(e) ISSN Online: 2321-9599
(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

MANAGEMENT PRACTICES FOR TREATMENT OF SPINAL TUBERCULOSIS AMONG ORTHOPAEDICIANS AND NEUROSURGEONS

Apoorva Kumar[1], Avadhesh Kumar[2]

[1]Associate Professor, Department of Surgery, Era's Lucknow Medical College, Lucknow
[2]Assistant Professor, Department of Orthopaedics, Prasad Institute of Medical Sciences, Lucknow

ABSTRACT:
Background: With regards to an indistinguishable clinical presentation, the diagnosis of spinal tuberculosis is usually deferred and the patients are treated for mechanical backache for erratic time duration. Spinal TB is usually handled by either a neurosurgeon or an orthopaedic surgeon. The present study was planned to understand the current treatment protocols of spinal tuberculosis by orthopaedicians and neurosurgeons. **Material and Methods:** A questionnaire-based study was designed that comprised of consultant orthopaedicians and neurosurgeons belonging to private hospitals and having a minimum five years of experience. The current practices in management of spinal tuberculosis regarding its clinical presentation, diagnosis and treatment were evaluated. **Results:** 54 subjects were included in the study; 25 orthopaedic surgeons and 29 neurosurgeons. Majority of the respondents (88.9%) believed that the common age for spinal tuberculosis was second and third decades of life, and 80% reported a refractory back pain as the most common clinical finding. A histopathological assistance was used by 74% participants to aid in diagnosis. More than 50 percent of the participant began anti-tuberculosis therapy empirically on the basis of clinical, laboratory and radiological findings. Around 60% participants believed that surgery does not expedite recovery. **Conclusion:** It was concluded that a specified protocol for diagnosis and treatment planning for management of spinal tuberculosis must be laid down as diversified approaches may lead to possible development of resistant strains.
Key words: Neurosurgeons, Orthopaedicians, Tuberculosis.

Corresponding Author: Dr. Apoorva Kumar, Associate Professor, Department of Surgery, Era's Lucknow Medical College, Lucknow, Uttar Pradesh, India

This article may be cited as: Kumar A, Kumar A. Management practices for treatment of spinal tuberculosis among orthopaedicians and neurosurgeons. J Adv Med Dent Scie Res 2016;4(6):5-7.

Access this article online	
Quick Response Code	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2016.4.6.2

INTRODUCTION

Spinal tuberculosis is an extrapulomonary infection commonly originating from lungs. It is more commonly referred to as Pott's disease. The associated lung infection is usually not apparent. Spinal involvement is found in less than 1% patients with tuberculosis (TB).[1] One of the most important reasons for the widespread distribution of TB is the immigration of undiagnosed cases from endemic countries to non-endemic countries.[2,3]

Extrapulmonary TB accounts for 15-20% of all cases[4] while spinal TB is responsible for 50% of all skeletal TB cases.[5] This vague clinical presentation makes the diagnosis really difficult which usually gets delayed. The patients keep on getting treated for mechanical backache for variable time duration.

Besides difficulties in diagnosis; the criteria set for the treatment regimens, drug combinations, duration, treatment end-points, drug efficacy assessment are mostly controversial subjects and the most credible causes for the upsurge of therapy resistant mycobacteria. Thus, multidrug resistant tuberculosis (MDRTB) has turned out to be one of the most important challenges in the control of TB worldwide.[6]

Spinal TB is usually taken care of by either neurosurgeons or orthopaedicians. Hence, the present study was designed to investigate this variability in the understanding and management of this disease in practice.

MATERIAL AND METHODS

A questionnaire-based survey was carried out between June 2013 and October 2015. The respondents were either consultant orthopaedicians or neurosurgeons belonging to private hospitals with minimum five years of experience after fellowship. After explaining the objective and obtaining a verbal informed consent, the participants were requested to fill-up the questionnaire and sharing their personnel experience with all. The

identity of all the participants has been kept anonymous. The questionnaire designed was mainly to understand the current practice protocols followed by the respondents regarding the clinical presentation, diagnosis and treatment of spinal TB.
Data was analysed using SPSS 18.0. Descriptive analysis was done and the results were given in percentages and frequency distributions.

RESULTS

There were 54 subjects in the study; 25 orthopaedic surgeons and 29 neurosurgeons. Majority (48 out of 54) of the respondents (88.9%) believed that the common age for spinal tuberculosis was second and third decades of life (almost none in children). More than half of the respondents (60%) found spinal TB in poor class, while 20 (37%) found it equally in all classes.
Almost 80% of the respondents reported a refractory back pain as the most common clinical finding with or without neurological deficits, and 8 (15%) described weight loss with fever and variable neurological deficits for 1 to 4 months as the major presenting clinical symptom.
Final diagnosis of spinal TB was confirmed on the basis of histopathology findings by 40 (74%) respondents, positive culture yields were assessed by 6 (11.1%) and finding TB bacilli in the smear by 2 (3.7%) respondents (Table-1).

Anti-tuberculosis therapy (ATT) was started empirically on the basis of clinical, laboratory and radiological findings by 30 (55.5%) respondents, while 14 (44.5%) opted to begin with treatment after a proven biopsy established the disease. (Table 1).
In case of spinal instability and/or neurological deficits, 35 (64.8%) surgeons were in favour of surgical intervention, while 8 (15%) chose empirical ATT for 4-6 weeks and then surgical intervention for unresponsive patients. Two (3.7%) respondents never considered surgery irrespective of the level of spinal instability.
Surgery does not expedite recovery in cases of spinal TB was the observation of 33 (61.1%) clinicians, while according to 18 (33.3%) it shortened the duration of therapy as well as quickened the recovery.
Drug efficacy was uniformly assessed by all clinicians based on clinical improvement, decrease in ESR and cessation of intervertebral disc on periodic imaging, initially at 3 to 6 months' interval and later on at the time of withdrawal of treatment.

Table 1: Frequency distribution table based on the questionnaire on spinal TB diagnosis and management

QUESTIONS	Frequency (%age)	p-Value
Qualification		
Orthopaedician	25 (46.3%)	0.34
Neurosurgeon	29 (53.7%)	
Common age for development of spinal TB		
Children (first decade)	1 (1.9%)	0.026
Adults (second and third decade)	48 (88.8%)	
Older (after third decade)	5 (9.3%)	
Socioeconomic distribution of spinal TB		
Rich	0 (0%)	0.034
Middle	2 (3.7%)	
Poor	32 (59.2%)	
Equal distribution	20 (37.1%)	
Most common clinical symptom at presentation		
Refractory back pain with/without neurological deficit	43 (79.6%)	0.014
Weight loss with fever	8 (14.8%)	
Others	3 (5.5%)	
Confirmation of final diagnosis		
Histopathology	40 (74.1%)	0.001
Positive Culture	6 (11.1%)	
TB bacilli in smear	2 (3.7%)	
Beginning of ATT		
Empirical	30 (55.5%)	0.047
After proven by biopsy	14 (44.5%)	
Surgical intervention for neurological deficit		
Yes	35 (64.8%)	0.032
After empirical therapy	8 (14.8%)	
Never	2 (3.7%)	
Does Surgery quicken recovery?		
Yes	33 (61.1%)	0.033
No	18 (33.3%)	

DISCUSSION

The main age group to be affected with spinal TB in the present study was second and third decades of life compared to developed nations where it is common in the elderly population.[7] Clinical presentation of spinal TB is different when compared to that of pulmonary TB. In spinal TB, the classical symptoms like fever, loss of appetite, weight loss, and night sweats are usually lacking.[8] Persistent severe thoracolumbar backache in an otherwise healthy patient, usually not relieved by multiple analgesics, raised the suspicion of spinal TB.

Acid-fast bacilli (AFB) smear testing and culture yields were found to be quite low in this survey, hence major surgeons relied on histopathological findings to confirm the diagnosis compared to studies where the acid-fast staining and culture are important tools of diagnosis.[9]

Majority of the surgeons in this survey started empirical ATT without any histopathological or microbiological confirmation. This approach is criticised all over the world due to emergence of uncomfortable situations during the course of treatment if worsening occurred.[8]

Accurate diagnosis is possible when the bacterium is isolated through smear or culture techniques. The present practice might result in cultivation of resistant strains due mainly to over-diagnosis and excessive usage of TB chemotherapy. Also, where finding the TB bacillus was the mainstay of final diagnosis, results in under-diagnosis of the disease and, hence, can complicate spinal TB in the form of spinal deformities or neurological deficits.

The clinical and radiological assessment was performed after 12 to 18 months of anti-TB chemotherapy to stop the treatment. Improvement in general health status with almost/no residual pain, normal ESR and cessation of bone destruction were some of the significant signs for the completion of treatment. This is in accordance with the other studies wherein this fact has been very well established.[8] Majority surgeons did not find any additional benefit of surgery on overall outcome in cases of absence of neurological deficit or spinal instability. The only benefits reported were early and pain-free mobilisation compared to chemotherapy alone. A Cochrane review of comparing the chemotherapy alone with chemotherapy plus surgery for spinal TB has concluded that there exists no statistical difference for any of the outcome measures in both the situations.[10]

The indications for surgical interventions in the present survey were clear. The patients who were found to be neurologically fit without significant deformity or instability were treated with anti- TB chemotherapy. Surgical intervention was carried out for a diagnostic biopsy, decompression of neural elements or correction of spinal deformity for stabilisation of the spine.

Surgical intervention is believed by many studies to provide a fast and quick outcome and reduction of duration of ATT.[11,12] This belief was not supported in the present survey as 60% of respondents believed that surgery would not quicken the recovery process.

It is recommend that a uniform protocol for the diagnosis and treatment planning of spinal TB should be developed and followed to maintain the effectiveness of the available first-line chemotherapy and avoid development of multi drug resistant mycobacterium. Such protocol should also prevent unnecessary delay in the diagnosis which results soon in spinal instability and neurological deterioration indicating a surgical treatment option in such cases.

CONCLUSION

The diversified approach followed by orthopaedicians and neurosurgeons for the treatment of spinal TB is an alarming sign for possible development of resistant strains and complications of spinal TB thereby necessitating surgical interventions. A uniform protocol for the diagnosis and treatment of spinal TB is hence the need of the hour.

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Source of support: Nil **Conflict of interest:** None declared