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Case Report

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Atypical presentations of transverse myelitis in a young woman with normal imaging without sensory level: A case report

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Key words: Atypical presentation of transverse myelitis, Transverse myelitis, normal imaging without sensory level

Abstract:

Transverse myelitis (TM) is a spinal cord inflammatory condition that causes immediate sensory loss and motor paralysis below the lesion. The cause of the disease is diverse, and diagnosis of TM can be challenging due to the disease's low frequency and often subtle onset. We present the case of a 45-year-old female who was referred to the neurology ward with complaints of low back discomfort, urine retention, and inability to pass stool. She also complained about numbness in her inner thighs and perianal region. There were no complaints about her upper limbs. While in the neurology ward, she had left lower extremity paralysis and sensory abnormalities that gradually worsened bilaterally, eventually leading to a diagnosis of transverse myelitis. Transverse myelitis is a rare diagnosis, but it is an important clinical consideration when examining patients who arrive with pain and increasing neurologic symptoms.

Introduction:

Transverse myelitis is an uncommon but severe inflammatory demyelinating illness that typically affects the spinal cord's sensory and motor tracts. TM is a rare, acquired neuro-immune spinal cord illness marked by abrupt muscle weakness, alterations in sensory perception, and decreased bowel or bladder function[1].

Geographically, the incidence of TM is consistent [2]. In 60% of instances, the reason is still idiopathic despite the identification of several etiologies, such as immunological and infectious [3].

TM is an uncommon neurological condition caused by inflammation in the spinal cord. The mechanism of TM is usually unknown, and the inflammation can be autoimmune or infectious in nature[4]. It typically appears with quick onset sensory changes, weakness below the location of the spinal cord lesion, and autonomic dysfunction [4]. TM is rare, occurring at frequency of 1.34 to 4.6 per million[5]. Acute transverse myelitis occurs in 1-4 instances per million persons each year. . It affects people of all ages, with peaks at ages 10 to 19 and 30-39 years [6]. There is no sex or familial risk, and there is typically no prior history of neurologic abnormalities.

Up to 40% of cases have no results on MRI [7]. The remainder has a changeable and non-specific appearance. The magnitude of the lesion varies

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greatly, although it usually spans three or four spinal segments. Typically, 8 lesions take up more than two-thirds of the cord's cross-sectional area 3. There is varying enlargement of the spinal cord.

TM is often described as having subacute, symmetric symptoms at commencement with a well-defined truncal sensory level; however, we now realize that TM and other inflammatory myelopathies can present in a variety of ways, including abrupt, asymmetric symptoms without a definite sensory level [9].We described a case of young woman presented with lower limb weakness with bowel bladder involvement but no sensory level with normal MRI findings.

Case report:

A 45 years old unmarried housewife, normotensive, nondiabetic, non-smoker admitted to the neurology ward throughout outpatient department with the complaints of low back pain for 25 days which is sudden in onset, continuous, severe in intensity ,radiating to both lower limbs aggravates by bending and walking but relieves by rest and analgesics and the pain is not associated with trauma, followed by sudden weakness of her both lower limbs, initially difficulty in walking then complete bed bound last 20 days.

But relieved by rest and analgesics and the pain was not associated with trauma, followed by sudden weakness of her both lower limbs, initially difficulty in walking then unable to walk for 20 days.

After that, she had retention of urine and unable pass stool, for which she was catherized. She also complaints of numbness in the inner thighs and perianal region. There were no complaints regarding her upper limbs. Patient has no history of hypertension and diabetes .There is no history previous TB or contact with smear positive TB patients. No significant family and social history. She was vaccinated according to EPI schedule and took two doses of covid vaccine.

On examination, her pulse was 84 /min and valsalva manoeuvre was normal. Her blood pressure was 110/70 and postural drop could not assess due to complete bed bound. There was no other abnormal finding on general examination. Neurological examination of both lower limbs reveals tone is reduced, muscle power is symmetrically 2/5 proximally and 1/5 distally, all jerks are absent even after reinforcement, bilaterally absent planter response.

There was no saddle anaesthesia and pain and touch sensation reduced over perianal and perineal area. No abnormality on examination of upper limbs, cranial nerves and other systems found.

On Routine investigation, CBC-Hb 12.9gm/dl ,TC WBC -12000/cmm, N-86% L-10%, , ESR- 53 mm in 1st hour, RBS- 4.2 mmol/l, S.creatinine :0.9 mg/dl Chest X-ray P/A view: Normal study, USG of whole abdomen : Normal study, Urine R/M/E : pus cell—10-15/hpf, Albumin – (+), Serum urea : 39 mg/dl, Uric acid : 3.8 mg/dl, Serum Ca : 8.3 mg/dl, PTH :54.8 pg/ml (Table: 1). On specific investigation : CSF study: WBC count : 05/cmm(lymphocytes-100%), CSF protein – 116.40 mg/dl,CSF Glucose–45.36 mg/dl (Table: 2). MRI of Lumbosacral spine with screening whole spine demonstrated that Disc extrusion at L4/L5 level causing bilateral neural foramina narrowing with exiting nerve root compression. Disc bulge at L5/S1 level .Degenerative disc disease (Figure 1) NCS of both lower limbs: These electrophysiological findings are consistent with peroneal neuropathy Left>right (axonal). (Table III)

Table 1: Routine investigations

Points of investigations	Ref values
CBC	Hb 12.9gm/dl TC WBC -12000/cmm, N-86% L-10%, ESR- 53 mm in 1st hour
RBS	4.2 mmol/l
S. Creatinine	0.9 mg/dl
Serum electrolytes	Na 135 mmol/l K 3.9 mmol/l Cl 96 mmol/l
Urine R/M/E	Pus cell—10-15/HPF
Serum Ca	8.3 mg/dl
PTH	54.8 pg/ml
Serum urea Uric acid	3.8 mg/dl
Serum urea	39 mg/dl
SGPT	27
Chest X-ray P/A view	Normal study
USG of whole abdomen	Normal study.

TableII : Specific investigations

Specific investigations	Findings
CSF study	WBC count: 05/cmm (lymphocytes-100%) CSF protein – 116.40 mg/dl CSF Glucose– 45.36 mg/dl
MRI of Lumbosacral spine with Screening of whole spine	1. Disc extrusion at L4/L5 level causing bilateral neural foramina narrowing with exiting nerve root compression. Disc bulge at L5/S1 level .Degenerative disc disease. 2. Screening of whole spine: Disc protrussion with mild thecal sac indentation at C3/C4 , C4/C5, C5/C6 levels.
NCS of both lower limbs:	These electrophysiological findings are consistent with peroneal neuropathy Left>right (axonal).

Table 3 : NCS of both lower limbs

Peroneal	Latency	Amplitude
Left	0.0 uV	0.00uV
Right	3.6 ms	850.00uV

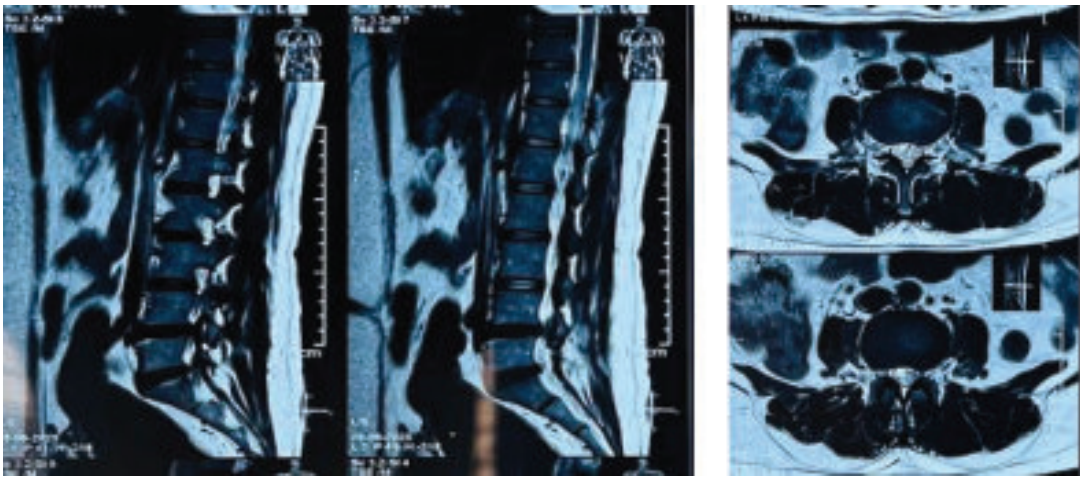

Figure 1 Disc extrusion at L4/L5 level causing bilateral neural foramina narrowing with exiting nerve root compression. Disc bulge at L5/S1 level .Degenerative disc disease.

We started a systemic steroid treatment (2mg/kg/d) for a total duration of 5 days. Thereafter the woman was improved and slowly regained her lost motor functions and was able to stand and walk independently.

Discussion:

TM is a diverse collection of inflammatory diseases affecting the spinal cord that can manifest as a variety of motor, sensory, and autonomic dysfunction[10]. It is a rapid-onset inflammation of the spinal cord, but the absence of a clear sensory level is an unusual presentation that suggests a more complex or partial involvement of the spinal cord, such as in certain inflammatory or autoimmune conditions like multiple sclerosis or neuromyelitis optica spectrum disorder[11].

While TM is characterized by sensory, motor, and autonomic (bladder/bowel) dysfunction below a certain spinal cord level, the absence of a specified sensory level may indicate an asymmetric lesion, a more diffuse inflammatory disease, or a syndrome that resembles TM [12].

Positive and negative sensory symptoms are prevalent in TM. The dermatomes just rostral to the sensory level are responsible for the circumferential band of dysesthesia that some individuals feel around their trunk. A constricting sensation that varies in intensity from mild discomfort to intense spasmodic or burning pain may occasionally accompany this. According to the authors, this symptom can be so upsetting that it would be better described as the "anaconda squeeze"! TM-related pain might be radicular or central, with a profound aching sensation [13].

Although the imaging is frequently used to confirm the diagnosis by displaying a lesion, spinal cord MRIs can be normal in as many as 40% of TM patients.[14] This may occur as a result of non-specific, tiny, or inflamed lesions that are not evident on the MRI at the time of the scan. Other diagnostic procedures, such as a lumbar puncture to look at the spinal fluid, are essential for diagnosing TM, even though a normal MRI does not rule it out.[14]

First line of treatment for acute TM is frequently intravenous steroid administration. Among the many ways that corticosteroids work are their anti-inflammatory, immunosuppressive, and antiproliferative effects[15].Unless there are strong reasons to avoid this treatment, the standard of care entails intravenous methylprednisolone (30 mg/kg up to 1000 mg daily) or dexamethasone (adults 120 to 200 mg daily) for three to five days.19. After five days of steroids, the clinical course and MRI appearance are frequently used to determine whether to continue the steroids or add a new medication [15, 16].

Because the cause may be autoimmune, high-dose intravenous corticosteroids are frequently used in idiopathic patients, occasionally followed by plasma exchange [17]. It's unclear if such a program is effective.

Early administering IV Methylprednisolone, ideally within the first week after symptom start, is connected with a better outcome. A small spinal cord lesion length, minimal initial impairment, and timely therapy initiation all contribute to a good response[18].

Conclusion:

Because of its subtle nature and diverse presentation, TM is an uncommon and complex disease that can be difficult to diagnose. The importance of reassessment is highlighted by the fact that, despite diagnostic difficulties, early diagnosis and treatment can greatly improve results. This case report highlights the significance of taking neurologic diagnoses like TM into consideration for patients, even if there are numerous potential causes of lower limb weakness with autonomic involvement but no sensory level and normal MRI findings.

Conflict of Interest:

The authors stated that there is no conflict of interest in this study.

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Consent for publication:

Informed written consent was taken from the parents of the patient to publish details relevant to the disease and management.

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Authors' contributions:

All authors were involved in the management of the patient and all authors contributed to the conception, writing, and editing of the case report.

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