

CONSERVATIVE MANAGEMENT OF TUBERCULOSIS OF CERVICAL SPINE-A CLINICAL STUDY

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ABSTRACT

Aim: To evaluate the occurrence of cervical tuberculosis and to see objectively the effectiveness of conservative treatment in the management of tuberculosis of the cervical spine with neurological involvement.

Methods: We randomly selected 30 patients of tuberculosis of the cervical spine with neurological involvement. Patients were divided into two groups, Group I included patients with quadriplegia (16) and Group II included patients with quadriparesis (14). Diagnosis of Pott's spine was based on history, clinical examination, hematological investigations and imaging. Patients were put on four drug anti-tubercular treatment and cervical traction. All patients were regularly followed-up.

Results: The results were evaluated on the basis of Functional Independence Measure at 6 weeks, 6 months and 1 year. Good Functional Independence Measure scores were seen in majority of the patients and failure of conservative treatment with subsequent cervical decompression was required in only 3 cases. Better long-term results were seen in Group II as compared to Group I.

Conclusions: Conservative treatment of cervical tuberculosis is a good option, more so in developing countries where surgical intervention is limited at few centers only. Good results of our study validate this point.

Key words: Tuberculosis, Cervical Spine, Conservative Management.

INTRODUCTION

In developing countries like India, tuberculosis is a common cause of extradural compression. Tuberculosis of the cervical spine presents with a wide range of clinical features, ranging from stiffness of the neck to frank quadriplegia. Not all cases of quadriplegia/quadriparesis need surgical decompression and stabilization. We present here a series of 30 cases of Pott's Spine of the cervical region and cervical traction. We feel that in developing countries like ours, where surgical techniques and technical know how is limited to only a few centres, conservative management is an important treatment modality in cervical tuberculosis.

MATERIAL AND METHOD

Ours was a prospective, observational study stretched over a period of 28 months from November 1997 to March 2000. The study was carried out on randomly selected 30 cases of tuberculosis of the cervical spine presenting in the outpatient and casualty sections of our hospital. All cases were thoroughly examined and data recorded on a prefixed proforma. A diagnosis of Pott's Spine was made on the basis of history, clinical examination, hematological investigations and radiography. The use of specific investigations like ELISA and Polymerase Chain Reaction was limited to cases with doubtful diagnosis of tuberculosis. Conventional X-rays of the cervical spine were taken in

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all patients while CT Scan was done in 9 cases with either doubtful radiological evidence of Pott's spine or it was done for sites otherwise inaccessible to x-ray visualization (Figure 1).

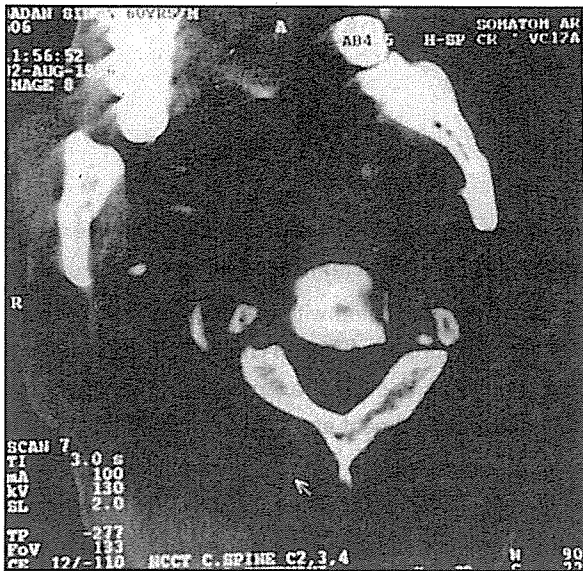


Figure 1. CT Scan of the cranio-cervical junction showing the destruction of first cervical vertebra following tubercular infection.

Patients were classified as quadriparetic if the most cephalad muscle with no contraction was the first dorsal interossei (C8 to T1) or higher with no contraction in any distal muscle. They were labeled quadriparetic if the most cephalad muscle with a trace of contraction or active movement without antigravity was the first dorsal interosseous or higher. The patients were divided in two groups; Group I included patients with quadriplegia and Group II included patients with quadriparesis. There were 13 cases in Group I and 17 cases in Group II. Neck pain and stiffness was the commonest complaint in our patients. There were 6 children (less than 12 years) in the series. Patients presenting with dysphagia and dyspnoea following compression by a cold abscess were not included in the study, as they required urgent decompression.

All patients were put on 4 drug antitubercular regimen consisting of Rifampicin, Isoniazid, Ethambutol and Pyrazinamide for a period of three to four months (depending on improvement of symptoms) followed by

Rifampicin and Isoniazid for the next twelve months. Along with the antitubercular regimen, we applied continuous cervical traction in all patients using Crutchfield Tongs (Figure 2).

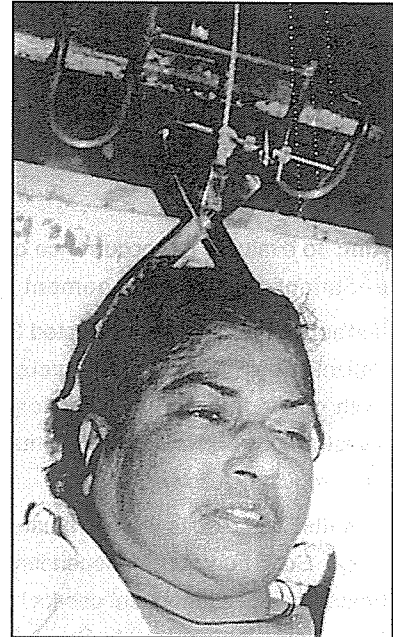


Figure 2. Clinical photograph of a patient with the cervical traction.

and patients were advised absolute bed rest. The

cervical traction was continued till six weeks and this was followed by immobilization of the cervical spine in a Sterno Occipito Mandibular Immobilizer (SOMI) Brace for a period 8 weeks (Figure 3).



Figure 3. Clinical photograph of the same patient mobilised in a Sterno Occipital Mandibular Immobiliser brace.

RESULTS

We had included 30 cases of cervical tuberculosis in our study. There were 11 females and 19 males. The average age was 33.4 years in Group I and 33.8 years in Group II (Table 1).

Table 1. Age Distribution of Patients

Age Groups	No. of Patients Group-I	No. of Patients Group-II
10-20 yr.	2	4
21-30 yr.	2	3
31-40 yr.	3	5
41-50 yr.	4	3
51-60 yr.	1	1
61-70 yr.	1	0
71-80 yr.	0	1

Lesions were present at varying levels of the cervical spine with the C5/C6 junction being the most common site of involvement (Table 2).

Table 2. Level of Tubercular lesion in the cervical spine

Level of lesion in Cervical spine	No. of Patients Group-I	No. of Patients Group-II
Craniocervical Jn.	2	0
C1/C2	0	1
C2/C3	1	2
C3/C4	2	3
C4/C5	2	2
C5/C6	4	6
C6/C7	2	3

4 cases were lost in follow-up. 2 patients died during the course of treatment from causes other than cervical tuberculosis. Thus, final results were evaluated for 24 cases.

Results were evaluated on the basis of clinic-radiological recovery of the patients in both groups. Clinical recovery was assessed at 6 weeks, 6 months and at 1 year after the completion of the antitubercular treatment. We had used the Functional Independence Measure to assess clinical recovery of patients in both

groups. FIM measures self-care, sphincter control, mobility, locomotion, communication and social cognition (1). It provides an overall score from 18 indicating the need for assistance in all areas to 126 indicating complete independence. The results in both groups are shown in (Table 3).

Table 3. Results

Functional Independence Measure Score	No. of Patients In Group I			No. of Patients In Group-II		
	At 6 wk.	At 6 mo.	At 1 yr.	At 6 wk.	At 6 mo.	At 1 yr.
10-20	1	0	0	0	0	0
21-30	1	0	0	1	0	0
31-40	0	1	1	2	2	1
41-50	1	2	1	2	1	0
51-60	1	1	1	1	1	1
61-70	0	0	1	0	2	1
71-80	0	1	0	1	1	2
81-90	1	0	0	1	1	0
91-100	2	1	0	0	0	1
101-110	1	1	1	2	1	0
111-120	0	0	1	1	0	1
121-130	3	4	5	2	4	6

Besides neurological improvement, general improvement in the patients' condition with alleviation of constitutional features of tuberculosis was also included in the evaluation of final results. Radiological evidence of healing was assessed in both groups but since the radiological healing lags clinical healing by 3 to 6 months, it was only considered in the evaluation of results at 1 year. The formation of an ivory vertebra with dense sclerosis at the site of lesion was seen in 7 cases only. Major complications encountered in the course of treatment are enumerated in Table 4.

Failure of treatment with deterioration in neurological status was seen in 3 cases, 2 from Group I and 1 from Group II. These cases subsequently required cervical decompression.

Table 4. Complications of Conservative Treatment

Complications	No. of Patients	Percentage
1. Superficial Infection at Crutchfield Insertion	07	23.3%
2. Deep Infection at Crutchfield Insertion	01	03.3%
3. Detoriation in Neurological Status	03	10.0%
4. Stiffness of neck at the end of treatment	05	16.7%
5. Recurrence of disease	01	03.3%

DISCUSSION

Tuberculosis of the cervical spine is relatively rare with the incidence varying between 3-5% (4). The management of cervical tuberculosis depends on a number of factors namely the age of patient, general condition, stage of neurological involvement, size of the cold abscess and segment of spine involved.

In a series of 40 cases of tuberculosis of the cervical spine, Hsu et al (2) have described two types of disease; in children under 10 years old, involvement was extensive and diffuse with the formation of large abscesses. In patients over 10, the disease was localized and produced less pus, but was associated with a much higher incidence of Pott's paraplegia. They feel that most of these cases can be safely treated with antitubercular therapy and cervical traction.

Conservative management of cervical tuberculosis has been described by a number of authors. In a series of 10 cases of cervical tuberculosis, Loembe (3) has described the benefit of conservative management particularly cervical traction, in 5 children. He feels that usually socioeconomic difficulties explain the necessity of reducing the conservative treatment length by favoring surgical intervention in relatively advanced lesions. We support this view and feel that conservative regimen should be given a fair trial before adventing on heroic surgical intervention, which should be reserved for advanced cases only.

According to Slatter (5), chemotherapy is the main stay of treatment in cervical spine tuberculosis. They feel that tuberculosis of the cervical spine is relatively rare, and the diagnosis is often delayed although roentgenograms and computerized tomography of the cervical spine can provide important diagnostic clues. They advise anterior decompression and spinal fusion in patients not responding to chemotherapy or in patients with deteriorating neurological manifestations.

The encouraging results of our study strongly support the view that conservative management of cervical tuberculous at centres where surgical technique and know how is limited.

REFERENCES

1. Hamilton BB, Granger CV, Sherwin FS, et al: A uniform national data system for medical rehabilitation. Edited by MJ Fuhren. Rehabilitation Outcomes: Analysis and Measurement. Baltimore, Md: Paul H Brookes, 1987, pp 137-147.
2. Hsu LC, Leong JC: Tuberculosis of the lower cervical spine (C2 to C7). A report on 40 cases. J Bone Joint Surg (Br) 66(1):1-5, 1984.
3. Loembe PM: Tuberculosis of the lower cervical spine (C3-C7) in adults: Diagnostic and surgical aspects. Acta Neurochir 131(1-2): 125-129, 1994.
4. Lukhele M: Tuberculosis of the cervical spine. S Afr Med J 86(5): 553-556, 1996.
5. Slater RR Jr, Beale RW, Bullitt E: Pott's disease of the cervical spine. South Med J 84(4): 521-523, 1991.

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