

TREATISE ON TUBERCULOUS SPONDYLITIS

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SUMMARY

This is a retrospective study of 32 patients suffering from tuberculous spondylitis (Pott's disease of the spine) admitted to Jos University Teaching Hospital from September 1995 to August 2000. there were 21 males and 11 females giving a male:female ratio of 1.9:1. The ages ranged from 9 years to 62 years with a mean age of 33.2 years. There was a preponderance of young adults. Back pain, paraparesis and evening pyrexia were the most frequently occurring clinical features. Twenty four (75.0%) patients had positive radiological findings. Of these, 18 (75.0%) had wedge collapse, (16.7%) had paraspinal shadows while 8 (33.3%) had loss of joint space. Lumbar region was predominantly affected in 12 patients, while the upper and lower thoracic regions were affected in three and seven patients respectively. Two cases of cervical affection were encountered. Mantoux test was either negative or equivocal in 60.0% of results and positive in 40.0%. Erythrocyte sedimentation rate (ESR) varied widely with 81.0% being equal or above 20mm/hour. Differential lymphocyte count of 40% and above was found in sixty-five percent of 20 patients. All patients had treatment with standard antituberculous combination of drugs with addition of second generation antituberculous drugs in eight patients. Additional treatment with vitamin B-Complex, analgesics, nutritional support and physiotherapy was offered to all patients. Spinal jacked was used for stabilization in eight patients while one patient had sequestrectomy through a posterior approach. Complete recovery was recorded in 56.3% of patients. Two patients relapsed after initial cure, while five mortalities (15.6%) were recorded.

Tuberculous spondylitis is found to be a major surgical problem. In the absence of invasive test in our centre, no single ancillary test could be wholly relied upon for diagnosis. A high index of suspicion and integration of both clinical and radiological features in addition to laboratory findings and occasionally therapeutic trial may be required.

Key Words

Tuberculous spondylitis, back pain, paraparesis, mantoux text, erythrocyte sedimentation rate.

INTRODUCTION

Tuberculosis of the spine is one of the most severe manifestations of extrapulmonary tuberculosis¹. Even though an age-old disease, there appears to be an increase in the incidence of the disease in developing countries; and a recrudescence in developed countries where it had hitherto been eliminated². This observation is consequent upon the advent of Human Immunodeficiency Virus (HIV) and

Acquired Immune Deficiency Syndrome (AIDS) with the attendant depression of the human immune system^{1,2,3,4}. Other immunosuppressive conditions like poorly controlled diabetes mellitus, malnutrition, poor socio-economic condition, alcoholism, prolonged systemic corticosteroid therapy, chronic renal failure, haematological and reticuloendothelial malignancies, etc also contribute to the upsurge in the incidence of

tuberculous spondylitis and tuberculosis generally^{1,2,3,4}.

The definitive diagnosis of tuberculous spondylitis is based on the histopathology result of a biopsy specimen or isolation of the infective organism from an aspirate of the lesion. However, clinical and radiological examinations and some ancillary laboratory investigations could lead to a reasonable working diagnosis on which treatment could be based^{1,2,3,4,5,6}. In early cases that present atypically, more complex tests such as myelography, computerized tomography (CT) scanning, magnetic resonance imaging (MR) etc. may be resorted to as a guide to eventual diagnosis^{2,4,7}.

In our environment, obtaining specimen for histology and microbiology from spinal tuberculous lesion is not possible because spinal surgery is not performed routinely⁵. Consequently, diagnosis is based on clinical/radiological evidence and ancillary haematological and hypersensitivity skin tests. These at times may be equivocal, resulting in reliance on therapeutic trial.

In the treatment of tuberculosis of the vertebra thorough debridement and bone graft (Hong Kong operation) has been shown to be superior to debridement only on the long term^{2,3,5,6}. However, medical treatment using multiple combination chemotherapy has been shown to be equally efficacious^{1,2,3,4,6}. This study is embarked upon to evaluate the relative importance of the symptoms, signs, radiological findings and ancillary tests available to us in the diagnosis of this disease condition. The outcome of conservative treatment is equally assessed to provide a baseline data for future research.

PATIENTS AND METHOD

A retrospective study of consecutive patients admitted to the Jos University Teaching Hospital with tuberculous spondylitis over a 5-year period from September 1995 to August 2000 inclusive was undertaken. The patients were identified from the in-patient admissions and discharges register, and the case notes obtained from the Hospital retrieval system. The data obtained was analyzed for demography, clinical features, radiological findings, results of ancillary tests, treatment modalities, follow-up and outcome. Admission of patients for treatment was based on severity of symptoms such as back pain, debilitation, anaemia, neurological deficit evidenced motor weakness, anaesthesia or sphincteric involvement. Outpatients who did not require admission were excluded from the study.

RESULTS

Out of thirty-nine patients who had tuberculous spondylitis and were admitted to Jos University Teaching Hospital during the 5-year review period, 32 case notes were found analyzable. Of these, there were 21 males and 11 females, giving a male:female ratio of 1.9:1. The ages of the patients ranged from 9 years to 62 years with a mean of 35.2 years. The age and sex distribution of patients is shown in table 1. The peak incidence occurred in the 4th and 5th decades of life in 28.1% of patients each. This was followed closely by the 3rd decade with 25.0% occurrence. The annual frequency, as shown in figure 1 rose steadily from 1995 to the year 2000. There was a shortfall in 1999.

The most frequently occurring clinical features were back pain and various degrees of paraparesis (neurological deficit)

accounting for 78.0% and 65.5% of patients respectively. This was followed by evening pyrexia (53.1%) and night sweats (43.8%). Three patients (9.4%) had flaccid paralysis (Grade V Pott's paralysis). Gibbus was encountered in 34.4% while 40.6% of patients had positive history of weight loss. Duration of symptoms varied widely with 19 (59.4%) patients presenting within the first six months. Two patients presented after 2 years while there were no records of duration of symptoms in 11 (34.4%) patients.

The radiological features and vertebral levels of involvement are as shown in table 2. Out of 24 patients who had positive radiological findings, the lumbar and lower thoracic regions were the most frequently involved in 12 (50.0%) and 7 (29.2%) patients respectively. There was wedge collapse in 18 (75.0%) cases while loss of joint space was found in 8 (33.3%) cases. Two patients who had cervical involvements were included in the series. Twelve patients (50.0%) had multiple vertebral involvements while 7 (29.2%) patients had multiple radiological lesions.

Records of HIV screening was found in 7 patients, 3 of whom reacted positively. Two of these patients died within 2 weeks of admission. Records of mantoux test was found in 20 patients. Positive result (>10mm) was noted in 5 (25.0%) patients. The result was equivocal (6-10mm) in 45.0% and negative (0-5mm) in 30.0% of the patients. Erythrocyte sedimentation rate (ESR) was documented in 21 patients. Of these, 17 (81.0%) patients had values above 20mm/hour. The differential lymphocyte count was recorded in 20 patients. Values greater than 40% were found in 13 (65.0%) patients.

All patients were routinely treated conservatively with combination antituberculous chemotherapy consisting of isonicotinic acid hydrazide (INH), pyrazinamide and rifampicin. Seven patients had either ethambutol or diateben added during maintenance therapy while one patient had streptomycin added in the first 3 months. The doses were varied according to age and weight. One patient had debridement/sequestrectomy for persistent discharging sinus in the presence of a Radiologically evident sequestrum. Spinal lumbar jacket was applied for stabilization in 6 (18.8%) patients while Minerva jacket was applied in 2 (6.3%). Vitamin B-complex was routinely administered to 29 (90.6%) patients while 3 (9.4%) patients received pyridoxine during the course of antituberculous chemotherapy. Jaundice was recorded in only one patient who had septicaemia following infection of extensive bed sores.

OUTCOME OF TREATMENT

In this series, 18 (56.5%) patient had good result as evidenced by the ceasesion of symptoms and recovery of neurological deficit. Five mortalities (15.6%) were recorded. Three patients discharged themselves against medical advice. Follow-up was generally poor, ranging from 6 months to 4 years in only 18 (57.6%) patients. There was a relapse of paralysis in two patients.

Table 1

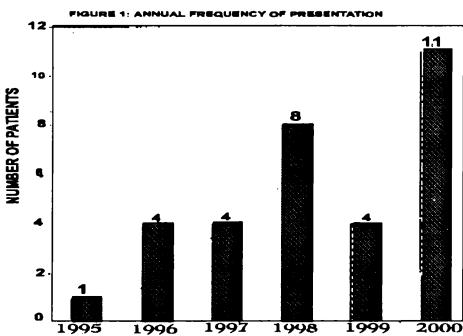
Age and sex distribution of patients

Age (Years)	M	F	Total	%
0 – 9	-	1	1	3.1
10 – 19	-	1	1	3.1
20 – 29	6	2	8	25.0
30 – 39	4	5	9	28.1
40 – 49	7	2	9	28.1
50 – 59	3	-	3	9.4
60 – 69	2	-	2	6.3
Total	21	11	32	100

Table 2

Radiological features and vertebral levels of involvement

Vertebral Level	No. of cases	Vertebral Erosion	Wedge Collapse	Paraspinal shadow	Loss of joint space	scoliosis
Cervical	2	2	-	-	-	-
Upper thoracic	3	-	2	1	-	-
Lower thoracic	7	-	6	2	-	2
Lumbar	12	-	10	2	8	-
TOTAL	24	2	18	5	8	2



DISCUSSION

It is noted that the predominantly affected population who have tuberculous spondylitis in this series are the young adults. This corresponds with the situation in Europe, Saudi Arabia and the USA, but contrast with the Korean experience where children are mostly affected ^{2,4,5}. The annual frequency of occurrence shows a steady increase with eight new cases recorded in the year 2000 within the

Period of 6 months. This observation corresponds with findings by other workers ^{2,4}. The shortfall in 1999 could be due to the 4-month period when hospital services were disrupted by strike actions.

From our series, the combination of back pain, paraplegia and evening pyrexia will give a high index of suspicion of tuberculous spondylitis as these occurred in more than half the population. The observed predilection of lesions in the lower thoracic and lumbar regions is in conformity with a previous report from western Nigeria ⁷. This agrees with the known tendency of this disease condition to affect the transition zones between the mobile and static regions of the vertebra ^{1,7}.

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There is a paucity of ancillary tests available in our environment. The results of mantoux test and differential lymphocyte count are not very useful in arriving at diagnosis. In addition, the erythrocyte sedimentation rate, even though non-specific, was found elevated in 81.0% of cases. This limits its usefulness in making a diagnosis in these patients. It is, however, used to monitor response to treatment. In the face of the above limitations, we occasionally resort to therapeutic trial to make a diagnosis when the index of suspicion is high.

We note the use of Vitamin-B complex as an adjunct to antituberculous

chemotherapy (in place of pyridoxine) and the absence of hepatotoxicity and peripheral neuritis in this series. Vitamin B-complex is cheaper and more available than pyridoxine. The high mortality of 15.6% recorded might have been as a result of late presentation and possibly immunosuppression as two of the deaths occurred in HIV positive patients.

CONCLUSION

We conclude that tuberculous spondylitis is a major surgical problem and is on the increase in our environment. In the absence of invasive tests and high precision imaging techniques, no single ancillary test could wholly be relied upon for diagnosis. A high index of suspicion and integration of both clinical and radiological features in addition to laboratory findings and occasionally therapeutic trial may be required. Conservative treatment with antituberculous chemotherapy is found effective.

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