

Anorectal Dysfunction and Multiple Sclerosis in an Adolescent: A Rare Case Report

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1. Abstract

1.1. Background: Multiple Sclerosis (MS) is characterized by diverse neurological symptoms, including urination and bladder control complications. Pediatric Onset of Multiple Sclerosis (POMS) is rarer in children but more common in adults. Despite its prevalence, supplementary symptoms like anorectal dysfunction are crucial to recognize for accurate diagnosis.

1.2. Patient Descriptions: We present a case of a 13-year-old Afghan adolescent with no prior medical history who exhibited mechanical constipation, obstructed feces, and urinary and fecal blockage. The patient's symptoms included watery diarrhea, constipation, and hardened feces, culminating in bladder and bowel obstruction.

1.3. Discussion: Anorectal dysfunction is a significant issue among MS patients, impacting their quality of life. The prevalence of severe constipation can be high in this population. Anorectal dysfunction in MS is associated with advanced age, increased disability, prolonged disease duration, and urinary dysfunctions. Neurological impairments, medication use, lifestyle choices, and weakened abdominal muscles contribute to constipation and fecal incontinence.

1.4. Conclusion: Anorectal dysfunction in MS warrants attention due to its impact on patients' well-being. While mechanical constipation and obstructed feces are relatively rare, anal incontinence and constipation remain prevalent. Proper diagnosis requires considering both neurological and non-neurological factors. The

physiopathology of anorectal dysfunction in MS is a relatively unexplored area. Greater research and awareness are needed to improve the management of anorectal dysfunction in MS patients.

2. Introduction

Multiple Sclerosis (MS) is a chronic inflammatory demyelinating neurological disorder that gives rise to a spectrum of diverse neurological symptoms, including complications associated with urination and bladder control [1,2]. While Pediatric Onset of Multiple Sclerosis (POMS) remains a rare affliction in children, it is relatively common among adults [3]. POMS contributes to 3-10% of all MS diagnoses, exhibiting varying incidence rates across different countries. Estimated to occur at a rate of 0.66 to 1.66 per 100,000 children under 16 or 18 years of age, its prevalence displays geographical variability [4-8]. Clinical presentations most frequently encompass long tract involvement (65%), brainstem symptoms (37%), optic neuritis (ON) (34%), and acute demyelinating encephalomyelitis (ADEM) (15%) [4].

However, it is imperative to recognize supplementary symptoms, including challenges related to defecation, bladder blockage, and constipation, which can be pivotal in preventing oversight of MS patients. In this article, we present a case of MS in a 13-year-old child who exhibited constipation and experienced obstructed defecation due to concurrent urinary and stool blockage.

3. Case Presentation

A 13-year-old Afghan adolescent with no prior medical history presented to our pediatric hospital's emergency department with

symptoms of mechanical constipation, obstructed feces, and urinary and fecal blockage. Upon arrival, the patient exhibited alertness but appeared unwell and pale. Initial symptoms, which had commenced ten days prior to admission and persisted for three days, consisted of watery diarrhea occurring three times daily, followed by the onset of constipation and hardened feces.

While the urinary obstruction was resolved through Foley urinary catheterization, the constipation worsened progressively. A prescription for powdered pidrolax was issued; however, over the subsequent three days, neither a bowel movement nor a substantial urination volume was achieved. Watery stools had emerged two days prior to admission, and 18 hours before admission, the patient ceased passing urine, accompanied by the onset of abdominal discomfort.

Upon presentation, the patient's vital signs indicated a body temperature of 36.2 °C, blood pressure of 110/75 mmHg, heart rate of 84 beats per minute, respiration rate of 14 breaths per minute, and ambient air oxygen saturation level of 98%. The patient had a negative medical history concerning hospitalizations, family background, surgeries, social aspects, drug usage, and allergies. Complete vaccinations had been administered, and there were no indications of developmental delays.

During the physical examination, the patient displayed normal awareness of time, place, and individuals, along with a dry mouth, chapped lips, abdominal distension, tenderness in the hypogastrum region, and a distended and painful bladder palpable up to the level of the umbilicus. The deep tendon reflex (DTR) response was hypoactive, and digital rectal examination (DRE) revealed the presence of feces. Bilateral Babinski reflexes were elicited. The patient exhibited normal muscle tone and lacked tremors.

Several potential diagnoses were considered prior to obtaining an MRI due to the acute sphincter dysfunction:

1. Neurological or cerebrospinal disorders, including transverse

myelitis or trauma-related conditions.

2. Neuronal impact induced by viral infections like COVID-19.

3. Upper motor neuron disorders such as MS (pertinent to MRI findings).

4. Mitochondrial disorders.

5. Acute disseminated encephalomyelitis (ADEM).

6. Meningitis (considered if the patient demonstrated Kernig's sign and fever).

Given the simultaneous and acute relapse of both urinary and anal sphincter efficiency, suggestive of a neurological involvement, an MRI was conducted, yielding the following results (Figure 1 and Table 1):

Initial medication management encompassed intravenous administration of ampule apotel (450 mg twice daily if body temperature exceeded 38 °C) and ampule pantoprazole (40 mg every 12 hours). Additionally, intravenous dextrose and sodium chloride infusions totaling 1500 cc along with 15 cc of 15% potassium chloride over 24 hours were administered. Enema using 150 cc of liquid paraffin and 150 cc of normal saline (three times daily), antihemorrhoid ointment (administered thrice daily), consumption of 4 glasses of water daily, and Foley catheter fixation were undertaken.

Although plans encompassed lumbar puncture for oligoclonal band assessment, quantification of Immunoglobulin G (IgG) markers, and Electromyography test and Nerve Conduction Velocity (EMC-NCV) upon MRI confirmation of demyelinating plaques indicative of MS, these plans were impeded by the unavailability of required facilities in our pediatric hospital and the patient's family's limited socioeconomic resources to travel to a better-equipped city. Consequently, the patient's parent was informed of the discharge instructions before the patient's release. The provided instructions included: tab Biotin 5mg (oral, twice daily), tab pantoprazole 20 mg (oral, twice daily), and powdered pidrolax (one spoon dissolved in one glass of water, daily).

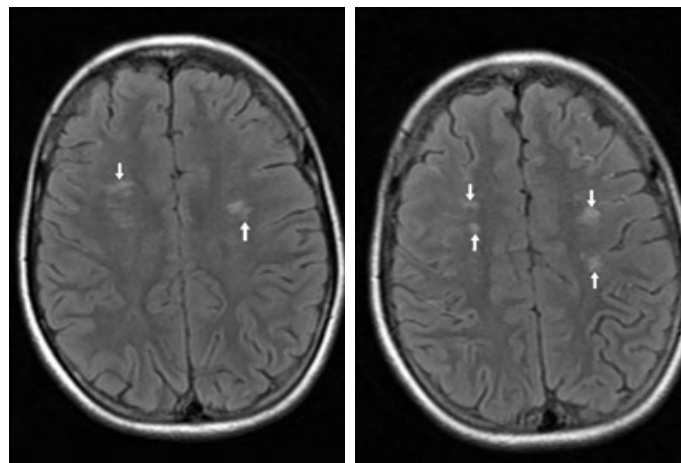


Figure 1: Axial, T1-weighted image showing contrast-enhancing lesions (arrows) consistent with active multiple sclerosis lesions.

Table 1: The result of MRI.

MRI OF BRAIN WITH AND WITHOUT CONTRAST INJECTION	MRI OF TOTAL SPINE WITH AND WITHOUT CONTRAST INJECTION
Multiplanars and multisequentials images reveal:	Multiplanars and multisequentials images reveal:
Some periventricular and subcortical T2 high signal foci are seen some displaying characteristic distribution and perpendicular orientation to callososeptum	Vertebral bodies are normal in shape , signal and alignment
Typical involvement of corpus callosum is seen	No bone marrow signal abnormality is seen
Involvement of brain stem is seen	Anteroposterior diameter of total canal is normal
Degree of hypoplasia at body of corpus callosum is also seen	No evidence of disk herniation, canal or intervertebral foraminal narrowing is seen in total spine
Active enhancing plaque is not seen	Cord signal is normal
Gray and white matter differentiation is normal	No pathologic enhancement is seen after contrast injection
Ventricles and basal cisterns are compatible with patient age	Correlation with history and close follow up for R/O possibility of white matter disorder is recommended
CP angles are normal	
Sella supra and parasellar regions are unremarkable	

4. Discussion

Anorectal dysfunction is a prevalent issue among patients with MS, significantly impacting their overall quality of life. Studies have indicated that the prevalence of severe constipation among individuals with MS can be as high as 68% [9]. In the context of MS, anorectal dysfunction is closely associated with factors such as advanced age, increased disability, prolonged disease duration, and urinary dysfunctions. Notably, three distinct factors that are seemingly disparate predict the occurrence of anorectal dysfunction in MS: female gender, higher disability status scale, and urinary dysfunctions [10]. The etiology of constipation in MS can be attributed to neurological impairments that affect the recognition of rectal fullness, colonic motility, pelvic dyssynergia, and weakened abdominal wall muscles responsible for fecal release. Non-neurological variables such as medication use, lifestyle choices, and behavioral decisions also contribute. Additionally, anal sphincter weakness, uncontrolled colonic contractions, and anorectal hyposensitivity collectively lead to fecal incontinence. It is important to consider non-MS causes, such as diabetes, obstetric injuries, medications, and lifestyle factors [11]. However, the exploration of the underlying physiopathology of anorectal dysfunction in multiple sclerosis patients remains an area that has received limited attention. Existing knowledge recognizes the involvement of both extrinsic and intrinsic neuronal regulation, pelvic floor muscles, anorectal sensation, and voluntary control—all pivotal for maintaining continence and anorectal function [12]. Studies by Munteis et al. have highlighted the most common anal monomeric abnormalities identified in MS patients with anorectal dysfunction (ARD), encompassing alterations in maximal pressures, anal inhibitory reflex, and paradoxical contraction [13].

5. Limitations

Given the patient's constrained socioeconomic circumstances and the unavailability of diagnostic resources such as EMG-ECV and LP tests within our pediatric hospital, definitive classification of this case as MS could not be achieved. Nonetheless, based on clinical signs and symptoms, along with the initial MRI findings, MS emerged as the most probable diagnosis. It's important to note that MS is typified by two distinct attacks affecting different areas of the central nervous system, occurring separately within 30 days and each lasting for more than 24 hours.

6. Conclusion

Anorectal dysfunction poses significant discomfort for individuals grappling with multiple sclerosis. While the literature indicates that mechanical constipation, obstructed feces, and urine blockage are relatively uncommon occurrences, anal incontinence and constipation remain frequent observations among those with MS. Supplementary diagnostic methods such as defecography, anal manometry, and lumbosacral MRI prove invaluable in highlighting anorectal dysfunctions within the MS patient cohort. In clinical practice, it is prudent for healthcare providers to be attuned to the infrequent coexistence of MS in patients presenting anorectal dysfunction and mechanical constipation.

7. Patients Perspective

In my capacity as the patient's father, I wish to express my satisfaction with the manner in which you navigated the diagnosis and treatment of my child's ailment. Furthermore, I have no reservations regarding your dissemination of these specifics to others.

References

1. Dandin Ö, Akpak YK, Karakaş D. A rare condition of anorectal dysfunction in a patient with multiple sclerosis: Coexistence of faecal incontinence and mechanical constipation: Report of case. *Int J Surg Case Rep.* 2014; 5(12): 1091-1094.
2. Jameson JS, Rogers J, Chia YW, Misiewicz JJ, Henry MM, Swash M, et al. Pelvic floor function in multiple sclerosis. *Gut.* 1994; 35(3): 388-390.
3. Deiva K. Pediatric onset multiple sclerosis. *Rev Neurol (Paris).* 2020; 176(1-2): 30-36.
4. Absoud M, Lim MJ, Chong WK. Paediatric acquired demyelinating syndromes: incidence, clinical and magnetic resonance imaging features. *Mult Scler.* 2013; 19(1): 76-86.
5. Banwell B, Kennedy J, Sadovnick D. Incidence of acquired demyelination of the CNS in Canadian children. *Neurology.* 2009; 72(3): 232-239.
6. Ketelslegers IA, Catsman-Berrevoets CE, Neuteboom RF. Incidence of acquired demyelinating syndromes of the CNS in Dutch children: a nationwide study. *J Neurol.* 2012; 259(9): 1929-1935.
7. Langer-Gould A, Brara SM, Beaver BE, Koebnick C. Childhood obesity and risk of pediatric multiple sclerosis and clinically isolated syndrome. *Neurology.* 2013; 80(6): 548-552.
8. Reinhardt K, Weiss S, Rosenbauer J, Gärtner J, von Kries R. Multiple sclerosis in children and adolescents: incidence and clinical picture - new insights from the nationwide German surveillance (2009-2011). *Eur J Neurol.* 2014; 21(4): 654-659.
9. Weber J, Grise P, Roquebert M. Radiopaque markers transit and anorectal manometry in 16 patients with multiple sclerosis and urinary bladder dysfunction. *Dis Colon Rectum.* 1987; 30(2): 95-100.
10. Munteis E, Andreu M, Téllez MJ, Mon D, Ois A, Roquer J, et al. Anorectal dysfunction in multiple sclerosis. *Mult Scler.* 2006; 12(2): 215-218.
11. Coggrave M, Norton C, Cody JD. Management of faecal incontinence and constipation in adults with central neurological diseases. *Cochrane Database Syst Rev.* 2014(1): Cd002115.
12. Wiesel PH, Norton C, Glickman S, Kamm MA. Pathophysiology and management of bowel dysfunction in multiple sclerosis. *Eur J Gastroenterol Hepatol.* 2001; 13(4): 441-448.
13. Muntries E, Andreu M, Martinez-Rodriguez J, Ois A, Bory F, Roquer J, et al. Manometric correlations of anorectal dysfunction and biofeedback outcome in patients with multiple sclerosis. *Mult Scler.* 2008; 14(2): 237-242.