

Clinico-demographic Profile of Tuberculous Spondylitis in a Tertiary Hospital in Iloilo: A Descriptive Study

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Abstract- Tuberculous spondylitis, also known as Pott's Disease, refers to a vertebral osteomyelitis and intervertebral discitis affecting the spinal column causing vertebral destruction, deformity, instability, and neurologic deficits. Tuberculosis (TB) is a disease that has been known since the ancient times. Before the discovery of the TB bacterium by Robert Koch in 1882, the treatment was primarily supportive and typically resulted in poor outcomes. With the contemporary development of diagnostic tests, effective antituberculosis medications, and surgical techniques has resulted into better outcomes giving hope to patients affected by the disease. The primary objective of this study is to determine the clinicodemographic profile of patients diagnosed with tuberculous spondylitis in West Visayas State University- Medical Center, Iloilo City from January 2016 to December 2020. A Cross-sectional descriptive chart review of 28 patients with tuberculous spondylitis who satisfy the inclusion and exclusion criteria were reviewed from the hospital record database from January 2016 to December 2021. The age of patients ranged from 18 to 68 years old with a mean age of 42 years old. 68%(n=19) were Male., 53%(n=53) were married. 53%(n=16) of patients were unemployed. The duration of symptoms prior to consult ranged from 1 to 12 months with mean duration of 4 months. 75%(n=21) of patients presented with neurologic deficit upon admission. The most common vertebra level involved was the thoracic spine 68%(n=19). PPD test was done in 14 patients with 78%(n=11) had positive result. Sputum AFB was done in 17 patients with 94%(n=16) patients had negative result. Sputum Gene Xpert was done in 9 patients 89%(n=8) had negative result. Vertebra Biopsy was done in 17 patients and all tested positive for tuberculous infection. All patients underwent 12 months treatment of anti-TB chemotherapy regimen. Spinal orthosis was prescribed in 68%(n=19) of patients. Surgery was done in 12 patients, with 8 Patients underwent Anterior Decompression Debridement and Fusion, and 4 patients underwent posterior decompression laminectomy. 43%(n=9) of patients had improvement in ASIA score and all of these patients had undergone both medical and surgical treatment. In conclusion, Tuberculous spondylitis is a debilitating disease with insidious onset. This disease is still under-recognized and only a few studies have been done. Patients with tuberculous spondylitis affects all age group with employed

married males commonly involved. The disease usually presents with a latency of symptoms prior to diagnosis with neurologic deficit as the most common manifestation upon consult. The most common vertebra involved is the thoracic spine with radiographic presentation of spinal cord compression, vertebral body destruction and kyphotic deformity. Diagnosis is made with correlation of clinical presentation, imaging, and histopathologic examination. Patients are treated medically and surgically with improved outcome if treated with both.

Index Terms- tuberculosis, TB spondylitis, spine, clinico-demographic, outcome

I. INTRODUCTION

Tuberculous spondylitis, also known as Pott's Disease, refers to a vertebral osteomyelitis and intervertebral discitis affecting the spinal column causing vertebral destruction, deformity, instability, and neurologic deficits.

Tuberculosis has been affecting humans for countless millennia as early as 1000-600 BC in ancient India. Before the discovery of the TB bacterium by Robert Koch in 1882, the treatment was primarily supportive and typically resulted in poor outcomes. With the contemporary development of diagnostic tests, effective antituberculosis medications, and surgical techniques has resulted into better outcomes giving hope to patients affected by the disease.

At present, Tuberculosis remains a pandemic affecting millions worldwide. In 2019, the Philippines ranked 4th among the 8 countries that accounted for two-thirds of the world's total TB cases of 10 million. Tuberculosis is a disease of poverty, economic distress, vulnerability, and a burden to Filipinos.

This study is generally aimed to determine the clinicodemographic profile, diagnostic and treatment outcomes of patients diagnosed with tuberculous spondylitis admitted at West Visayas State University- Medical Center from 2016 to 2020.

Unemployed	12	47%
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II. MATERIALS AND METHODS

This is a retrospective cross-sectional descriptive chart review of all patients diagnosed with tuberculous spondylitis referred to the department of orthopedics in WVSU-MC from January 1, 2016 to December 31, 2020. The list of patients was generated in the hospital records section computer database using the International Classification of Diseases (ICD) Version 10 diagnostic code M49.0, "Tuberculosis of Spine." Patient's chart was requested based on the list generated and was used for data collection. The Demographic variables include the age, sex, civil status, and occupation. Clinical profile includes the duration of symptoms prior to first consult, initial ASIA classification, diagnostics tests, treatment, and outcome

III. RESULTS

A total of 28 cases were reviewed from the hospital record database from January 2016 to December 2020. The age of patients ranged from 18 to 68 years old with a mean age of 42 years old. 60% were Male and 40% were female. 46% were single, 50% were married, and 3% were widowed. 53% of patients were employed.

Figure 1. Incidence of Tuberculous spondylitis per year

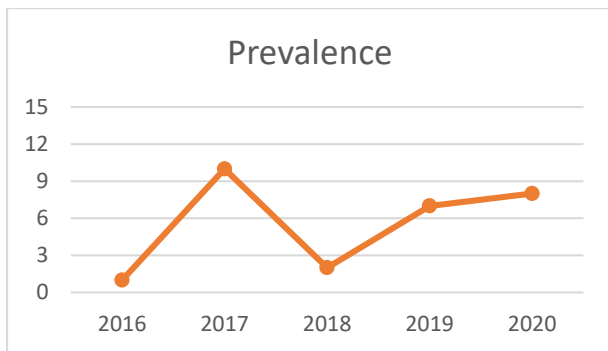


Table 1. Demographic Profile

Total Number of cases	28	
Age (Range)	18-69 yrs old	
Age (Mean)	42 yrs old	
Sex		
Male	19	68%
Female	11	32%
Civil Status		
Single	13	46%
Married	15	53%
Widowed	1	3%
Occupation		
Employed	16	53%

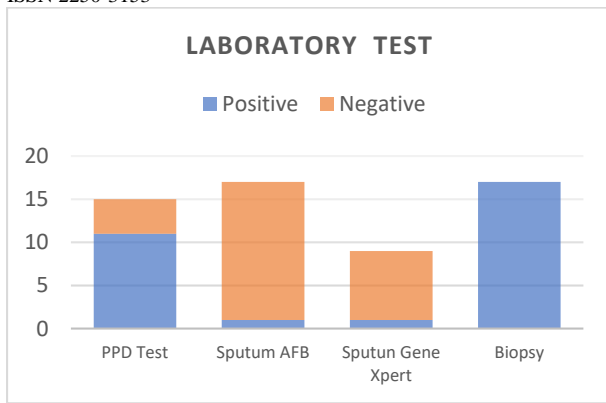
The duration of symptoms prior to consult ranged from 1 to 12 months with mean duration of 4 months. 75% of patients presented with neurologic deficit upon admission. The most common vertebra level involved was the thoracic spine (67%).

Table 2. Clinical Profile

Duration of symptom prior to first consult (months)	4	Mean
	1-12	Range
AISA Score		
A- Complete	5	%
B- Incomplete- No motor, sensory only	5	%
C- Incomplete- 50% of muscles LESS than grade 3	4	%
D- Incomplete 50% of muscles more than grade 3	5	%
E- No impairment	7	%
Vertebra level involved		
Cervical	3	11%
Thoracic	19	67%
Thoracolumbar	3	11%
Lumbar	3	11%
Spinal Deformity		
Kyphotic deformity	3	%
Vertebral Body Destruction	16	%
Spinal canal compression	17	%
Number of vertebra involved		
1 level vertebra	3	%
2 level vertebra	18	%
3 level vertebra	3	%
Others	4	%

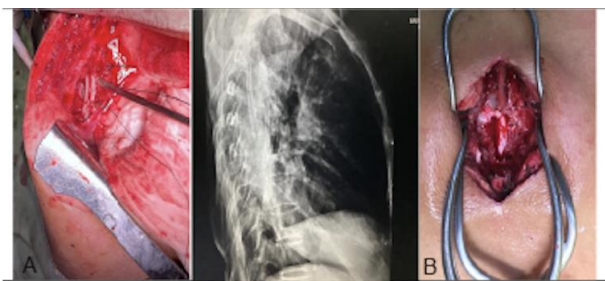
PPD test was done in 14 patients with 78% had positive result. Sputum AFB was done in 17 patients with 94% of patients had negative result. Sputum Gene Xpert was done in 9 patients with 89% had negative result. Vertebra Biopsy was done in 17 patients and all tested positive for tuberculous infection.

Figure 2. Result of laboratory tests



All patients underwent 12 months treatment of anti-TB chemotherapy regimen. Spinal orthosis was prescribed in 68% of patients. Surgery was done in 12 patients, with 8 Patients underwent Anterior Decompression Debridement and Fusion, and 4 patients underwent posterior decompression laminectomy.

Figure 3. Surgical Treatment. A. Anterior Decompression, B. Posterior Decompression



43% of patients had improvement in ASIA score and all of these patients had undergone both medical and surgical treatment.

Figure 4. Patient outcome upon follow-up.



IV. DISCUSSION

TB remains to be a burden to the Philippines. Affecting not only the individual, but the entire family and community. Yearly epidemiological reports on tuberculosis are done by the government and the WHO, however local studies regarding the clinicodemographic profile of patients with tuberculous

spondylitis are still limited in the country, better understanding this debilitating disease is needed for the improvement of treatment services to the patients.

In this study, tuberculous spondylitis affects all age groups. Males were commonly involved (ratio of 1.7:1 vs female). In contrast to a previous study where there is no gender predisposition for the disease. Married unemployed individuals are commonly affected which could be a burden affecting Filipino families.

The duration of signs and symptoms ranged from 1 month to 12 months with mean duration of 4 months upon presentation during admission. Paraplegia of active disease or complicated tuberculous spondylitis was seen in 93% of patients. The most common vertebra level involved was the thoracic spine (67% of cases). Spinal cord compression and vertebra body destruction was noted in 16-17% of patients. Similar to the findings of previous studies.

PPD test is positive in 78% of patients tested which has been recommended low-cost test in developing nations. Sputum AFB and Gene Xpert was not able to detect tuberculous infection in 96% of patients. This test was more specific to detect pulmonary TB infection than TB spondylitis. Biopsy was able to determine TB infection in all patients tested. The diagnosis of TB spondylitis is determined by correlating the clinical, radiographic and confirmed by histopathological evidence for initiation of appropriate treatment.

All patients underwent standard 12 months treatment course of anti-TB chemotherapy as recommended by the treatment guidelines. Surgery was done in 43% of patients with surgical indications. All patients treated medically and surgically showed improvement in ASIA score similar to the study of Lansang and Catbagan.

V. CONCLUSION

Tuberculous spondylitis is a debilitating disease with insidious onset. This disease is still under-recognized and only a few studies have been done. Patients with tuberculous spondylitis affects all age group with male, married, and working individuals are commonly affected. The disease usually presents with a latency of symptoms prior to diagnosis with neurologic deficit as the most common manifestation upon consult. The most common vertebra involved is the thoracic spine with radiographic presentation of spinal cord compression, vertebral body destruction, and deformity. Diagnosis is made with correlation of clinical presentation, imaging, and histopathologic examination. Patients are treated medically or with surgery, with improved outcome if treated with both.

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