"UNMASKING STIFF PERSON SYNDROME: NAVIGATING WEAK IMMUNOLOGICAL MARKERS WITH STRONG CLINICAL SUSPICION"

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INTRODUCTION

Stiff Person Syndrome (SPS) is a rare autoimmune neurological disorder due to Impairement of GABA inhibitory pathway, particularly in spinal cord,leading to motor overactivity.It is characterized by muscle rigidity, painful spasms, and exaggerated startle responses. Though classically associated with anti-GAD antibodies, approximately 19% of patients may be seronegative, complicating early diagnosis. This report highlights a diagnostically challenging case of SPS with spontaneous ankle clonus and startle-induced spasms.

CASE DETAILS:

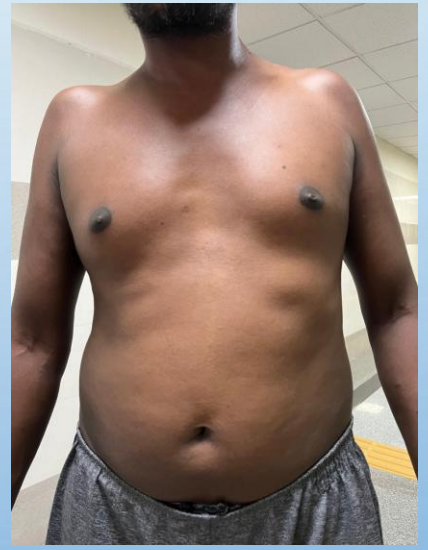
A 45-year-old male, teetotaler with no prior comorbidities, presented with a progressive movement disorder beginning in September 2024. Symptoms started as painful, episodic dystonic posturing of limbs triggered by specific activities (e.g., applying brakes, pressing an accelerator), lasting 5–10 minutes. These episodes gradually increased in frequency and severity, leading to falls and functional impairment.Following a workplace fall and right knee ACL injury (surgically treated), he developed startle-like responses to sudden stimuli, emotional outbursts, and lower back pain with stiffness in both lower limbs—right more affected. He described tightness, heaviness, and difficulty with squatting, stair climbing, and walking.Over time, he developed involuntary jerks and rhythmic twitching of the right ankle and calf muscles, initially activity-induced but later occurring at rest. In the past three months, these symptoms worsened, significantly impacting daily activities.He also experienced two paroxysmal episodes with impaired awareness, limb posturing, and facial deviation (September 2024 and January 2025). Family reported low mood, anxiety, and irritability. There were no sensory deficits, cranial nerve involvement, bowel/bladder symptoms, or psychotic features

EXAMINATION:

Deep Tendon Reflexes (DTRs): Brisk (3+) in bilateral biceps, triceps, supinator, and knee jerks; exaggerated ankle reflexes (3+ left, 4+ right)Involuntary Movements: Brief spontaneous jerks in calf muscles and rhythmic twitching of right ankle, especially during movement attemptsPlantar Response: Flexor bilaterallySensory System: IntactCerebellar Signs: AbsentSpinal Tenderness: Not present

Tibialis anterior, tibialis posterior, and gastrocnemius variably cocontract, resulting in a painful spastic foot inversion with either toe extension or claw-toe formation and swollen foot that prevents patients for full-step initiation

In chronic and severe cases,the hypercontracted thoracolumbar region resembles an S-shape formation



Concurrent Hypercontraction of thoracolumbarparaspinals[agonists and abdominal[antagonists muscles due to impaired reciprocal inhibition

in stiff-paersonsyndrome.

INVESTIGATIONS:

Routines : CBC,LFT,RFT – normal

TFT –TSH :0.001 FT4-5.7

FBS 136 PPBS-211, lipids normal

NCS of all 4 limbs- normal study

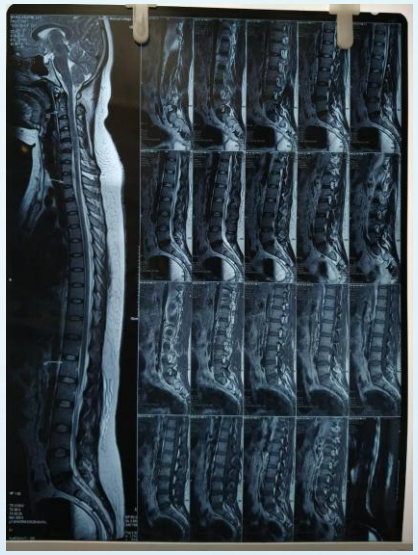
EMG- cocontarction noted in agonist and antagonist

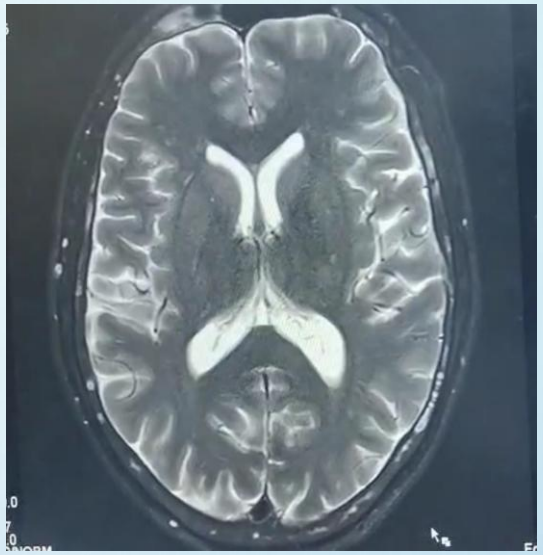
Antibody panel: Anti GAD 65 antibody positive

anti amphiphysin and Anti zic 4 antibody negative

Mri LS spine with whole spine screening ;No significany anomaly

Paraneoplastic antibodies and screening were negative





Test Report

Test Name	Results	Units	Bio. Ref. Interval
GAD-65 (GLUTAMIC ACID DECARBOXYLASE- 65) IgG,SERUM (CLIA)	162.00	IU/mL	<10.00

Comments

Glutamic Acid Decarboxylase (GAD) autoantibodies are detected in most newly diagnosed Type1 A Diabetes patients and in about 80% of prediabetic first degree relatives of patients. Anti GAD are directed primarily at the GAD 65 isoform which is found mainly in pancreatic islet cells and in the central nervous system. Presence of GAD autoantibodies is also associated with Stiff man syndrome.

MANAGEMENT

Started on baclofen, diazepam, gabapentin → partial relief.IVIG initiated for suspected Stiff Person Syndrome.Noted good response: spasms, twisting, startle episodes improved.Patient regained mobility, able to walk without support.Impression: Autoimmune Stiff Person Syndrome (Anti-GAD65 positive).

DISCUSSION

This case underscores the importance of clinical acumen in diagnosing SPS, particularly in seronegative or weakly positive patients. Its very crucial to differentiate it from functional movement disorders. Moreover,SPS also has a functional overlay, in the form of depression,anxiety, even suicidal tendencies. Autoimmune associations such as thyroid dysfunction and diabetes further support the diagnosis. EMG findings of continuous motor activity are crucial in such cases.

CONCLUSION:

Stiff Person Syndrome should be considered in patients with unexplained muscle rigidity, spasms, and exaggerated startle responses, even without definitive antibody positivity. Early recognition and immunotherapy can dramatically improve outcomes and prevent long-term disability.

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