FUNCTIONAL OUTCOME AFTER DECOMPRESSION FOR DORSAL SPINE TUBERCULOSIS SURGERIES

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ABSTRACT

OBJECTIVES

This study aimed to determine the functional outcome of improvement after decompression for dorsal spine tuberculosis in terms of Frankel grading.

METHODOLOGY

This prospective study was conducted after ethical approval from the neurosurgical ward MMC/MTI through non-probability sampling. Clinical and radiological examined patients with carriers of dorsal spine tuberculosis were enrolled in the study. After surgery, they were followed for three months , and improvement was measured by comparing pre and post-op Frankel grading. Spine stability is an important factor for the success of surgery in spine tuberculosis.

RESULTS

A total of 38 patients underwent surgical procedure decompression ± fusion through a postero-lateral approach (costotransversectomy), of which 42% were male, and 58% were female. The mean age was 34±5. Distribution for age group was 18-30(08), 31-40(13), and 51-60 (06). Level of disease D4-D8 were 17(44.8%), D9-D12 were 21(55.2%).

CONCLUSION

In cases of spine tuberculosis, stabilization is safe, efficient and has positive clinical outcomes. Surgery has benefited through debridement and spine stability, among others.

KEYWORDS: *Dorsal Spine Tuberculosis, Corpectomy with Fusion, Laminectomy, Outcome Measures*

INTRODUCTION

Percival Pott was the first person to present the classic description of spinal tuberculosis (TB) in 1779; hence, spinal TB was called Pott's Disease. One of the earliest known human diseases is TB of the spine, which is the most prevalent extra-pulmonary type of the disease. Worldwide 10 million people were infected with tuberculosis, with the second number in southeast Asia prevalence.[1,2,3] The most common second type of extrapulmonary tuberculosis is spine tuberculosis.[4,5] Tuberculosis has lived in symbiosis with human beings, but as time evolved in medical sciences, the goal of treatment has changed. They were treated with pre-era antibiotics by a high protein diet, rest, and fresh air hoping for natural quiescence of disease.[6,7] In the past conservative treatments for the spine and tuberculosis included body casts and a healthy diet, but subsequently, as part of a global effort to improve care, the world health organization introduced anti-tuberculosis therapy, which transformed the lives of those who received it.[8,9,10] The thoracic spine is the most affected region; MRI has changed the era by providing better-advanced diagnosis, which has helped the treatment with conservative management, surgery, and Anti-tuberculosis therapy.[11,12,13] In poor nations with dense populations, spinal TB has a greater morbidity and fatality rate than other infections.[14,15] Although spinal TB is still a substantial source of sickness in developing nations, it has been less common in wealthier nations since the development of anti-tuberculosis medications and improved public health practices. Serious morbidities associated with spinal TB include severe deformity and ongoing neurologic impairments.[16,17]

METHODOLOGY

After receiving ethical approval, this prospective study was carried out at the neurosurgical ward of the MMC/MTI from February 2021 to March 2022 for the outcomes of surgery in such patients. Through non-probability sampling/case series study, patients who had received four months of anti-tuberculosis treatment and had been clinically and radiologically diagnosed with spine tuberculosis were enrolled in the study. Patients were eligible if they were 18 to 60 years and were of either gender. The study comprised patients

with deteriorating neurology, Para spinal abscesses, and resistance to conservative therapy. While patients who were not fit for surgery, improving with conservative management and were not willing to study/surgery were excluded. SPSS version 24 was used to analyze the results. Decompression followed by fusion using a postero-lateral approach was the major technique (costotransversectomy).

RESULT

A total of 38 patients in this study underwent a surgical procedure. The main course followed was decompression ± fusion through a postero-lateral approach (costotransverse ectomy). The total percentages obtained from the survey for males were 42% and 58% for females. The mean age of presentation was 34±5.

Table 1: Level of Disease

Level f Disease	Presented	%age
D4-D8	17	44.8%
D9-D12	21	55.2%
Performed Procedure Result		
Corpectomy+Cage Fixation	34	89.47%
Corpectomy+ Bone Graft Fixation	03	07.89%
Without fusion corpectomy	01	02.63%

Table 2: Frankel Grading

Type Of Grading	Frankle- A	Frankle-B	Frankle-C	Frankle-D	Frankle-E
Pre-Operation	05.2%	10.5%	47.3%	22%	07.8%
Post-Operation	02.6%	05.2%	23.6%	47.3%	18.4%

Table 3: Complications

Type	Presented	%age
Worsening Of Neurology	03	07.3%
Bleeding+ Csf Leak	02	05.26%
Mortality	01	02.63%

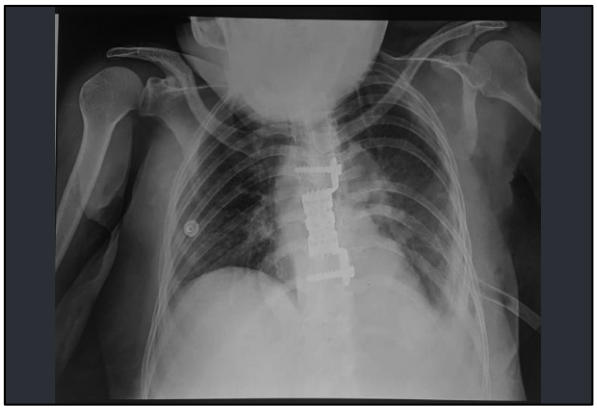

Figure 1: Post-Surgery x ray Showing Implant in TB Operated Patients

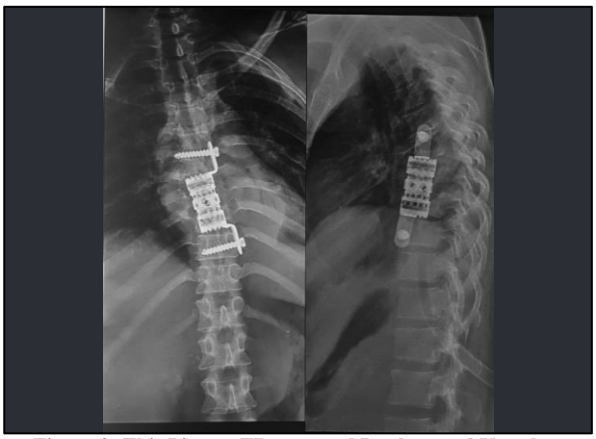

Figure 2: This Picture TB-operated Implant and Vertebra Position for its Stability and Efficacy

DISCUSSION

Carefully understanding the underlying drivers or predictors of TB outcomes is one of the crucial elements in attaining a reduction or even elimination of TB by 2030. Age, individual weight, smoking, drinking, asthma, region of residence, race, and frequent coughing were found to be substantially linked with TB. The findings of our study are comparable to and congruent with the literature that is currently accessible, which emphasizes that these characteristics are significant predictors of TB.[19,20,21,22] It has been proposed that this may be due to the elderly's weakened immune system, which increases their risk of contracting tuberculosis (TB).[23] spinal tuberculosis is considered a medical condition until the patient has a neurological deficit and surgery is required for decompression despite ongoing anti-tuberculosis therapy.[8.9,10] There are no straightforward guidelines for the diagnosis and treatment of spinal tuberculosis.[11] Studies shows that anti-tuberculosis therapy and conservative treatment has shown successful medical result in patients without surgery.[12,13] Early diagnosis and treatment are necessary to prevent permanent neurological disability and to minimize spinal deformity.[14] In our study, there were 38 patients, of which 42% were male and female 58% were with a mean age of 34±5, which were compared to the previous study.[15-16] In our study, neurologic complications were seen in three patients, less than in other studies.[17] Studies has shown results of neurological improvement in Frankel grade E or better following surgery which is similar to our result.[18-19] Complications are part of the surgery. The ratio of our study was compared to other study which was more than our result.[20] There are several surgical options, such as cold abscess drainage, focal debridement of the

tuberculous lesion, anterior fusion, costotransversectomy, anterior radical surgery, a two-stage procedure combining anterior radical surgery and anterior instrumentation, and corrective spinal osteotomy for healed rigid kyphosis.[23,24] To lessen the negative effects on the proximal and distal mobile segments, it is crucial to maintain the sick segment's normal spinal position and to realign the deformed segment. Additional guidelines and conservative treatment are required for patient outcomes to improve after neuro surgeries.

LIMITATIONS

The fact that this study employed information from a ward/hospital representative survey and that its conclusions apply to all TB patients who require surgery is its biggest strength. To lower the prevalence of the disease, we advise the Ministry of Health and the many concerned groups to increase public knowledge of the risk factors that cause TB to spread. The outcome measures employed are not laboratory-confirmed results from a doctor or a nurse, but rather self-reported data from the respondents., effective reporting is essential for TB control worldwide.

CONCLUSION

TB surgery is still the primary treatment, even with a complex spine. Spinal cord compression and discomfort have an impact on functional results. The postoperative outcome is greatly aided by the hygienic care provided in the operating room, intensive care unit and ward. All factors should be considered, and conservative management is vital.

CONFLICT OF INTEREST: None

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