

© B. Palmieri, 2004.

H.A.-L.Mousa, MB ChB, MSc

CONCOMITANT SPINE INFECTION WITH MYCOBACTERIUM TUBERCULOSIS AND PYOGENIC BACTERIA

*Basrah University Teaching Hospital
Basrah, Iraq*

INTRODUCTION

Each year, 3.8 million new cases of tuberculosis are reported in the world, with the vast majority being in the developing world [1]. Tuberculosis occurred in prehistoric times and appears to be increasing throughout the world today after years of continual decline, despite the introduction of effective chemotherapy [2-6]. This resurgence is related to the increasing number of patients immunocompromised by chemotherapeutic agents used to treat other diseases or by AIDS, the emergence of multiple drug-resistant strains of tuberculosis, and various socioeconomic factors [5,6]. Tuberculosis of the spine or Pott's disease occurs in less than 1% of patients with tuberculosis when *Mycobacterium tuberculosis* in the bloodstream and lymphatics enters into the anterior portion of the vertebral body [5,7]. Tuberculosis of the cervical region is less common but the most dangerous form of skeletal tuberculosis, and the risk of quadriplegia and death is great [8]. A clear distinction between tuberculous and pyogenic spondylitis by means of histology and by culture growth was only found in 62.2% of cases [9].

This article describes an extremely rare case of spine infection with both *Mycobacterium tuberculosis* and pyogenic bacteria concurrently.

MATERIALS AND METHODS

Syringe-aspirated material was used for direct microscopical examination of smear stained by Gram's and Ziehl-Neelsen stains. These were used for detection of pyogenic bacteria and acid fast bacilli respectively. In addition, routine aerobic, anaerobic, mycobacterial and fungal cultures were performed. These cultures were done without concern of the previous bacteriological result or the provisional diagnosis. Two bottles of Lowenstein-Jensen medium were used for isolation of mycobacteria. Conventional culture media were employed for isolation of pyogenic bacteria.

Search for associated bone infection with tuberculosis and pyogenic bacteria concurrently was

made by MEDLINE data which dated from 1960 to October 2001 using the following medical subject headings: (1) bone tuberculosis and pyogenic bacteria and (2) spine tuberculosis. This search revealed no such cases were previously reported.

CASE REPORT

A 52-year-old man presented with left sided gluteal swelling for 20 days duration. The swelling enlarged gradually. The condition associated with backache and fever. The patient had past history of gluteal swelling on the same side where an operation was done before 12 years. He had poor socioeconomic status. There was no past history of pulmonary tuberculosis. On clinical examination, there was a fluctuating mass on left side gluteal region. The size of mass was 10 X 15 cm. There were no signs of neurological deficit. There was no discharging sinus. The temperature was 38.5 oC when it was measured just before surgical operation. Laboratory investigations revealed ESR 75 mm/hr and Hb 12.4 g%. Plain lumbar spine X-Ray showed calcification of left psoas region. The patient was given ampiclox (ampicillin 250 mg + cloxacillin 250 mg) I.V. four times daily, Ibuprofen 400 mg T.I.D. and paracetamol 1000 mg T.I.D. The patient underwent surgical operation under general anaesthesia to evacuate the abscess in the gluteal region. After making an incision, a huge amount of purulent material was poured out where it was aspirated by syringe from a deep site. All infected and necrotic material was removed. No surgical interference was required to the infected spines because there was no vertebral collapse or extensive osteolytic lesion. The material was inoculated on aerobic, anaerobic, mycobacterial and fungal culture media. Direct Gram's stain smear revealed gram positive cocci. Whereas direct Ziehl-Neelsen stain revealed acid fast bacilli. Aerobic culture showed heavy mixed growth of *Nocardia asteroides* and *Moraxella catarrhalis*. The two bottles of Lowenstein-Jensen medium yielded growth of *Mycobacterium tuberculosis*. After es-

establishment of spine tuberculosis, the patient was placed on anti-TB chemotherapy with isoniazid (300 mg/day), rifampin (600 mg/day) and streptomycin (750 mg/day) for two months. This was followed by seven months of isoniazid and rifampin. The patient's condition improved afterward.

DISCUSSION

Aerobic, anaerobic, mycobacterial and fungal cultures; and direct Gram's and Ziehl-Neelsen stains, were made routinely as a part of study involving all types of osteomyelitis. This was performed without regard to the previous bacteriological culture. Therefore, the investigation is not guided by the provisional diagnosis of the case. However, mycobacterial culture or direct Ziehl-Neelsen stain might not be done as a routine test in this case especially when there was positive results of pyogenic bacteria on culture and direct smear. These pyogenic bacteria were isolated before operation when a specimen was collected by needle aspiration. This misleading culture result would lead to exclusion of tuberculosis. There was no discharging sinus, so these pyogenic bacteria cannot be regarded as contaminants. Therefore, identification of pyogenic bacteria on routine culture or direct smear does not exclude the possibility of tuberculosis. On the contrary, tuberculosis is to be strongly suspected if direct gram staining shows neutrophils or pus cells without pyogenic bacteria or when aerobic and anaerobic cultures do not yield growth of any pyogenic bacteria [10]. However, these two isolated pyogenic bacteria in the present case are of low virulence. They may affect immunocompromised patients [11,12] as happened in this case of chronic tuberculosis. They might be settled in devitalized tissue as a result of chronic tuberculosis that could be transmitted by bloodstream from the respiratory tract.

CONCLUSION:

Isolation of pyogenic bacteria by pre-operative

syringe aspiration from an abscess may guide the clinician to disregard the possibility of spine tuberculosis. It is recommended, therefore, to make mycobacterial culture and histopathological examination for all suspicious cases even when there is positive culture of pyogenic bacteria.

REFERENCES

1. Centers for Disease Control and Prevention. Reported tuberculosis in the United States, 1995. Atlanta: Centers for Disease Control and Prevention, 1996: 5-7.
2. Nussbaum ES, Rockswold GL, Bergman TA, et al. Spinal tuberculosis: a diagnostic and management challenge. *J Neurosurg* 1995;83:243-7.
3. Ogle JW, Wilson FGC, McConnachie CCP. Angular kyphosis as an indicator of the prevalence of Pott's disease in Tanskei S Afr Med J 1994;84:614-18.
4. Rajasekaran S, Shanmugasundaram TK, Parahakar R, et al. Tuberculous lesions of the lumbosacral region. A 15-year follow-up patients treated by ambulant chemotherapy. *Spine* 1998;23:1163-7.
5. Rezai AR, Lee M, Cooper PR, et al. Modern management of spinal tuberculosis. *Neurosurgery* 1995;36:87-98.
6. Slater RR, Beale RW, Bullitt E. Pott's disease of the cervical spine. *South Med J* 1991;84:521-3.
7. Hsu LCS, Leong JCY. Tuberculosis of the lower cervical spine (C2 to C7). *J Bone Joint Surg (Br)* 1984; 66:1-5.
8. Meghji S, White PA, Nair SP, et al. Mycobacterium tuberculosis chaperonin 10 stimulates bone resorption: a potential contributory factor in Pott's disease. *J Exp Med* 1997;186:1241-6.
9. Buchelt M, Lack W, Kutschera HP, et al. Comparison of tuberculous and pyogenic spondylitis. An analysis of 122 cases. *Clin Orthop* 1993, (296):192-9.
10. Mousa HA. Tuberculosis of bones and joints: diagnostic approaches. *Int Orthop* 1998; 22:245-6.
11. Finegold SM, Baron EJ (Eds). In "Baily and Scott's Diagnostic Microbiology". 8th Edition. Pa: Mosby, St Louis, 1990.
12. Jawetz E, Melnick JL, Adelberg EA (Eds). In "Jawetz, Melnick and Adelberg's Medical Microbiology". 19th Edition. Pa: Appleton and Lange, USA, 1991.

Author:

Dr. Haider Abdul-Lateef Mousa, MB ChB, MSc, Lecturer - Basrah University Teaching Hospital, Basrah, Iraq
PO Box 601, 42001, Ashar, Basrah, Iraq.
E-Mail: haideramoussa@hotmail.com