric juice turned out positive. On this basis, the patient was immediately treated with a four-drug regimen (Isoniazid, Rifampicin, Pyrazinamide and Ethambutol). The



Fig. (2). CT-scan of the thorax. Lung nodule with spiculated borders in the apical region of the right upper lobe (arrow).

antitubercular treatment was continued for six months and was well tolerated by the patient. The radiological follow-up showed a significant regression of the lung lesion. After surgery as well as following the treatment period the patient did not develop neurological deficits.

DISCUSSION

Cervical localization of Pott's disease is a rare clinical condition, and epidemiological investigations showed that less than 1% of extrapulmonary TB affects the cervical region [5]. This low prevalence partly justifies the diagnostic delay of the disease, that commonly ranges from 3 to 12 months after the clinical onset [6]. Moreover, awareness of Pott's disease has progressively declined in the last few years. This reduction can be attributed to the wrong conviction that spinal TB has been eradicated from Western countries [7], while global epidemiological findings highlighted an increase in TB infections of the spine because of aging population and increased prevalence of HIV infection and other immunosuppressive conditions [8]. Misdiagnosis of Pott's disease, which may occur in up to 41% of cases, is often associated with the onset of neurological disorders or TB dissemination which leads to a possible fatal outcome [9]. Delayed diagnosis can have additional negative impact due to the increased risk of nosocomial TB transmission and health care workers exposure to the infection. Clinical factors that should drive the initial suspicion of spinal TB include: history of TB, enlarged hilar lymph nodes, symptoms and signs of spinal cord or cauda equina compression, low-grade fever, chills, weight loss, and ethnic origin, including South-East Asian or native Indian [10].

In our patient most of these clinical data were lacking. Moreover, although the lysis of the vertebral body is often observed in Pott's disease, the lesion does not usually extend to the posterior elements, which are mainly involved during pyogenic infections and metastatic cancer [11]. A nonsurgical, conservative approach in the treatment of Pott's disease is commonly used among patients without neurological signs, whereas in case of spinal cord compression, the combination of radical surgery with

antibacterial therapy produce the most favourable outcome [12].

CONCLUSIONS

Atypical forms of spinal TB, such as cervical localization, can be misdiagnosed as primary or metastatic cancer and lead to fatal delay in treatment initiation. The presence of these forms should be suspected mainly among subjects prone to TB infection, such as migrants from high-prevalence geographic areas and immunocompromised patients. Awareness of this unusual TB presentation is important to prevent mortality and morbidity associated with spinal cord damage and disease dissemination.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

REFERENCES

- [1] Italiana MdS. Epidemiologia TBC dal 1950 al 2005.
- [2] Achkar JM, Sherpa T, Cohen HW, Holzman RS. Differences in clinical presentation among persons with pulmonary tuberculosis: a comparison of documented and undocumented foreign-born versus US-born persons. *Clin Infect Dis* 2008; 47(10): 1277-83.
- [3] Naim Ur R, El-Bakry A, Jamjoom A, Jamjoom ZA, Kolawole TM. Atypical forms of spinal tuberculosis: case report and review of the literature. *Surg Neurol* 1999; 51(6): 602-7.
- [4] Turgut M. Spinal tuberculosis (Pott's disease): its clinical presentation, surgical management, and outcome. A survey study on 694 patients. *Neurosurg Rev* 2001; 24(1): 8-13.
- [5] Slater RR Jr, Beale RW, Bullitt E. Pott's disease of the cervical spine. *S Med J* 1991; 84(4): 521-3.
- [6] Hsu LC, Leong JC. Tuberculosis of the lower cervical spine (C2 to C7). A report on 40 cases. *J Bone Joint Surg Br* 1984; 66(1): 1-5.
- [7] Greenaway C, Menzies D, Fanning A, Grewal R, Yuan L, FitzGerald JM. Delay in diagnosis among hospitalized patients with active tuberculosis--predictors and outcomes. *Am J Respir Crit Care Med* 2002; 165(7): 927-33.
- [8] Dolin PJ, Raviglione MC, Kochi A. Global tuberculosis incidence and mortality during 1990-2000. *Bull World Health Organ* 1994; 72(2): 213-20.
- [9] Ringshausen FC, Tannapfel A, Nicolas V, et al. A fatal case of spinal tuberculosis mistaken for metastatic lung cancer: recalling ancient Pott's disease. *Ann Clin Microbiol Antimicrob* 2009; 8: 32.

- [10] Pertuiset E, Beaudreuil J, Liote F, *et al.* Spinal tuberculosis in adults. A study of 103 cases in a developed country, 1980-1994. *Medicine (Baltimore)* 1999; 78(5): 309-20.
- [11] Dowd CF, Sartoris DJ, Haghghi P, Resnick D. Case report 344. Tuberculous spondylitis resulting in atlanto-axial dislocation. *Skeletal Radiol* 1986; 15(1): 65-8.
- [12] Park DW, Sohn JW, Kim EH, *et al.* Outcome and management of spinal tuberculosis according to the severity of disease: a retrospective study of 137 adult patients at Korean teaching hospitals. *Spine (Phila Pa 1976)* 2007; 32(4): E130-5.

Received: March 11, 2013

Revised: March 13, 2013

Accepted: April 1, 2013

© Buso *et al.*; Licensee *Bentham Open*.

This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.