

ORIGINAL RESEARCH

Analysis of Prevalence of Coexisting Active Pulmonary Tuberculosis in Tuberculous Spondylitis Patients: An Institutional Based Study

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ABSTRACT

Background: The present study was conducted for evaluating the prevalence of Coexisting active pulmonary tuberculosis in tuberculous spondylitis patients.

Materials & Methods: A total of 50 known cases of tuberculous spondylitis were included in the present study. Complete demographic and clinical details of all the patients was obtained. Only those patients were involved among which histological or microbiologically confirmed diagnosis of TB spondylitis among surgically confirmed TB spondylitis was present. Complete past medical history of all the patients was reviewed. Analysis of spine CT scans and magnetic resonance (MR) images was done for each affected level and reviewed chest plain radiographs and CTs to evaluate lung involvement in TB. All the results were recorded and were subjected to statistical analysis using SPSS software.

Results: A total of 50 patient with mean age of 52.3 years were analysed. Overall incidence of co-existing active pulmonary TB among tuberculous spondylitis patients was 36 percent.

Conclusion: Since higher chances of coexisting active pulmonary tuberculosis in TB spondylitis patient can be easily overlooked, there is a chance of the possibility of nosocomial infection of TB.

Key words: Spondylitis, Tuberculosis, Pulmonary.

INTRODUCTION

Tuberculosis (TB), as a disease has been known since ancient times. Recently the disease has shown a significant resurgence in developed nations, particularly among the immunosuppressed population secondary to a "global migration phenomenon." This has posed a stiff challenge to the global community. There has been an ominous, increasing trend in the occurrence of multidrug-resistant bacterial strains of tuberculosis in the developing nations over the past decades. For these reasons, the disease continues to exist as a major, global public health menace to date.¹⁻³

Spinal tuberculosis is uncommon in the western world. Most of the patients with spinal tuberculosis in developed countries are immigrants from countries where tuberculosis is endemic. Multi-level noncontiguous spinal tuberculosis is an atypical form of spinal tuberculosis that affects two noncontiguous vertebrae without destruction of the adjacent

vertebral bodies and intervertebral disks.^{4, 5} Plain radiographs have no role in early diagnosis of spinal TB. Disc space narrowing and rarefaction of vertebral end plates can be identified as the disease progresses and further destruction leading to kyphosis and instability can be made out only in late stages. It is useful in assessing coronal and sagittal alignment. Sixty percent to 70% of spinal TB may have an active pulmonary lesion, and thus chest radiography is essential.^{6- 7} Hence; the present study was conducted for evaluating the prevalence of Coexisting active pulmonary tuberculosis in tuberculous spondylitis patients.

MATERIALS & METHODS

The present study was conducted for evaluating the prevalence of coexisting active pulmonary tuberculosis in tuberculous spondylitis patients. A total of 50 known cases of tuberculous spondylitis were included in the present study. Complete demographic and clinical details of all the patients was obtained. Only those patients were involved among which histological or microbiologically confirmed diagnosis of TB spondylitis among surgically confirmed TB spondylitis was present. Complete past medical history of all the patients was reviewed. Analysis of spine CT scans and magnetic resonance (MR) images was done for each affected level and also reviewed chest plain radiographs and CTs to evaluate lung involvement in TB. All the results were recorded and were subjected to statistical analysis using SPSS software.

RESULTS

A total of 50 patient with mean age of 52.3 years were analysed. Among them, 58 percent of the patients were females while the remaining were males. In 38 percent of the patients, L1 to L5 spine involvement was there while in 36 percent of the patients, T7 to T12 involvement was there. Overall incidence of co-existing active pulmonary TB among tuberculous spondylitis patients was 36 percent.

Table 1: Demographic and clinical details

Variable	Number	Percentage
Mean age (years)	52.3	
Males	21	42
Females	29	58

Table 2: Spine involvement

Level of spine involved	Number	Percentage
C1 to C7	3	6
T1 to T6	6	12
T7 to T12	18	36
L1 to L5	19	38
S1 to S5	4	8

Table 3: Prevalence of coexisting active pulmonary TB

Coexisting active pulmonary TB	Number	Percentage
Present	18	36
Absent	32	64

DISCUSSION

Tuberculous spondylitis, also called Pott disease, accounts for 1–5% of TB cases and represents about 50% of all bone and joint TB. Despite the successful achievement in decreasing global pulmonary TB incidence in the last decades, the proportion of

extrapulmonary tuberculosis seems to be increasing in developed countries, mainly as a consequence of higher immigration rates and human immunodeficiency virus (HIV) infection. Despite all technological advances, the diagnosis of tuberculous spondylitis remains a clinical challenge since it depends on a high grade of clinical suspicion. Notwithstanding the low reported mortality of tuberculous spondylitis, this condition is still associated with significant clinical morbidity.⁷⁻⁹ Apart from the clinical signs and symptoms, laboratory test is used to diagnose tuberculosis of spine but the imaging (radiograph, computed tomography (CT) and magnetic resonance imaging (MRI)) is the mainstay in diagnosis and management of spinal tuberculosis. Though CT is considered better for imaging of bones, but in spinal tuberculosis MRI has proved to be the modality of choice because of its multiplanar capability and inherent ability to demonstrate the soft tissue and marrow involvement better than CT.¹⁰⁻¹² Hence; the present study was conducted for evaluating the prevalence of Coexisting active pulmonary tuberculosis in tuberculous spondylitis patients.

A total of 50 patient with mean age of 52.3 years were analysed. Among them, 58 percent of the patients were females while the remaining were males. In 38 percent of the patients, L1 to L5 spine involvement was there while in 36 percent of the patients, T7 to T12 involvement was there. Overall incidence of co-existing active pulmonary TB among tuberculous spondylitis patients was 36 percent. It is known that the probability of concomitant pulmonary TB in TB spondylitis patient shows wide variation among countries. In an article of literature review by Schirmer et al, the probability of concomitant pulmonary TB in TB spondylitis patients varies from 8% to 100%. In recent large-scale studies for spinal TB, the incidences of concomitant pulmonary TB show from 14.37% to 28%. The higher rates of concomitant pulmonary TB in those studies compared to our study may be related to differences in diagnosis of 'active pulmonary TB'—clinical versus imaging assessment. In clinical practice, sputum acid-fast bacilli (AFB), culture, or TB polymerase chain reaction (PCR) are not sensitive enough for screening for active pulmonary TB.¹³⁻¹⁵

Instances of paraplegia due to Pott's spine have frequently been reported in the Indian literature because of the high prevalence of active TB in the country. A common cause of myelopathy in developing countries where TB is prevalent is Pott's disease, caused by spinal cord compression due to abscess, granulomatous tissue or bony displacement. Several authors agree that the neurologic deficiency is secondary to medullary and radicular inflammation; only exceptionally is there compression by an abscess or a tuberculoma.¹⁶

Our results were also in concordance with the results obtained by Yanardag H et al who also reported similar findings. In their study, authors reported 36 cases of spinal tuberculosis who were evaluated. Twelve cases were accompanied by active pulmonary tuberculosis while ten patients had a previous history of tuberculosis. Lytic and destructive lesions were noted in various vertebrae in all of the cases while four patients had spinal compression, and two patients had iliopsoas abscess. The preliminary diagnosis was myeloproliferative disease with vertebral metastasis in eight patients. Tuberculin test was over 15 mm in 20 patients (58.8%) while ERS and C reactive protein were highly elevated in 78%, and 84% of the patients. The low sensitivity of the tuberculin test may lead to an erroneous diagnosis. Sensitivity of vertebral radiography and CT was low.¹⁷ In another study conducted by Shit T et al, authors investigated the clinical and epidemiological features of patients with spinal TB. The study group comprised 967 patients with spinal TB. The patients included 473 women and 494 men with a mean age of 35.86±15.68 years. The most common presentation of spinal TB was back pain, followed by night sweats and fever. The thoracic spine was the most commonly involved level, followed by the lumbar spine and cervical spine. The incidence of neurological involvement in spinal TB is 33.3%. Noncontiguous spinal TB was seen in 3.41% of cases. The incidence of concomitant pulmonary TB was 14.37%.¹⁸

CONCLUSION

Since higher chances of coexisting active pulmonary tuberculosis in TB spondylitis patient can be easily overlooked, there is a chance of the possibility of nosocomial infection of TB.

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