



PATTERN RECOGNITION ,APPROACH AND CLINICO-RADIOLOGIC EVALUATION OF MYELOPATHIES

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ABSTRACT

INTRODUCTION Myelopathy, the rapid or insidious onset of motor and sensory abnormalities referable to the spinal cord, occurs as a result of a variety of causes that may be classified on the basis of their location of origin (intramedullary, intradural-extramedullary, and extradural). Osteophytic spurring and disc herniation may also produce myelopathy localised to the thoracic spine, though less commonly. Degenerative cervical myelopathy (DCM) is a progressive spine disease and the most common cause of spinal cord dysfunction in adults worldwide.

AIM OF THE STUDY:

1. To study the clinical profile of cases of Myelopathy
2. To study the pattern of spinal cord involvement
3. To compare the clinical diagnosis with MRI diagnosis

MATERIALS AND METHODS

- Study setting: The study was conducted on patients admitted in the departments of neurology and neurosurgery with clinical suspicion of spinal cord disease
- Study design: The current study was a prospective study
- Study period: The study was conducted between August 2021 to July 2022
- Sample size: The present prospective study included 30 patients admitted in the departments of neurology and neurosurgery with clinical suspicion of spinal cord disease.

INCLUSION CRITERIA: Inclusion criteria include patients with clinical suspicion of spinal cord disease of age group 20-80 years were included as study participants in the present study.

EXCLUSION CRITERIA: The current study excluded patients with seizures, abnormal higher mental functions, and children.

RESULTS

- In the present series, the patient's age ranged from 20 years to 80 years
- The majority of 53.33% of participants were aged between 51 to 60 years, followed by 61 to 70 years was 13.33%, 21 to 30 years and 41 to 50 was 10% for each
- Distribution of cases according to etiology: Among the study population, 17 (57%) participants had cervical spondylosis, 4 (13%) participants had caries spine, 3 (10%) participants had a vertebral fracture and others for each, 2 (7%) participants had fluorosis and only 1 (3%) participant had spinal tumor
- Clinico-radiological patterns of spinal cord syndromes: The majority of 50% of participants had Anterior + Posterior Cord involvement. The proportion of posterior cord, pan cord, and the central cord was 20%, 13.33%, and 10% respectively

CONCLUSION:

- The present study results have analyzed the profile of myelopathies and found more male preponderance
- The commonest cause of compressive myelopathy was Cervical spondylosis
- Anterior plus posterior cord syndrome was the commonest pattern seen which was followed by posterior cord syndrome and the least observed pattern was anterior cord syndrome. Hence, it can be concluded that MRI could suggest the location of the lesion and correlated well with clinical diagnosis.

KEYWORDS :

INTRODUCTION:

- Spinal cord dysfunction is a common neurological problem, which may have an obvious traumatic or compressive cause. Beyond this, the lack of pathological specificity of the clinical and imaging features means that patients are often treated empirically, based on the prevalence and the treatability of the differential diagnoses; multiple sclerosis (MS) and isolated inflammatory myelitis are the most likely diagnoses in the western world.
- Degenerative cervical myelopathy (DCM) is a progressive spine disease and the most common cause of spinal cord dysfunction in adults worldwide. Cervical spondylotic myelopathy is the result of the narrowing of the cervical spinal canal by degenerative and congenital diseases. For most patients presenting with a spinal cord syndrome, MR scanning has become the key investigation in establishing the diagnosis
- However, myelopathy with normal spinal imaging remains a common clinical conundrum
- Hence a current study was conducted to study the clinical profile of cases of compressive Myelopathy and the pattern of spinal cord involvement, also to compare the clinical diagnosis with MRI diagnosis.

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- Clinico-radiological patterns of spinal cord syndromes: The majority of 50% of participants had Anterior + Posterior Cord involvement. The proportion of posterior cord, pan cord, and the central cord was 20%, 13.33%, and 10% respectively.
- Imaging findings of the study participants: In the case of cervical spondylosis, there was a decrease in the height of the vertebral body. There is bulging of the intervertebral disc causing indentation of theca of the cord. Dehydration of intervertebral discs is noted. The bulging of the disc material on the spinal cord has produced myelomalacia in some cases.
- In our series, six cases of dorsal vertebrae and four cases of lumbar vertebrae were involved. Involvement of bodies, disc space, posterior elements causing loss of height of vertebrae with severe cord compression with edema was noted. These were seen as hypointensity with T1W and hyperintensity with T2W images as observed in vertebrae due to destruction
- Radiologically both cases showed straightening of C-spine with degenerative endplate changes, thickening of posterior longitudinal ligament particularly between C2-C6 levels in one case, there was the narrowing of spinal cord dimensions compromising at C3-C4 level causing cord compressions with myelomalacia changes in the second case. One case of neurofibroma presenting as an extradural mass in T2 weighted images impinging spinal cord and extension into the neural foramina without any destruction of bone.

AGE	MYELOPATHY DIAGNOSIS
21-30	3 cases
31-40	2 cases
41-50	3 cases
51-60	16 cases
61-70	4 cases
71-80	2 cases

PARTICIPANTS	NUMBER
MALE	28
FEMALE	2
TOTAL	30

MOTOR POWER GRADING(MRC)	NO.OF CASES
GRADE 0	4
GRADE 1-2	4
GRADE 3	5
GRADE 4	16
GRADE 5	1
TOTAL	30

CASES ACCORDING TO ETIOLOGY	NO.OF CASES
CERVICAL SPONDYLOSIS	17
CARIES SPINE	4
VERTEBRAL FRACTURE	3
FLUOROSIS	2
SPINAL TUMOUR	1
OTHER CAUSES	3
TOTAL	30

CLINICO-RADIOLOGICAL PATTERN	NO.OF CASES
ANTERIOR+POSTERIOR CORD	15
POSTERIOR CORD	6
PAN CORD	5
CENTRAL CORD	4

DISCUSSION:

- Myelopathy is a broad term that refers to spinal cord involvement of multiple etiologies. Cervical spondylotic myelopathy (CSM) is the leading cause of myelopathy in subjects above 55 years old and

the major cause of spasticity acquired in the aged population. More than 50% of middle-aged people have radiographic evidence of cervical alteration, yet only 10% have symptoms of spinal cord compression or cervical radiculopathy . In the present study cervical spondylosis was common according to etiology. Similar results were found by the investigators of the study conducted in Bangladesh where investigators found among etiologies that cervical spondylotic myelopathy (31%) was most commonly diagnosed.

- A common cause of acquired stenosis resulting in myelopathy is degenerative changes (spondylosis). These pathological changes are the same in the thoracic spine as those changes found in the lumbar and cervical regions and increase with age, yet the frequency of myelopathy as a result of these changes is less in the thoracic spine than in the cervical spine. The clinical diagnosis of myelopathy requires a detailed history and physical examination to define the clinical syndrome.
- The cervical myelopathy syndrome was first described in 1952, in some cases performed by Brain and colleagues. In an extensive literature search, it was concluded that the prevalence of surgically treated cervical spondylotic myelopathy was estimated as 1.6 per 100,000 inhabitants . Faysal MM et al . Cervical spondylotic myelopathy and transverse myelopathy was the main etiology of compressive and non-compressive myelopathy respectively
- The current study revealed that the cervical cord was more commonly involved.
- Similarly, Erdal, Y et al , found that common involvement of Cervical cord compared to other regions of the cord.

CONCLUSION:

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