



ORIGINAL RESEARCH PAPER

Orthopaedics

A STUDY OF SURGICAL TREATMENT OF SPINAL TUBERCULOSIS

KEY WORDS: Tuberculosis, spine, neurological deficit, surgery.

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ABSTRACT

Tuberculosis is quiet commonly encountered in our country. Even though common the spinal column is involved in less than 1% of all cases of tuberculosis. Tuberculosis involving the spine is a very dangerous type of skeletal tuberculosis as it can be associated with neurologic deficit due to compression of adjacent neural structures and significant spinal deformity. It's always secondary tuberculosis and the focus is almost always present in the lungs and had spread via the blood. Therefore, early diagnosis and management of spinal TB has special importance in preventing these serious complications. Although the development of more accurate imaging modalities such as magnetic resonance imaging and advanced surgical techniques have made the early diagnosis and management of spinal TB much easier, these are still very challenging topics. In this we aim to discuss the diagnosis and management of spinal TB based on surgical treatment.

Introduction:

Tuberculosis is quiet commonly encountered in our country. Even though common the spinal column is involved in less than 1% of all cases of tuberculosis^{1,2,3}. Tuberculosis involving the spine is a very dangerous type of skeletal tuberculosis as it can be associated with neurologic deficit due to compression of adjacent neural structures and significant spinal deformity. It's always secondary tuberculosis and the focus is almost always present in the lungs and had spread via the blood. Therefore, early diagnosis and management of spinal TB has special importance in preventing these serious complications. Although the development of more accurate imaging modalities such as magnetic resonance imaging and advanced surgical techniques have made the early diagnosis and management of spinal TB much easier, these are still very challenging topics. In this we aim to discuss the diagnosis and management of spinal TB based on surgical treatment.

The first documented spinal tuberculosis (TB) cases date back to 5,000-year-old Egyptian mummies, the first modern case of spinal TB was described in 1779 by Percival Pott¹. The increasing frequency of TB in both developed and developing countries has continued to make spinal TB a health problem⁴. Spinal TB (Pott's disease) is the most common as well as one of the most dangerous forms of skeletal TB and accounts for 50% of all cases of skeletal TB. Although the thoracolumbar junction seems to be the most common site of the spinal column involvement in spinal TB, any part of the spine can be affected⁵. Furthermore, the incidence of neurologic complications in spinal TB varies from 10% to 43%. The objective of this study is to know the functional outcome of tuberculosis of spine treated with laminectomy posterior decompression and pedicle screw fixation.

Aims and Objectives:

To Study the Surgical Treatment of Spinal Tuberculosis

Materials and Methods:

This study was done in the Department of Orthopedics, Kanachur Institute of Medical Sciences, Mangalore.

Fifteen cases were studied that were admitted in our Hospital. This study was done from July 2015 to June 2018.

Inclusion Criteria : Patient not responding to medical therapy. Patient with progressive neurological deficiency on medical treatment, Patient with neurological deficiency

Exclusion Criteria : Patient diagnose with pott's spine without neurological deficiency

Results:

Table 1: Age Distribution

Number	Mean age	Std Deviation
15	31.84 years	15.67 years

Table 2: Sex Distribution

Number	Male	Female
15	08	07

Table 3: Surgical Management

Surgical Management	Frequency
posterior decompression and fusion with bone autografts	6
anterior debridement/decompression and fusion with bone autografts	4
anterior debridement/decompression and fusion, followed by simultaneous or sequential posterior fusion with instrumentation	3
posterior fusion with instrumentation, followed by simultaneous or sequential anterior debridement/decompression and fusion	2

Table 4: kyphotic angle

Number	Pre-operative	Post-operative
15	18.98 degrees	6.7 degrees

Complications:

One patient had focal neurological deficit and did not show signs of improvement after 6 weeks.

Discussion:

The increasing frequency of TB in both developed and developing countries has continued to make spinal TB a health problem. Spinal TB (Pott's disease) is the most common as well as one of the most dangerous forms of skeletal TB and accounts for 50% of all cases of skeletal TB. Although the thoracolumbar junction seems to be the most common site of the spinal column involvement in spinal TB, any part of the spine can be affected. Furthermore, the incidence of neurologic complications in spinal TB varies from 10% to 43%. Surgical treatment for spinal tuberculosis with paraplegia is constantly evolving. Neurological involvement warrant early surgical intervention. In earlier days the spinal canal was decompressed by simple laminectomy via posterior approach. Patients used to recover from the neural compression but the spine became unstable. As majority of spinal tuberculosis involve and destruct the anterior column, the only stabilizing structure preventing the kyphosis remained the posterior elements. So, laminectomy further destabilizes the spinal column. An author

devised the radical excision of the diseased area by anterior thoracic or thoraco-lumbar approach and reconstructing the anterior column by rib graft. They noted significant improvement in terms of mortality, spinal stability and cure from the infection⁶. Another study noted failure of rib graft and progression of kyphosis⁷. Presently these are mostly replaced by pedicle screw-rod system. All of them act as a tension band in stabilizing the spine; so the anterior column continuity is a prerequisite for them. Anterior column reconstruction from the posterior transpedicular approach has slowly gained popularity^{8,9,10}. The diseased material is curetted from the posterior aspect, the cord got decompressed from both anterior and lateral aspect and expandable cage fills the anterior column defect. Posterior instrumentation then stabilizes the spine^{11,12}.

CONCLUSION

Posterior transpedicular limited anterior decompression is a viable option in Pott's paraplegia. However, anterior column reconstruction is important in preventing kyphosis progression. Pseudoarthrosis may be present in infective spinal conditions also.

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