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The Study of Clinical Profile of Non-Traumatic Paraplegia in a Tertiary Care Hospital in North Andhra

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Abstract
Background: *Paraplegia can occur due to traumatic or non-traumatic pathology. Myelopathy a broad term that refers to spinal cord involvement of multiple etiologies. Spinal cord diseases often have devastating consequences due to its confinement in a very small area. Many of these diseases are potentially reversible if they are recognized on time, hence the importance of recognizing the significance of magnetic resonance imaging when approaching a multifactorial disease considered as one of the most critical neurological emergencies, where prognosis depends on an early and accurate diagnosis. This study aimed to identify the clinical profile of non-traumatic paraplegia in tertiary care hospital.*
Material and Methods: *30 patients of non-traumatic paraplegia were studied at King George hospital, Visakhapatnam from March 2019 to April 2020. Patients underwent a detailed clinical evaluation followed by laboratory investigations and neuroimaging studies.*
Results: *Present study showed male preponderance with M: F=1.7:1. Incidence was common in productive age groups of 3rd and 4th decade. Presenting symptoms included weakness of lower limbs (100%), sensory symptoms (52%), retention of urine (57%), backache (23%), incontinence of urine (23%) and fever (17%). Tuberculosis of spine was the commonest cause of paraplegia followed by Transverse myelitis; Disc prolapse.*
Conclusion: *Tuberculosis was the commonest cause of non-traumatic paraplegia. Transverse myelitis of probable viral etiology was the second commonest cause.*
Keywords: *Non traumatic paraplegia; transverse myelitis; Potts spine.*

Introduction

Paraplegia can occur due to traumatic or non-traumatic pathology. The term myelopathy describes pathologic conditions that cause spinal cord, meningeal or peri meningeal space damage or dysfunction. Traumatic injuries, vascular diseases, infections and inflammatory or autoimmune processes may affect the spinal cord[(1)] due to its confinement in a very small space. Spinal cord injuries usually have devastating consequences such as quadriplegia, paraplegia and severe sensory deficits. The history, an adequate neurological examination and the study of the cerebrospinal fluid (CSF) guide the diagnosis of spinal cord injuries. However, imaging is of great importance in the diagnosis and to classify the etiology appropriately[(2-3)]. Many of the processes affecting the spinal cord

may be reversible if recognized and treated early. The vast majority of spinal cord diseases may be treated medically, with surgical treatment reserved for compressive disorders, which constitute a neurological emergency[4].

Aims and Objectives

1) To determine the etiological factors prevalent in and around Visakhapatnam contributing to non- traumatic paraplegia.
2) The etiological subcategorization of various non-traumatic paraplegia.
3) To study the clinical pattern of evolution and presentation of nontraumatic paraplegia.

Methodology

Inclusion Criteria

1) Age more than 12 years ·
2) Acute and subacute to chronic onset motor weakness of lower limbs of non-traumatic aetiology.

Exclusion Criteria

1) Age less than 12 years.
2) Patients having traumatic paraplegia.
3) Patients who presented with history of weakness of lower limbs but on examination if the upper limbs were also involved than those patients were excluded.

Each case was subjected to the following investigations. Hemogram with peripheral smear, Blood sugar and urea, Urine for routine microscopic and chest radiograph (PA), Tuberculin test, ESR, Sputum AFB, Serum albumin, lymph node biopsy, liver function test, sonography of abdomen and pelvis, mammography, ECG, NCV, HIV etc. X-ray spine: In various views at different levels, based on clinical localization of lesion. MRI spine, MRI brain when required. Lumbar puncture for CSF examination for routine micro, routine sugar, AFB, gram stain, VDRL, culture and sensitivity. Methods used for statistical analysis: Statistical analysis was done using EPI Info Version-6. Percentage, Chi-square, 'p' value were calculated wherever applicable.

Results

A total of 30 cases were studied during March 2019 to April 2020 at King George hospital, Visakhapatnam. There was male preponderance, male: female - 1.7: 1. Majority of cases belongs to productive age groups of 3rd and 4th decade.46.6% had acute presentation while 53.3% had subacute to chronic onset. Progression were gradual in 66.6% while static in 33.3%. Clinical features among patients were shown in table 1 and etiologies in table 2. Hypertonia with hyperreflexia noted in 43% while 57% had hypotonia with hyporeflexia. All modalities of sensation were lost with definitive upper level in 43.3% while sensory loss patch in 10%, impaired in 36% and no sensory disturbances in 11%. Spinal examination revealed tenderness in 33% and gibbus in 13.3% of patients.

Table 1: Frequency distribution of various clinical features

Clinical feature	Percentage
Weakness of lower limbs	100%
Sensory symptoms	52%
Retention of urine	57%
Incontinence of urine	23%
Low backache	23%
Constipation	22%
Fever	17%
Spine deformities	13.3%
Constitutional symptoms	16%

Table 2: Frequency distribution of etiologies among patients

Etiology	Number of Cases	Percentage
Potts Spine	11	36.6%
Acutetransversemyelitis	9	30%
PID	3	10%
Secondaries	2	6.6%
Subacute Combined Degeneration	2	6.67%
Toxins: Organophosphorous	1	3.3%
Leriche's Syndrome	1	3.3%
Superior Saggital Sinus Thrombosis	1	3.3%

In CSF protein was raised in 56% of cases, sugar was normal in all cases and elevated Lymphocytes were seen in 28% cases. MRI spine showed

secondaries in vertebrae in patients showing wedging with osteolysis on X ray spine. In our study, Tuberculosis was the commonest (36.6%) cause of non-traumatic paraplegia which includes Pott's spine, paravertebral abscess, arachnoiditis, transverse myelitis and granuloma. Second most common was Transverse myelitis of non-tuberculous origin which include HIV, HSV 1, HSV 2 infections, Autoimmune disorder(SLE), demyelination disorder Neuromyelitis Optica spectrum disorder (NMOSD). Prolapsed Intervertebral Disc (PID) (10%) is the third most common cause of paraplegia. Secondaries in vertebrae, Subacute Combined Degeneration of spinal cord, superior sagittal sinus thrombosis, leriche's syndrome, organophosphorus poisoning are less frequent causes of nontraumatic paraplegia. Cord compression was suspected in most patients clinically and had similar lesion found on MRI. Out of which 1 case showed demyelinating lesion & two cases showed normal MRI. Most common cause of cord compression on MRI was Pott's spine, metastasis of vertebrae & PID. MRI is most useful test in diagnosis of cause of paraplegia. Out of 30 patients, 4 patients (6%) expired, of whom 2 had TBM with hydrocephalus, whereas 1 was known case of breast cancer with multiple metastasis and one patient with aortoiliac occlusive disease (Leriche's). The other 26patients were discharged from Medicine ward and on follow upand some are transferred to Orthopaedics or neurosurgery department for surgical intervention.

Discussion

We enrolled 30 patients with non-traumatic paraplegia during period from March 2019 to April 2020. Out of 30 males to female ratio was 1.7:1, which was similar comparable to other studies. Comparison of mode of onset was shown in table 3 among various studies.

Table 3: Comparison of mode of onset among various studies

Mode of onset	Choudary et al (6)	Bharghav and Berry (7)	Present study
Acute	17.9%	26%	46.6%
Subacute to chronic	70.6%	74%	53.3%

In present study all the patients had weakness of lower limbs, bladder disturbances were observed in 80% followed by backache (24%), fever (18%) and tingling and numbness (4%). Choudhary et al[(6)] reported to have observed backache in 26%, bladder disturbance in 43% and paraesthesia in 21% of patients. In the present study 80% of the patient had bladder disturbance and 20% without any bladder disturbance, among these 57% had retention and 23% had incontinence. At presentation flaccid features predominated with 57% of patients having hypotonia and hyporeflexia, 43% had hypertonia and hyperreflexia. Spinal examination revealed 58% to be normal, tenderness was present in 33%, Gibbus was present in 13.3% and scoliosis was seen in one patient (2%). CSF analysis could be done only in 10 cases. In patients whom can be diagnosed radiologically like Pott's spine, PID, secondaries, CSVT, Leriche's syndrome CSF analysis was not done. CSF protein was raised in 56% of cases. There is no association between CSF sugar and etiology of paraplegia. With imaging study, Plain radiograph of the spine was undertaken in 14 cases. In 42.85% of these cases it was normal. In 36.6% of the cases of tuberculosis destruction of the vertebral bodies, compression and intervertebral disc space narrowing was seen. Plain x-rays of spine were contributory to the diagnosis in 56% of cases in present series. The plain x- rays were found to be diagnostic or contributory in 53% of cases by Ghosh et al and 44% by Rao and Dinakar et al[(8)]. MRI spine was subjected in all patients. One patient had longitudinal extension transverse myelitis involving more than 3 vertebrae, 21 had myelitis and was normal in 2 patients (6.6%), Anterior spinal artery thrombosis in 1 case (3.33%), inflammatory spondylodiscitis with paraspinal

abscess in 2 cases (6.66%). In one patient MR venogram brain suggestive of superior sagittal sinus thrombosis.

Conclusion

1) In hospital incidence, Non-traumatic paraplegia has aninpatient incidence of 0.7 cases/1000 during the study period and has a significant burden on health resources.
2) In this study of Non traumatic paraplegia the incidence was more in Males and was more common in the productive age groups of 3rd and 4th decade.
3) Tuberculosis was the commonest cause.
4) Transverse myelitis of probable viraletiology was the second commonest cause.
5) Other causes like neoplastic, Disc prolapse, superior sagittal sinus thrombosis, aortoiliac occlusive disease were also seen but to a lesser extent.

Limitations

The study is done in a limited number of patients in one region. Results may vary in a large number of subjects and various regions of people.

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