

MISTAKES IN THE DIAGNOSIS AND TREATMENT OF TUBERCULOUS SPONDYLITIS. A CASE STUDY

MÜLLER I.

Department of Orthopaedic Surgery, Bohunice Teaching Hospital, Faculty of Medicine, Masaryk University, Brno

Abstract

A record of 2-year medical care in a 72-year-old men who developed tuberculous spondylitis shows that incomplete examination, failure to use the most modern diagnostic facilities, wrong interpretation of diagnostic findings and inconsistent therapy can prolong the treatment of tuberculosis and cause the patient unnecessary physical and psychological trauma.

Key words

tuberculous spondylitis, mistakes in diagnosis and treatment, radical surgery

Abbreviations:

CT – computed tomography, MRI – magnetic resonance imaging, CPMG – contrast perimyelography, ELISA – enzyme-linked immunosorbent assay, PCR – polymerase chain reaction, TB – tuberculosis

INTRODUCTION

Osteoarticular tuberculosis has been both a historical and a current problem. It was found in archaeological materials dating back to the Stone Age period and the historical culture of Peruvian Indians (3). In the modern era, *Sir Percival Pott* (1779) described tuberculous spondylitis with a triad of signs, i.e., gibbus, abscess and paralysis (3,6). The results of Koch's discoveries and the use of conservative therapy improved the chances of survival for patients with tuberculosis (3). However, almost complete eradication of this disease in developed countries was not possible until streptomycin and other anti-TB drugs and radical surgical treatment have been introduced. In the former Czechoslovakia, 14% of all forms of tuberculosis were osteoarticular tuberculosis in 1957 (3) and only 1% in 1988 (6); in the Czech Republic, its incidence rose to 6% in 1991 (6). Tuberculosis of the spine accounts for about 30% of all locomotor system conditions caused by *Mycobacterium tuberculosis*.

At present, the therapy of tuberculous spondylitis is, first of all, based on complete diagnosis which includes the patient's medical history, epidemiological investigation, clinical and neurological examinations, modern imaging methods (X-ray, CT, MRI, CPMG and ultrasound), laboratory tests (inflammation screening,

cultivation for *Mycobacterium tuberculosis* micro-organisms and their detection by ELISA, PCR and Bactec methods; 6), transpedicular biopsy of the affected vertebra, Mantoux II test, etc. The treatment itself is based on long-term administration of anti-TB drugs combined with immobilisation in a corset. Currently, when neurological symptoms are present, surgical decompression of nerve structures is carried out immediately, the infectious lesion is removed and the spine is reconstructed and stabilised before a corset is applied and rehabilitation started. This approach used in our country is in agreement with world-wide trends (2,4,5,8,12). Certain problems with resistance to anti-TB drugs can be expected in immunodeficient patients (1,7). In order to specify the diagnosis in some ambiguous cases, a clinical trial with the use of selected anti-TB drugs, i.e., therapeutic trial, can be carried out (9, 11).

It is unfortunate that, at present, tuberculosis of bones and joints is not usually taken into account when making diagnosis in persons who are at risk (e.g., immunodeficient persons, drug abusers, old people, foreigners coming from developing countries, etc.; 10). X-ray views of the lungs and spine or CT findings of the spine are not correctly interpreted, culture for tubercle bacilli is not attempted, bone biopsy of the affected part of the skeleton is not carried out, the tuberculin test, systemic scintigraphy and clinical therapeutic trials are not utilised. Neurological disturbance is underestimated and patients in whom plegia has already developed are sent for surgical treatment too late. An example of such a faulty diagnostic procedure is described below.

CASE REPORT

A 72-year-old pensioner working as a waiter, with a history of fracture in the thoracolumbar region, suffered from purulent furuncles on his back. In the autumn of 1995, he developed a fever, with temperature up to 39°C, shivering and general asthenia, but complained of no pain. In February 1996 he was referred to the general medicine ward of a municipal hospital. He underwent an overall medical examination and *Staphylococcus aureus* was cultured from his blood. He was treated with the antibiotic Oxacilin but the source of infection was not found. In April 1995 he experienced backache and a persistent light fever. Radiological examination of the thoracic and lumbar spine and CT of the lower thoracic spine revealed spondylitis in the T8 -T10 region. The patient was referred to the Department of Orthopaedic Surgery of the Faculty of Medicine where antibiotic therapy with Cephalosporin and Gentamicin was administered. Although biopsy was proposed, it was not performed, which was the first mistake. However, his condition improved, particularly when Jewett's corset was applied. In July 1999, his backache returned, CT findings deteriorated and the Mantoux II test was found positive. A lung specialist recommended anti-TB treatment for suspected tuberculosis. The patient was sent to the Jevíčko Sanatorium. On admission a second mistake was made - neither his laryngeal swabs nor his urine were cultured for tubercle bacilli. Only later during his stay in the sanatorium was his urine examined and *Mycobacterium tuberculosis* cultured.

In August 1996 the diagnosis of tuberculosis, which included hydronephrosis and a positive finding in the left upper pulmonary field, was confirmed by ELISA. He was treated with a combination of four anti-TB drugs and, subsequently, his subjective condition improved. In October 1996 the patient experienced back pain at a sudden motion and decreased sensitivity of the lower extremities, which developed into paraplegia. After an MRI examination revealed positive findings in the region of T8 - T10 (compression of the dural sack), the patient was immediately

transferred to the Department of Orthopaedic Surgery and decompression surgery according to Capener was performed. For his postoperative treatment he was transferred to the intensive care unit at the Department of Infectious Diseases. The patient suffering from paresis of the lower extremities was immobilised in a corset and received anti-TB drugs. This therapy was continued in the Jevíčko Sanatorium. In November 1996, the patient's condition was markedly improved, he could walk and a radiological examination showed first signs of healing spondylitis.

In November 1997 the patient was able to walk wearing Jewett's corset without difficulties and took no medication. He was followed up by a pulmonary disease centre. X-rays showed the spine healed between T8 and T10 with a kyphosis of 20°, as classified according to Cobb. Mild weakness of the lower limbs, however, persisted. In November 1998, the patient's condition was unchanged, but he was treated for tuberculous urological problems. In May 1999, he resumed his work as waiter with no problems. A lateral X-ray tomogram showed that spondylitis healed with a solid bone block of T8-10. The patient will continue to be checked up regularly.

DISCUSSION

The course of treatment in the patient described in this report shows several mistakes which resulted in that the diagnosis of tuberculous spondylitis was made very late. This can apparently happen in other developed countries, too (4). Because an occurrence of tuberculosis is generally not taken into account, the lung roentgenogram was underestimated and urine and laryngeal swabs were not cultured for the presence of *Mycobacterium tuberculosis*, the X-ray and CT findings were incorrectly interpreted and no modern laboratory tests were used, not even the clinical trial. Another serious omission was that the dynamics and manifestation of his disease which were typical of TB passed unnoticed. All these failures caused unnecessary psychical stress to the patient and delayed the causal treatment. The current achievements of spine surgery have permitted radical decompression, reconstruction and stabilisation of the spine even in conditions without neurological involvement (4,8,12).

The case reported here showed the complexity of diagnostic procedures necessary to reveal tuberculous spondylitis and the importance of clinical vigilance against the increasing incidence of bone and joint tuberculosis in our country. In patients with backache, tuberculous spondylitis should be suspected and thorough anamnestic, epidemiological, clinical and laboratory examinations be carried out and appropriate treatment introduced. Present-day surgical methods can remove inflammatory lesions, loosen nerve structures and reconstruct the spine for its important tasks in the organism.

Müller I.

OMYLY V DIAGNOSTICE A LÉČENÍ TUBERKULÓZNÍ SPONDYLITIDY

S o u h r n

Práce popisuje kazuistiku u 72 letého muže, který onemocněl tuberkulózní spondylitidou, a poukazuje na omyly a nedostatky v diagnostice a léčení, které prodloužily průběh onemocnění na dva roky a způsobily pacientovi zbytečné fyzické a psychické trauma.

REFERENCES

1. *Hoppe, V, Polívka D.* Tuberkulóza pohybového ústrojí /Tuberculosis of the Locomotor System/. Praha SZN, 1968: 124 pp.
2. *Křepela K.* Tuberkulóza dětí a dorostu /Tuberculosis in Children and Adolescents/. Praha: Maxdorf Jessenius, 1995: 223 pp.
3. *Meurer A, Eysel P et al.* Ergebnisse der operativen Behandlung der Spondylitis tuberculosa. *Z. Orthop* 1995; 133:227-238.
4. *Poljak V, Horáček J.* Febrilní stavy neobvyklého původu /Febrile conditions of unusual origin/. *Prakt Lék (Praha)* 1992; 72:217-218.
5. *Vlach O, Cienciala J.* Tbc postižení horní krční páteře /Tuberculosis of the upper cervical spine/. *Acta Chir Orthop Traumatol Cech* 1990; 57:318-321.