

# To Determine the Frequency of Pott's Disease in Patient of Paraparesis Presenting to Medical Wards of Civil Hospital Karachi

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## ABSTRACT

**Objective:** To determine the frequency of Pott's disease in patients of paraparesis presenting to medical wards of Civil Hospital Karachi.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted in all Medical Wards of Civil Hospital, Karachi, from 1<sup>st</sup> January 2012 to 31 Dec 2012.

**Material and methods:** A total of 133 patients of spastic paraparesis & meeting inclusion criteria were included in this study. Inquiry was carried out regarding age, gender, presenting complaints, duration of illness, past history of TB and site of involvement of spine. Diagnosis of Pott's disease was made on Magnetic Resonance Imaging (MRI) findings of soft tissue edema, disc space narrowing, paraspinal mass or vertebral collapse.

**Results:** Out of 133 patients, mean age was 47.7 ( $\pm 15.6$ ) years with male: Female = 1.6: 1. Out of 133 patients of spastic paraparesis, Pott's disease was diagnosed in 53 (39.8%) cases. Frequency of pott's disease was high in male (M: F = 2.1: 1), 36 (43.9%). Average age of patients with pott's disease was  $49 \pm 13.2$  years (Min – Max = 22 – 80 years).

**Conclusion:** In this study Pott's disease was diagnosed in 39.8% patients of spastic paraparesis. Frequency of pott's disease was high in male gender and older (Age: 31 – 50 years) patients.

**Key Words:** Spinal Tuberculosis, spastic paraparesis, Pott's disease

## INTRODUCTION

Tuberculosis (TB) is a major infectious disease of developing countries including Pakistan.<sup>1</sup>

WHO estimated a total of 9.27 million new cases worldwide in 2007 with 13.7 million prevalent cases and 1.3 million deaths with >90% in developing countries.<sup>2</sup> According to WHO estimates in 2009, about 47,587 people died from TB in last five years in Pakistan and about 364,793 cases of TB exists in population.<sup>3</sup>

Five to Ten percent of tuberculosis will have bone and joint infection but the 50% of bone and joint infection is related to spine and called Pott's disease<sup>4</sup>. It is the commonest cause of compression paraplegia. It can cause paraplegia by infecting the vertebrae and compressing the spinal cord.<sup>1</sup>

Tuberculosis Infection reaches the spine either via the respiratory tract or the intestine by blood stream<sup>5</sup>. The infection begins in the area of the vertebral body. The vertebral body becomes soft and is easily compressed, producing wedging or total collapse<sup>5,6</sup>. The anterior aspect of vertebral body is area usually affected. Tuberculosis may spread from that area to adjacent intervertebral disc. Progressive bone destruction leads to vertebral collapse and kyphosis.<sup>5-8</sup> and leading to paraparesis. India author reported in 2006, Tuberculosis was the commonest cause of compression paraparesis and was observed in 42 cases

among 108 patients of paraparesis (33.33%)<sup>9</sup> MRI is the most valuable method for detecting early disease and is preferred technique to define the activity and extent of infection. MR imaging provides clinical information about the spinal cord and the extent of the epidural pus in patients presenting with neurologic deficits. MRI features of tuberculosis infection are soft tissue edema, paraspinal mass, disc space narrowing, vertebral collapse and destruction followed by kyphosis.<sup>10,11</sup>

It is clear from above mentioned data that Tuberculosis and its complications are very prevalent in developing countries including Pakistan. Tuberculous involvement of the spine has the potential to cause serious morbidity, including paraparesis which is regarded as a disease of great and constant misery to the patient, family and the society. So, early diagnosis and treatment is required to treat this reversible cause of paraparesis and prevent fatal outcomes. The aim of this study is to know burden of Pott's disease as a cause of paraparesis in patients coming to large government sector hospital of Karachi and present their key demographics so that early diagnosis and management can be facilitated.

## MATERIALS AND METHODS

This study was conducted at Medical department, Civil Hospital Karachi, from 1st January 2012 to 31

Dec 2012. A detailed history of every case was taken and information was noted on a Proforma especially made for study purpose. Inquiry was carried out regarding age, gender and duration of illness. Diagnosis of Pott's disease was made on Magnetic Resonance Imaging (MRI) findings of vertebral collapse. All patients of spastic paraparesis with no history of trauma, age 18-90 years and duration of illness more than 2 weeks were included in study. Patients presenting to medical wards with non-spastic paraparesis or with history of trauma or duration of illness less than two weeks were excluded.

## RESULTS

A total of 133 patients with spastic paraparesis with duration of illness more than 2 weeks were included in this study. Gender distribution showed male preponderance (male: female = 1.6: 1) There were 82 (61.7%) males and 51 (38.3%) females (Table 1). Mean ( $\pm$ SD) age of patients was 47.7 ( $\pm$ 15.6) years with min – max = 18 – 90 years. Majority of cases were in the age groups 31 – 70 years, 98 (73.7%) (Table 2).

**Tale No.1: Pott's disease with respect to gender n = 133**

Gender	Total	Pott's disease	Percentage
Male	82	36	43.9%
Female	51	17	33.3%

**Table No.2: Variables of Pott's Disease n = 133**

Variable	Patients	Percentage
<b>Age in years (Mean <math>\pm</math>SD = 47.7 <math>\pm</math>15.6 years)</b>		
$\leq 30$	28	21.1%
31 - 50	49	36.8%
51 - 70	49	36.8%
71 - 90	7	5.3%
<b>Duration of Illness (Mean <math>\pm</math>SD = 9.9 <math>\pm</math>9.5 months)</b>		
$\geq 1$	44	33.1%
$< 1$	89	66.9%
<b>Pott's Disease in Cases With Paraparesis</b>		
<b>Present</b>	53	39.8%
<b>Absent</b>	80	60.2%

Duration of illness (spastic paraparesis) was 9.9  $\pm$ 9.5 months with min – max was 1 month – 5 years. In majority 89 (66.9%) of cases duration of cirrhosis was  $< 1$  year (Table 1). Out of 133 patients of spastic paraparesis, Pott's disease was diagnosed in 53 (39.8%) cases. Frequency of pott's disease was high in male, 36 (43.9%),(M: F = 2.1: 1) (Table 1). Average age of patients with pott's disease was 49  $\pm$ 13.2 years (Min – Max = 22 – 80 years). Frequency of pott's disease was high in age 31 - 50 years, 27 (55.1%). Table-1 Duration of spastic paraparesis and pott's disease is shown in Table-4. Mean duration of cases with pott's

disease was 9.2  $\pm$ 7 months (Min – Max = 1 month – 3 years).

## DISCUSSION

Paraplegia is conditions with considerable morbidity having tremendous social repercussions. It is regarded as a disease of great and constant misery to the patient, family and the society. It is estimated that involvement of the spine occurs in less than 1% of patients with tuberculosis<sup>9</sup> and accounts for 40-50% of musculoskeletal tuberculosis<sup>12,13</sup>. It results from an infection of the bone by Mycobacterium tuberculosis bacteria through a combination of haematogenous route and lymphatic drainage. The organism may stay dormant in the skeletal system for an extended period of time before the disease can be detected. The basic lesion may be a combination of osteomyelitis and arthritis. Spinal cord may become involved in compression by bony elements and/or expanding abscess or by direct involvement of cord and leptomeninges by granulation tissue. Neurological deficit are usually more symmetrical and of more gradual onset than those resulting from other pathologies<sup>14</sup>. Typically, more than one vertebra is involved and more than one component of the spine is involved namely the vertebral body, intervertebral disc and the ligaments, paravertebral soft tissues and the epidural space<sup>15</sup>. The condition most commonly involve the lower thoracic and the thoraco-lumbar spine<sup>16</sup>.

MRI is the most valuable method for detecting early disease and is preferred technique to define the activity and extent of infection. MR imaging provides clinical information about the spinal cord and the extent of the epidural pus in patients presenting with neurologic deficits. MRI features of tuberculosis infection are soft tissue edema, paraspinal mass, disc space narrowing, vertebral collapse and destruction followed by kyphosis.<sup>10,11</sup>

In this study 133 patients with spastic paraparesis were included in this study. Gender distribution showed male preponderance (male: female = 1.6: 1). Mean ( $\pm$ SD) age of patients was 47.7 ( $\pm$ 15.6). The male preponderance of 72% possibly portrays differential gender hospital attendance pattern in the region of the study as women often dependant to go to the hospital. A similar pattern has been reported in some other developing countries<sup>17,18</sup>.

Out of 133 patients of spastic paraparesis, Pott's disease was diagnosed in 53 (39.8%) cases. In a study done in India in 2006, Tuberculosis was the commonest cause of compression paraparesis and was observed in 42 cases among 108 patients of paraparesis (33.33%).<sup>9</sup> In two separate studies reported in Africa in 1994 and 1995 tuberculosis was the leading cause of paraplegia accounting for 29.69% cases and 47% cases<sup>19,20</sup>. In a study done in Nigeria in 2011,

Tuberculosis was the commonest cause of compression paraparesis and was observed in 44 cases among 98 patients of paraparesis (44.9%)<sup>17</sup>. In studies reported in the other parts of Africa as well as developing countries outside the African continent, tuberculosis was the leading cause of paraplegia accounting for between 29.69 and 47% cases<sup>20,21,22</sup>. However, in a Zimbabwean study, neoplasm was reported to be the commonest (28%) cause of non-traumatic paraplegia, followed by tuberculosis (27%)<sup>22</sup>.

Frequency of pott's disease was high in male (M: F = 2.1: 1), 36 (43.9%). Average age of patients with pott's disease was 49 ±13.2 years (Min – Max = 22 – 80 years). Frequency of pott's disease was high in age 31 - 50 years, 27 (55.1%). Mean duration of cases with pott's disease was 9.2 ±7 months (Min – Max = 1 month – 3 years).

It is clear from above mentioned data that Tuberculosis and its complications are very prevalent in developing countries including Pakistan. Tuberculous involvement of the spine has the potential to cause serious morbidity, including paraparesis which is regarded as a disease of great and constant misery to the patient, family and the society. So, early diagnosis and treatment is required to treat this reversible cause of paraparesis and prevent fatal outcomes.

## CONCLUSION

In this study Pott's disease was diagnosed in 39.8% patients of spastic paraparesis. Frequency of pott's disease was high in male gender and older (Age: 31 – 50 years) patients. On the basis of results of this study tuberculous involvement of the spine has the potential to cause serious morbidity, including paraparesis which is regarded as a disease of great and constant misery to the patient, family and the society.

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