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Pott,s Disease: One of the Most Common Manifestation of Extrapulmonary Tuberculosis in the Southeast of Iran

[1]Batool Sharifi-Mood, [1]Malihe Metanat and [2]Mina Parsi

In order to determine the prevalence of spinal tuberculosis in Zahedan region, this study was conducted. In this cross-sectional and retrospective study, in a time period of ten years, from Feb 1996 to Dec 2005, in Zahedan (Southeast of Iran), all patients who were treated for spinal TB in the medical and orthopaedic wards in Zahedan University Hospitals and Zahedan Tuberculosis Center were evaluated. After recording the demographic data, the clinical notes, radiographs and hematology results of the patients were evaluated and then analysed. One hundred eighteen patients were seen, 82 males and 36 females, age range 4-73 years (mean 29.2±23.7 years). One hundred seven patients had complete clinical data in their case notes. Twenty eight patients had paraplegia and eighty six had concomitant pulmonary TB, more old tuberculosis. The thoracic spine was the commonest site of involvement. Two thirds (78 patients) had positive mantoux test. All patients had chemotherapy and only six cases was lost to follow up within three months because they had been expired. Only four patients had surgical intervention. Upon our results, spinal TB is still a common disease in Southeast of Iran with significant complication. There is need for patient health education, contact tracing, provision of free hospitalization and a general improvement in the economy to reduce the prevalence of spinal TB in the country.

Key words: Pott,s disease, extrapulmonary tuberculosis, prevalence, Iran

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For further information about this article or if you need reprints, please contact:

Batool Sharifi-Mood
Boo-Ali Hospital,
Zahedan, Iran

Tel: 0098 /541/ 3229811
Fax: 0098 /541/ 3229197

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[1]Department of Infectious Diseases, Boo-Ali Hospital,
Zahedan University of Medical Sciences, Zahedan, Iran
[2]Zahedan Tuberculosis Center, Iran

INTRODUCTION

Tuberculous spondylitis has been documented in ancient mummies from Egypt and Peru and is one of the oldest demonstrated diseases of humankind. Percival Pott presented the classic description of spinal tuberculosis in 1779 (Hidalgo and Alangaden, 2004; Pott, 2002). Since the advent of antituberculous drugs and improved public health measures, spinal tuberculosis has become rare in industrialized countries, although it is still a significant cause of disease in developing countries so Iran (Rezai *et al*., 1998). Tuberculous involvement of the spine has the potential for serious morbidity, including permanent neurologic deficits and severe deformity (Watts and Lifeso, 1996). Medical treatment or combined medical and surgical strategies can control the disease in most patients. Approximately 1-2% of total tuberculosis cases are attributable to Pott disease (Colmenero *et al*., 2004). Tuberculous spondylitis is the most common manifestation of musculoskeletal tuberculosis (40-50% of cases) (Hidalgo and Alangaden, 2004). Iran, especially Southeast of Iran is an endemic area for tuberculosis. The annual incidence rate for all kinds of tuberculosis disease and smear positive pulmonary tuberculosis is 71 and 40 in 100.000 population, respectively (Moghtaderi and Naini, 2003). Several studies have been conducted about the prevalence of extrapulmonary tuberculosis in developed and underdeveloping countries (Almesdia, 2005; Lifeso *et al*., 1985; Pertuiset, *et al*., 1999; Colmenero *et al*., 2004; Dursun *et al*., 2003; Fica *et al*., 2003) and the results are different according to area but there was no any report about epidemiology of the pott,s disease in this region. Therefore, we decided to determine the prevalence of this form of tuberculosis and then to analyse clinical notes, radiographs and haematology results in the patients.

MATERIALS AND METHODS

This study was a cross-sectional and retrospective study. We evaluated all patients who were treated for spinal tuberculosis in a time period of ten years from Feb 1996 to June 2005, in Zahedan Tuberculosis Center and Medical and Orthopaedic Wards of University Hospitals in Zahedan. First we determined all cases with extrapulmonary tuberculosis, then musculoskeletal TB and then evaluated patients with pott,s disease. After recording the demographic data, the clinical notes, radiographs and haematology results of the patients evaluated and then analysed.

RESULTS AND DISCUSSION

During ten years 122 patients were treated for skeletal tuberculosis. Only four cases had arthritis. One hundred eighteen patients (82 males and 36 females) with age range 4-73 years (mean 29.2±23.7 years) had pott,s disease (Table 1). One hundred seven patients had complete clinical data in their case notes. Low back pain was the commonest clinical complaint (90%). Fever and weight loss was seen in 71% of cases. Twenty eight patients had paraplegia (Table 2). The thoracic spine was the commonest site of involvement(Table 3). Eighty six had concomitant pulmonary TB, more old tuberculosis. Two thirds (78 patients) had a positive mantoux test more than 10 mm. Seventy two cases had a sedimentation rate(ESR) more than 70 mm h^{-1} and among these patients, 23 cases had ESR more than 100. Anemia (HT = or < 31%) was seen in 97% of our patients. The whole diagnosis of spinal tuberculosis was made by radiographically-MRI and CT scan.

Present result showed that among 1030 patient with extrapulmonary TB during ten years, 11.4% of patients had pott,s disease. After tuberculous lymphadenitis (31%)and pleural tuberculosis (11.6%), pott,s disease (11.4%) was the commonest forms of extrapulmonary TB. Skeletal tuberculosis remains a potentially disease in the developing world, particularly as it usually affects children and young adults (Fitzgerald and Hass, 2005). Pott,s disease is usually secondary to an extraspinal source of infection. The basic lesion is a combination of osteomyelitis and arthritis. Typically, more than one vertebra is involved (Hidalgo and Alangaden, 2004). The area usually affected is the anterior aspect of the vertebral body adjacent to the subchondral plate. In adults, disk disease is secondary to the spread of infection from the vertebral body (Moon, 1997; Pertuiset *et al*., 1999). In children, because the disk is vascularized, it can be a primary site (Hidalgo and Alangaden, 2004). The condition most commonly involves the thoracic and lumbosacral spine. Lower thoracic vertebrae account for the most common area of involvement (40-50%), with the lumbar spine in a close second place (35-45%). Approximately 10% of cases involve the cervical spine (Hidalgo and Alangaden, 2004). In our study, as reference book ,thoracic spine especially lower thoracic vertebrae were the commonest site of involvement. Also as reference book, fever and weight loss were very common (Fitzgerald and Hass, 2005). Pott,s disease is the most dangerous form of musculoskeletal tuberculosis because

Table 1: Frequency of pott,s disease according sex and date

Sex	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Male	9	12	5	9	9	5	8	7	11	7
Female	4	6	4	3	2	3	2	5	3	4
Total	13	18	9	12	11	8	10	12	14	11

Table 2: Frequency of signs and symptoms in the patients with pott,s disease

Sign and symptom	No.	%
Low back pain	107	90
Fever	83	71
Fatigue	68	57.6
Weight loss	83	71
Paraplegia	22	18.4
cough	36	30.5

Table 3: Frequency of pott,s disease according to the site of involvement

Site	No.	%
Thoracic	69	50.8
Lumber	45	45.9
Cervical	4	3.3

it can cause bone destruction, deformity, and paraplegia. Presence of complications such as neurologic deficits, abscesses, or sinus tracts (Almesdia, 2005). In Fica study, among 25 cases with spondylodiscitis nine cases had tuberculosis (Fica *et al*., 2003). In present study, 28 patients had paraplegia and discitis had been shown by MRI in 52% of patients. Cold abscess in the paravertebral was seen in 15% of cases but in Colmenero study among 78 patients with pott,s disease 73.1% of cases had paravertebral abscess (Colmenero *et al*., 2004). The reported average duration of symptoms at the time of diagnosis is 3-4 months. Back pain is the earliest and most common symptom. Patients have usually back pain for weeks prior to presentation. Pain can be spinal or radicular (Hidalgo and Alangaden, 2004). In Dursun study, as our study, pain was the major complaint (Dursun *et al*., 2003). Pain also, can include spinal cord compression with paraplegia, paresis, impaired sensation, nerve root pain, or cauda equine syndrome. Although, neurologic abnormalities can occurs in 50% of cases (Fitzgerald and Hass, 2005; Hidalgo and Alangaden, 2004) but among our patients, 18.4% cases had paraplegia. Diagnosis can be confirmed by the bacteriologic and histological studies from samples removed by punction biopsy (Almesdia, 2005). Imaging test including CT and MRI is also necessary for diagnosis and MRI is the modality of choice in evaluating early marrow involvement and soft tissue extension of the lesion (Sharif *et al*., 1995; Teo and Peh, 2004; Ridley *et al*., 1998; Moorthy and Prabhu, 2002). In this study, There was no any culture in record notes because punction biopsy had not been done by physicians and diagnosis was made by clinical signs, symptoms and almost, the whole diagnosis of spinal tuberculosis was made by radiographically-MRI and CT scan.

CONCLUSIONS

With regards to our results, pott,s disease is one of the commonest form of extrapulmonary TB in this region and in every patients with low back pain especially in endemic areas, every time, there is a history of contact with tuberculosis case, diagnosis of TB spondylitis must be in mind. Also, there is need for patient health education, contact tracing, provision of free hospitalization and a general improvement in the economy to reduce the prevalence of spinal TB in the country.

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