

Case Report

An Unusual Presentation of Addison's Disease —A Case Report

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Abstract. Addison's disease is most commonly due to autoimmune adrenalitis and tuberculosis and refers to primary hypoadrenalism caused by a total or near total destruction or dysfunction of both adrenal cortices. Usual manifestations involve chronic fatigue, muscle weakness, loss of appetite, nausea, vomiting, diarrhea, hypotension and hyperpigmentation of skin. We herein report a case of primary adrenal insufficiency presenting with fever and seizures in an 11-yr-old boy. His symptoms resolved after starting specific therapy. This kind of presentation of Addison's disease is rather unusual.

Key words: Addison's disease, autoimmune adrenalitis, seizure, hyperpigmentation of skin, hyponatremia

Introduction

Endocrinal disorders remain undetected in the early part of their presentation, especially in developing countries due to lack of awareness amongst clinicians as well as limited facilities for special investigations (1). Low prevalence and atypical presentations make it imperative for clinicians to acquaint themselves with various presentations of these disorders (2–10). Addison's disease refers to primary hypoadrenalism caused by a total or near total destruction or dysfunction of both adrenal cortices. A deficiency of ACTH can also produce hypocortisolism, but this is known as secondary adrenal insufficiency. The two most common causes of Addison's disease are autoimmune adrenalitis and tuberculosis.

Other causes include invasion of glands by neoplastic cells, CMV virus, HIV, hemochromatosis, amyloidosis, hemorrhage (Waterhouse-Friderichsen syndrome) and surgical removal of glands (11, 12). The symptoms of adrenal insufficiency usually develop gradually with chronic fatigue, muscle weakness, loss of appetite, nausea, vomiting, and diarrhea. In about 50% of cases, blood pressure is low causing dizziness or fainting. Skin changes are also common with the areas of hyperpigmentation, more on exposed parts of the body. Addison's disease can cause salt depletion, resulting in craving for salty foods (13).

Case Report

An 11-yr-old boy presented with fever and seizures for seven days. His fever was not documented, moderate, intermittent and not associated with chills and rigors. Seizures were generalized tonic-clonic (GTCS), lasted for 1–2

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min and were followed by a brief period of loss of consciousness of 2–3 min, and he had 2–3 such episodes per day for the seven days before admission. In between the episodes of seizures, the patient was fully conscious and alert with no headache, lethargy or focal neurologic deficits. He also did not have any history of cough, cold, vomiting, diarrhea, otorrhea, head injury, jaundice, urinary complaint or recent injections or drug intake. There was past history of two episodes of brief GTCS during the last year for which the child was investigated at a peripheral hospital, but no records were available.

When examined after recovery from a postictal state, he was fully conscious and alert, his temperature was 100.5F (38.1C), his pulse was 112/min synchronous low volume, his respiratory rate was 26/min and his blood pressure was 82/54 mm of Hg in the right arm. His weight was 19.3 kg (<3rd centile), and his height was 128 cm (<3rd centile). There was no lymphadenopathy, neck swelling, dysmorphic features, clubbing or edema. He had some pallor and was not dehydrated. There was generalized blackish hyperpigmentation of the skin, oral mucous membrane and nails. His sexual maturity rating was stage 1. The results of a fundus examination and a systemic examination, including cardiovascular, respiratory, abdominal and neurological examinations, were normal. Investigations were performed to determine the cause of seizures and fever.

His hemoglobin was 9.8 g/dl, total leukocyte count was 7,800/mm³ and differential and platelet counts and CRP levels were normal. Peripheral smear examination showed normocytic normochromic anemia, and no malarial parasites were found. The Patient was hyponatremic with serum sodium of 111 mEq/l and serum potassium of 4.5 mEq/l. Other initial investigations including blood sugar (53 mg/dl), ionized / total calcium (4.8/9 mEq/l), phosphates (4.8 mEq/l), serum urea, creatinine and ABG (arterial blood gas), were normal. Serum bilirubin, total protein, albumin and globulin were normal, while SGOT,

SGPT and alkaline phosphatase were slightly increased. The results of urine microscopy and biochemical examination were within normal limits. His cerebrospinal fluid examination (microscopy, biochemistry and pressure) revealed normal results. Cultures of his cerebrospinal fluid, blood and urine were reported as sterile. An X-ray his chest, ultrasonogram of his abdomen including KUB and contrast enhanced CT head were normal. The result of a mantoux test was negative, and his EEG was normal. In view of his darker complexion compared with other family members, hyponatremia and hypotension evaluations for Addison's disease were also performed. His morning serum cortisol (4.54 micrograms/dl, N: 4.3–22.4 micrograms/dl) and serum aldosterone (27.50 pg/dl, N: 25–315 pg/dl) levels were low normal. An ACTH stimulation test showed poor response (prestimulation level of 14.64 micrograms/dl, poststimulation level of 13.87 micrograms/dl and normal expected rise of 10 micrograms/dl). His thyroid and parathyroid hormone profiles were normal. Antinuclear antibodies, rheumatoid factor and Coombs test (direct and indirect) were negative. His immunoglobulin profile (IgM, IgG, IgA and IgE) was also normal. MRI of the abdomen revealed small attenuated adrenals with no calcification or surrounding mass lesion. He was negative for hepatitis B, hepatitis C and HIV. Auto-antibodies against adrenal gland (viz. antiCYP21, CYP17, CYP11A1) could not be tested due to nonavailability of the test. However, in the absence of other common etiologies and suggestive MRI finding, autoimmune adrenalitis might have been the most possible cause of primary adrenal insufficiency in the present case.

This patient was managed with appropriate fluids including 3% saline and 10% dextrose saline. He responded quickly to therapy and had no further seizures after the first day of admission. Antibiotics and anticonvulsants that were started initially were withdrawn at this stage. His blood glucose, electrolytes and blood pressure showed continued improvement. His fever disappeared

after correction of fluids and electrolytes, thereby signifying dehydration as a cause of his fever. Moreover, his CRP and total leukocyte counts were also normal. After confirming his diagnosis, he was put on oral hydrocortisone and fludrocortisone at the recommended maintenance doses (oral hydrocortisone of 9.5–15.5 mg/m² TDS and fludrocortisone of 50–100 microgram OD) (14). During follow-up after three months, the patient was found to be gaining weight and to have normal electrolytes, blood sugar and blood pressure.

Discussion

Addison's disease has an incidence of 0.8 per million and a prevalence of 40–110 per million in the USA and European countries (15). No data on incidence and prevalence is available from India. Often, there is a delay in diagnosis due to lack of suspicion on account of the subtle nature of the signs and symptoms in many cases and partly also due to the delay in visiting experts (1). Usual presenting symptoms include weakness and weight loss (>90%), gastrointestinal complaints (>80%), body aches (18%), salt craving, syncope and disorientation (12–15%), while usual signs include hyperpigmentation (94%) and hypotension (90%). Common laboratory findings are electrolyte imbalances (92%), hyponatremia (88%), hyperkalemia (64%), hypercalcemia (6%) and anaemia (40%) (15, 16).

Uncommon presentations of Addison's disease also account for delay in the diagnosis in some of these cases. Addison's disease has also been reported to present uncommonly as cases of intractable hiccough, pseudotumor cerebri, sciatica-like back pain, hyperkalemic periodic paralysis, recurrent hypoglycemic episodes, persistent abnormalities in transaminases, myalgia and muscle contractures, anorexia nervosa and unexplained abdominal symptoms (2–10).

This case presented as recurrent brief seizures with fever. Presence of hyperpigmentation

and hypotension were the initial clues for suspecting the diagnosis of Addison's disease in this case. Basic investigations such as electrolytes were further pointers to diagnosis. In our case, hyponatremia and low blood sugar were observed, and correction of electrolyte abnormality resulted in disappearance of seizure. His blood glucose, electrolytes and blood pressure showed continued improvement after starting specific therapy. This type of presentation with seizures and fever, where primary suspicion of meningitis or an intracranial space occupying lesion (ICSOL) is suspected, is quite unusual in cases of Addison's disease and has never been reported previously. This case also highlights the need for clinicians to be aware of such atypical presentations and that basic investigation of such things as electrolyte abnormalities may provide important clues to diagnosis.

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