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IgG 4-related hypophysitis leading to diabetes insipidus

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Abstract

Presentation

A 60-year-old man with chronic pancreatitis, type 2 diabetes, and alcohol dependence presented with two months of polyuria, polydipsia, two weeks of weight loss, and three days of fatigue. His blood pressure was 97/54 mmHg, temperature 39°C, and SpO2 94%. Chest exam showed bilateral basal crepitations, but the rest was normal. He was on metformin and insulin for diabetes.

Diagnosis

His blood tests were mostly normal, but his chest X-ray showed basal consolidations, leading to a pneumonia diagnosis treated with IV antibiotics. He developed metabolic acidosis and was transferred to the ICU. Low cortisol and ACTH levels pointed to adrenal insufficiency. MRI showed pituitary stalk enlargement, and IgG4 antibodies were elevated, confirming IgG4-related hypophysitis.

Treatment

He was started on steroids and desmopressin for adrenal insufficiency and diabetes insipidus, with improvements in his sodium levels and symptoms.

Discussion

IgG4-related disease, a rare condition, involves multiple organs, including the pituitary, causing hypophysitis and other systemic effects.

Presentation

A 60 year old male patient with normal baseline functional status(mRS=0) has a background history of chronic pancreatitis, type 2 diabetes mellitus, and alcohol dependency presented to the emergency department with polyuria and polydipsia from the last two months, unintentional weight loss from the last two weeks, and fatigability with clammy and sweaty

hands from last 3 days. At presentation his blood pressure was low (97/54 mmHg), temperature 39 C, SpO2 94% at room air, and heart rate of 66bpm. On chest examination, he had bilateral basal crepitation. The rest of the physical examination was normal. His medications include metformin and Insulin for diabetes.

Diagnosis

His FBC, RFTs, and LFTs were normal with a CRP of 22 and Na 131. However, his CXR showed bilateral basal consolidations and he was commenced on IV antibiotics to treat community-acquired pneumonia. His urine and serum osmolality and urinary spot sodium were sent. Early morning serum cortisol and thyroid function tests were also sent as a part of the hyponatremia workup. The next day, his blood pressure continued to drop despite of intravenous fluids. He became distressed and dyspneic. His arterial blood gases showed metabolic acidosis. Metformin was held and was transferred to the ICU for possible inotropic support. His urine output was calculated and was more than 7L in 24 hours. His morning serum cortisol levels were low (40nmol/L). Short synectin was performed and ACTH was sent. He failed SST and his ACTH was low (12.5pmol/L). He was started on hydrocortisone and a pituitary profile was sent. His urine osmolality was 119, serum osmolality 296, spot sodium 30 ,testosterone <0.5, prolactin 434, TSH 2.10, T4 14.5, FSH 1.0, LH 0.0, calcium 2.25. The pituitary profile showed hypopituitarism. The pituitary MRI was arranged which showed infundibular hypophysitis with enlarged pituitary stalk. MRI finding points towards an infiltrative cause. Based on his previous history of pancreatitis IgG4 antibodies were sent. His IgG4 antibodies were raised (200mg/dl). Further workup was done with CT Thorax, Abdomen, and Pelvis which showed mediastinal adenopathy with the possibility of sarcoidosis which could be the cause of hypophysitis. His ACE levels were within the normal range (20). Applying the diagnostic criteria for IgG4-related hypophysitis (Pituitary MRI result and serology with raised IgG4), the patient was diagnosed with IgG-related hypophysitis.

Treatment

The patient was started on steroids for secondary adrenal insufficiency. He was also given desmopressin intravenously. His urine output improved. Later he was switched to oral desmopressin and oral hydrocortisone (10mg twice a day). Later he was switched to oral prednisolone once a day for better compliance and patient preference. Currently, he is on 5mg of oral prednisolone after reducing the dose from 10mg and desmopressin 120mcg once a day at night time. His sodium improved to 140mmol/L and he has no polyuria or polydipsia at present. He is currently not on thyroid replacement therapy as his FT4 is 20 pmol/L. He is taking Testogel once per day as a testosterone replacement for hypogonadotropic hypogonadism. He is currently under follow-up with the Endocrine team.

Discussion

IgG4-related disease (IgG4-RD) is a rare but increasingly recognized condition, emerging as a clinical entity following the observation of the associations of autoimmune pancreatitis[1]. Clinical manifestations classically include autoimmune pancreatitis, lacrimal or salivary gland infiltration (formerly known as Mikulicz disease), and retroperitoneal fibrosis. Although most frequently described in middle-aged males, the epidemiology and pathogenesis of the disease remain largely undefined[2]. Further, pituitary involvement in IgG4 disease has seldom been documented with only 8 published cases as of 2010[3]. Pituitary hypophysitis, causes of which are radiologically indistinguishable and include IgG4-related adenohypophysitis, occurs at an estimated prevalence of one in nine million individuals per year[4].

IgG4-related diseases are characterized by increased serum levels of IgG4 and inflammation of various organs with infiltration of IgG4-bearing plasma cell fibrosis and obliterative phlebitis. IgG4 hypophysitis occurs as a separate or as a part of multiple organ involvement. Pan hypopituitarism develops in 44% with DI being the most common.

Declarations of Conflicts of Interest:

None declared.

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