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Rare Case of Schmidt Syndrome

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Abstract:

When immune dysfunction affects two or more endocrine glands and additional non-endocrine immune illnesses are present, the polyglandular autoimmune (PGA) syndromes should be investigated. PGA syndromes are categorized into two types: PGA type I and PGA type II. We are reporting on a patient who had primary adrenal insufficiency, autoimmune hypothyroidism, and insulin-dependent diabetic mellitus and was diagnosed with "Schmidt's syndrome" (PGA type II). This condition is a rare autoimmune disorder that is difficult to identify because the symptoms vary depending on which gland is affected initially. Our patient had corticosteroid, thyroxine, and insulin medication, which helped him improve.

Keywords: Polyglandular, Schmidt's syndrome, autoimmune, primary adrenal insufficiency, autoimmune hypothyroid, insulin-dependent diabetes mellitus

Introduction:

We present a typical APS-2 case defined by adrenal insufficiency and thyroid illness also known as Schmidt Syndrome. Addison's illness, autoimmune thyroid disease, and type 1 diabetes all fall under the category of type II polyglandular autoimmune syndrome (PGA). Idiopathic primary adrenal insufficiency results from an autoimmune disease that kills the adrenal cortex. When both humoral and cell-mediated immune systems target the adrenal cortex, it is frequently accompanied by autoimmune destruction of other endocrine glands, commonly known as polyglandular autoimmune disorders (PGA).[1] PGA II is more common than PGA I. This syndrome is extremely unusual and can afflict both sexes at any stage of their lives, but it is most typically seen in middle-aged women. PGA type 2 is also called Schmidt's syndrome. Schmidt's syndrome affects 1.4-2.0 people out of every 100,000. [2]

Addison's illness, autoimmune thyroid disease, and type 1 diabetes all fall under the category of type II polyglandular autoimmune syndrome (PGA).[1] We are reporting the case of a 72-year-old man with an unusual presentation. He received treatment, over 5 years. He was diagnosed with Schmidt Syndrome. Because of its unique presentation and rarity, polyglandular autoimmune syndrome has received very few reports up to this point.

Case Report:

A 72-year-old male of South Asian ethnicity presented in the emergency department on the morning of March 2022, the acute confusion of patients, language barrier, and delayed developmental milestone history was taken from the patient's wife, the reported presenting symptoms were a complaint of persistent fatigue, weight loss (10kg in 1 year) intermittent episodes of nausea, and episodes of dizziness, especially upon standing, and diarrhea. He denies any recent travel, infections, or significant stress. One week ago, he was complaining of night sweats, with no other symptoms such as chest pain, shortness of breath, nausea, abdominal pain, diarrhea, leg swelling or uncontrolled pain, dysuria, increased urinary frequency or urgency, he was admitted in 2007 for nausea, vomiting and diarrhea and found to have significant hyponatremia with a sodium of 108. There was suspicion of a possible adrenal insufficiency with adrenal crisis due to the severe hypotension and electrolyte disturbances. Subsequent investigations revealed a significantly elevated ACTH level of 945 and a low serum cortisol of 136. TSH was elevated at 62.57 with a low free T3 (.7) and T4 (2). He was seen by the Endocrinology service and diagnosed with Schmidt's syndrome which is an autoimmune adrenal insufficiency and hypothyroidism. He was placed on hydrocortisone and Florinef. He was seen by the Neurology service who recommended switching his Dilantin to Clobazam given the concern that Dilantin may potentiate further hyponatremia.

Medical History: Developmental delay (per discharge note in March and April 2007) Seizures disorder Schmidt's syndrome: primary adrenal insufficiency and hypothyroidism (Diagnosed in 2007 during hospitalization) Diabetes Mellitus Type 2 (HbA1c in January 2022 5.4% <--Diagnosed in May 2019--12.8%) Hyperlipidemia OSA(Per resp note in November 2021, not on CPAP). No previous personal history of major medical conditions. Home Medications: Metformin 500mg once daily Hydrocortisone-- hydrocortisone 10 mg in the morning, 5 mg in the evening Fludrocortisone acetate 0.1mg once daily Levothyroxine 75mcg once daily Rosuvastatin 5mg once daily.

The patient was advised for follow-up up and every visit was documented, Laboratory investigations reportedly worsened over time, and serum creatinine was reported highest in 2024, with ALT at lowest in 2024 as well. Hemoglobin levels were reported to fluctuate from 2022 till 2024, with HbA1c and HDL levels at a peak in 2024. LDL levels were higher between 2022-2023, with lipid levels persistently going up and down during the course of follow up, reported to be highest in 2021. Albumin creatinine ratio level reported an upsurge in 2024, while eGFR dropped in 2024.

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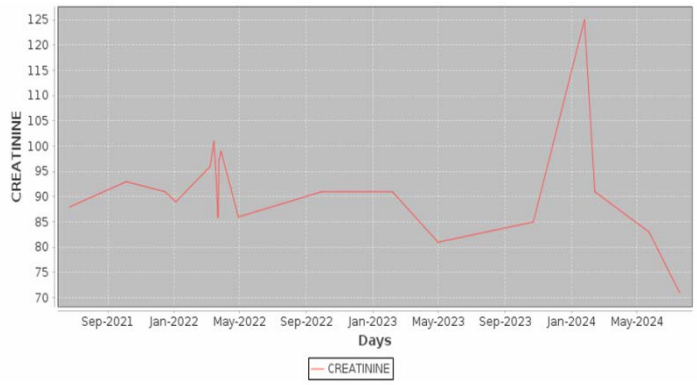
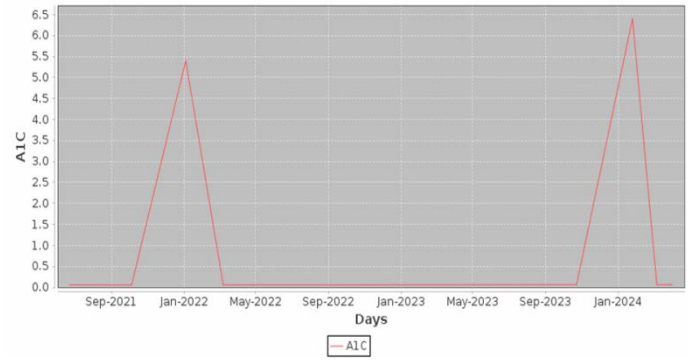
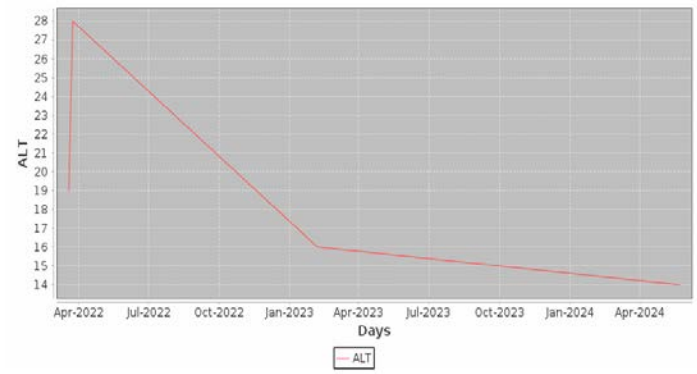
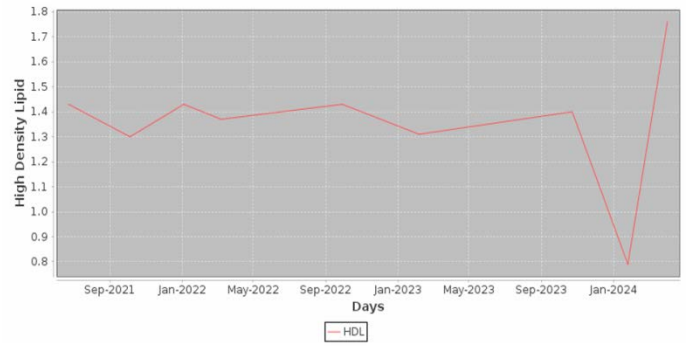


A1C levels

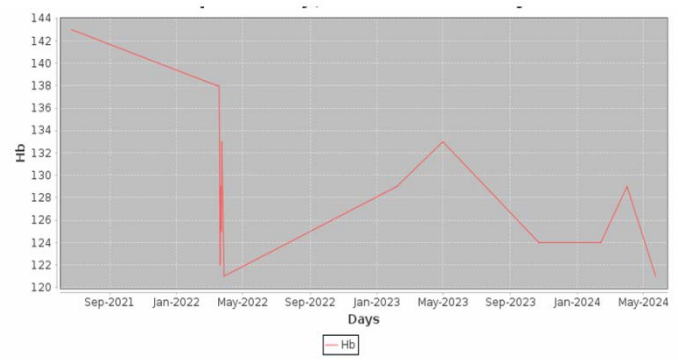




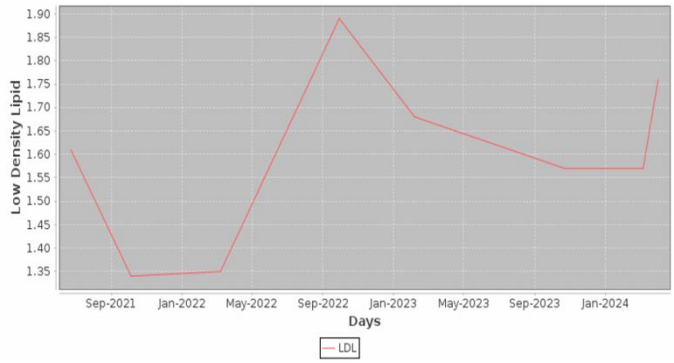
HDL levels



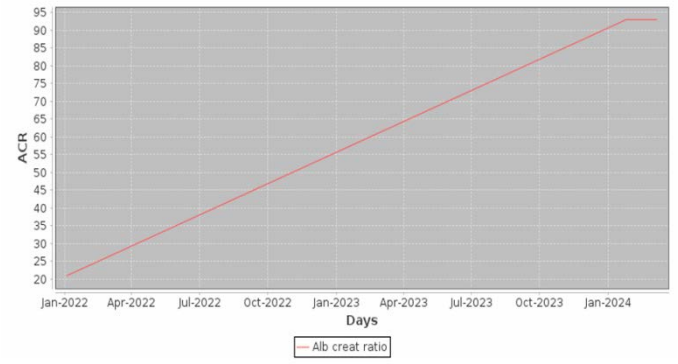
Hb levels



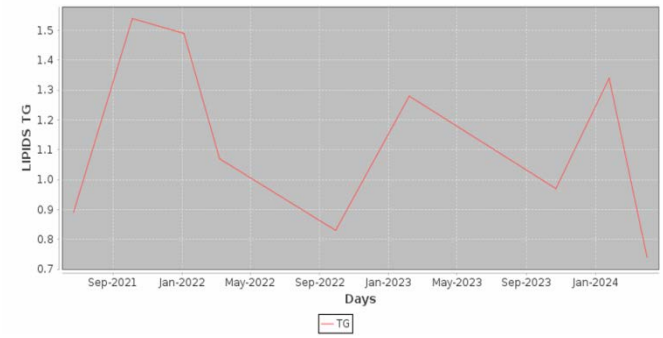
LDL levels



Albumin creatinine ratio levels



Lipids Levels



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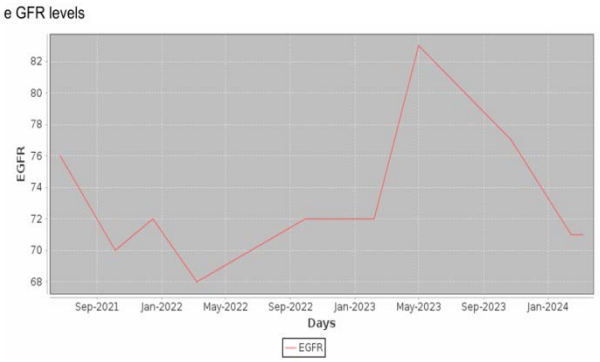

Discussion:

Polyglandular autoimmune syndrome type II (PGA-II) is the most prevalent of the immunoendocrinopathies. It is distinguished by the presence of autoimmune Addison's disease in conjunction with thyroid autoimmune illnesses and/or type 1 diabetes (also known as insulin-dependent diabetes mellitus, or IDDM).[3] Primary hypogonadism, myasthenia gravis, and celiac disease are all common features of this syndrome. The definition of the syndrome is based on the fact that if one of the component illnesses is present, the related disorder occurs more frequently than in the general population. The most common clinical combination is Addison's disease and Hashimoto thyroiditis, while the least common is Addison's disease, Graves disease, and type 1 diabetes mellitus.[2]

Polyglandular autoimmune syndrome type II affects approximately 14-20 persons per million. However, observations have shown that the disease is far more widespread when subclinical forms are considered. Polyglandular autoimmune type 2 (or Schmidt's syndrome) syndrome was diagnosed due to the presence of Addison's disease, autoimmune thyroid disease, and type 1 diabetes. This syndrome is frequently overlooked due to its atypical presentation, and the patient's clinical symptoms are determined by which gland is involved first and the severity of that gland dysfunction. Other related illnesses may exist, such as primary hypogonadism, myasthenia gravis, and celiac disease, although none of these disease symptoms were observed in our patient. [4]

Dr. Thomas Addison, a British physician, described Addison's illness, which now carries his name.2 Addison's disease is caused by injury to the bilateral adrenal cortex, with TB being the most common cause. Tuberculosis now accounts for just 7 to 20% of cases, whereas autoimmune disorders account for 70 to 90%, with the rest caused by various infectious diseases, metastatic cancer or lymphoma, and adrenal hemorrhage or infarction. [5]

Primary adrenal insufficiency is caused by an autoimmune disease that damages the adrenal cortex. When there is evidence of both humoral and cell-mediated immune mechanisms targeting the adrenal cortex, it is frequently coupled with autoimmune destruction of other endocrine glands, known as polyglandular autoimmune disorders.[1]

The serum of 86% of patients with autoimmune primary adrenal insufficiency contains antibodies that react with many steroidogenic enzymes and all three zones of the adrenal cortex, whereas this is rare in patients with other types of adrenal insufficiency or in healthy people.3 However, first-degree relatives of individuals with autoimmune primary adrenal insufficiency express these antibodies and are up to 10% more likely to develop adrenal insufficiency.[3]

The type II syndrome (PGA2) is far more common than the type I condition. It is connected with the HLA-DR3 and/or HLA-DR4 haplotypes. The inheritance pattern is autosomal dominance with varying expressivity and a female-to-male ratio of 3-4:1, which occurs in the third or fourth decade of life.4 Primary adrenal insufficiency is the primary symptom of 5,6 PGA type II, with autoimmune thyroid disease, mainly chronic autoimmune thyroiditis but occasionally Graves' disease, and type 1 diabetes mellitus also present. Clinical characteristics are a constellation of distinct endocrinopathies. Adrenal insufficiency is the first symptom in nearly half of patients, and it occurs together with diabetes mellitus and autoimmune thyroid disease in about 30% and 20%, respectively. [6]

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Conclusion:

The patient was identified with Schmidt syndrome, and appropriate therapy was initiated. Although Schmidt syndrome is an uncommon disorder, an accurate diagnosis is critical to initiating correct therapy, which, while requiring a lifetime commitment, can alleviate all symptoms.

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