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Comparison of Surgical and Conservative Treatment of Spinal Tuberculosis at a Tertiary Care Hospital in Dhaka City

Alam MS¹, Talukder MMH², Shaha AK³, Asfia KN⁴, Saha SK⁵, Islam MJ⁶

Abstract:

Background: Management of spinal tuberculosis is a very crucial task.

Objective: The purpose of the present study was to compare the outcome of surgical and conservative treatment of spinal tuberculosis patients.

Methodology: This study was designed as pragmatic randomized control trial which was carried out in the Department of Neurosurgery at Dhaka Medical College Hospital during the period of January 2004 to December 2005 for a period of two (02) years. All the patients who were presented with spinal tuberculosis at any age with both sexes were included as study population. The patients were divided into two groups which were designated as surgical group who were treated with surgical treatment and the conservative group who were treated with only anti-tubercular medications. The outcome of the treatments were recorded.

Result: A total number of 50 consecutive cases admitted during the study period with tuberculosis of the spine supported by investigations were included in this study. The mean age of the patients was 25.4 years. Among 50 patients, 30 were treated conservatively by antitubercular drugs, bed rest and nutritional support. Remaining 20 patients were treated by surgical intervention in combination with chemotherapy. Significant neurological improvement was observed 70% after conservative treatment and 95% after surgical treatment ($p < 0.05$).

Conclusion: In conclusion surgical treatment is more effective than conservation treatment of the tuberculosis of the spine.

Keywords: Spinal tuberculosis; surgical treatment; conservative treatment.

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Introduction:

Tuberculosis of the spine can be treated by conservative and surgical approach¹. It is quite apparent that every patient with neural complications

will not be cured by antitubercular drugs and rest alone, however, all patients do not need surgical decompression. An absolutely conservative approach to Pott's paraplegia is considered unjustifiable as one might be losing very valuable time². Irreparable damage of the cord may take place if the deterioration progresses to complete loss of motor and sensory functions. Opinion also varies regarding the role of surgery in tuberculous paraplegia³. A large group of surgeons performed debridement and decompression in all cases of tuberculosis of the spine irrespective of the status of neurological involvement⁴. Others perform operative decompression only in those cases who did not respond to anti-tubercular drugs and rest⁵.

It is difficult to strictly compare the results of various series treated by conservative and operative treatment as the clinical material varies from center to center. Routine employment of newer and more effective anti-tubercular drugs has also improved the outcome of non-operative and operative treatment⁶. Therefore this present study was undertaken to compare the

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improvement of surgical and conservative treatment of spinal tuberculosis patients.

Methodology:

This study was designed as pragmatic randomized control trial which was carried out in the Department of Neurosurgery at Dhaka Medical College Hospital during the period of January 2004 to December 2005 for a period of two (02) years. All patients who were admitted with the diagnosis of spinal tuberculosis were included in the study. Clinically suspected patients of TB spine and supported by investigation findings were selected as study population. Patients were selected randomly for conservative and surgical treatment. Patients with history of spinal injury were excluded from this study. The data was collected by the researcher himself. The aims and objectives of the study along with its procedure, alternative diagnostic methods, risks and benefits of this study were explained to the patients in easily understandable language and then informed consent was taken from each patient. It was assured that all information and records would be kept confidential and the procedure would be helpful for both attending neurosurgeon and patient in making decision for management. Statistical analysis was done by one tailed x2 test (Fisher's exact test) using SPSS 16.0 to see the outcome of surgical and conservative treatment of the tuberculosis of the spine. The p value was 0.031 which was less than 0.05 at 5% level of significance.

Results:

In this study, 50 cases of tuberculosis of the spine show the age range from 7 years to 68 years with the highest incidence in the first three decades (70%) of life. The peak incidence was in the second decade (34%). The mean age was 25.4 years with SD \pm 18.65 years (Table 1).

Table-I
Distribution of patients by age (n = 50)

Age Group	Frequency	Percentage
0 to 10 Years	4	8.0
11 to 20 Years	17	34.0
21 to 30 Years	14	28.0
31 to 40 Years	7	14.0
41 to 50 Years	5	10.0
51 to 60 Years	2	4.0
61 to 70 Years	1	2.0
Total	50	100.0

Among 50 patients, 30 (60%) cases were treated conservatively with antitubercular chemotherapy. Remaining 20 (40%) cases were treated by surgical intervention in combination with chemotherapy. In this study among 30 patients treated conservatively, 21 (70%) showed significant improvement of neurological status and constitutional symptoms. Other 9 (30%) showed no improvement or deterioration of neurological status. In this series among 20 patients treated by surgical intervention, 19 (95%) showed significant improvement of neurological symptoms, But 1 (5%) patient failed to improve neurological status even after surgical treatment (Table 2).

Table-II
Comparison of Conservative and Surgical Treatment (n=50)

Treatment	Improved	Not Improved	Total	P value
Conservative	21(70.0%)	9(30.0%)	30(100.0%)	0.031
Surgical	19(95.0%)	1(5.0%)	20(100.0%)	
Total	40(80.0%)	10(20.0%)	50(100.0%)	

Discussion:

The world has nearly 30 million people suffering from tuberculosis. Of all the patients with tuberculosis 1 to 3.0% has involvement of the skeletal system. Spinal tuberculosis is the commonest form of skeletal tuberculosis and it constitutes about 50%⁷.

Spinal tuberculosis may occur at any age but most common during first three decades of life. In this study mean age was 25.4 years and ranged from 7 years to 68 years. The highest incidence was in first three decades (70%) of life. Tuli⁸ series also shows highest incidence in first three decades of life and it is 73%. Currently there is a tendency of involvement of adult age group particularly in the developed countries due to high incidence of AIDS, intravenous drug abuse and other causes of immune suppression⁹.

Patients were selected on the basis of indication for conservative and surgical treatment. Conservative treatment includes complete rest in bed, improvement of general health and antitubercular chemotherapy by 4 drugs, the patient was periodically assessed clinically, radiologically and haematologically. The antitubercular drugs were continued for total period of 18 months. Most of the patient improved; however, for 9 cases surgical intervention were needed later. The basic principle of surgical intervention was

decompression by draining of pus or radical debridement. However, in 9 cases arthrodesis was done by bone graft or prosthesis. The results of surgical treatment were satisfactory with neurological recovery (95%). The neurological recovery from spinal tuberculosis was 70% after conservative treatment. The cases failed to improve neurological improvement after conservative treatment within 3 months needed surgical intervention. The high incidence of neurological recovery from surgical intervention was due to careful selection of the cases, appropriate timing of surgery and development of anaesthetic facilities. Similar to the present study result Konstam¹⁰ has performed a study on spinal tuberculosis with antitubercular drugs with operation only for failure of paraplegia and has shown 89% neurological recovery. In another study Kohli¹¹ has performed a radical surgery with antitubercular drugs among the spinal tuberculosis patients and has found 84.4% cases of neurological improvement which is consistent with the present study result. Again Arct¹² has performed a study on the patients with more than 60 years of age presented with spinal tuberculosis by anti-tubercular drugs alone which has given no improvement; however, antero-lateral decompression with bone grafting which has shown a 60% cases neurological recovery and this result is also in favour of the present study result.

Certain limitations were observed in the study. All cases would not be uniformly investigated for cord changes because of constraint of availability and affordability. MRI was not accessible to all patients. Early discharge of the patient was done from hospital in case of conservative treatment due to scarcity of hospital bed. All samples were not available for routine follow up because of various reasons like lack of awareness and socio-economic problems. Long term outcome could not be assessed.

Conclusion:

This study showed that patients presented with spinal tuberculosis were more commonly improved by operative procedure than antitubercular chemotherapy

alone. Therefore, it can be concluded that surgical treatment is significantly more effective than conservative treatment for tuberculosis of the spine.

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