Brief Communication

Acute adrenal insufficiency due to primary antiphospholipid antibody syndrome

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ABSTRACT

Introduction: We report a case of acute adrenal insufficiency (AAI) in a patient with antiphospholipid syndrome (APS). **Case Report:** A 44-year-old female patient presented to us with acute abdominal pain associated with recurrent vomiting and giddiness. On examination, her blood pressure was 80/50 mm Hg. Systemic examination was normal. Further evaluation revealed hypocortisolemia with elevated plasma adrenocorticotropin hormone indicative of primary adrenal insufficiency. Her abdominal computed tomography scan showed features of evolving bilateral adrenal infarction. Etiological work-up revealed prolonged activated thromboplastin time, which didn't correct with normal plasma, her anti-cardiolipin antibody and lupus anticoagulant were also positive. She was diagnosed to have APS with adrenal insufficiency and she was started on intravenous steroids and heparin infusion. **Conclusion:** AAI due to the APS can present with acute abdominal pain followed by hypotension. A high index of suspicion is needed to make the correct diagnosis and to initiate appropriate treatment.

Key words: Adrenal, Addison's disease, primary antiphospholipid antibody syndrome

Introduction

Autoimmune adrenalitis is the most common cause of primary adrenal insufficiency.[1] Antiphospholipid syndrome (APS) rarely (0.4%) causes adrenal insufficiency.[2] The more common clinical features of APS include recurrent pregnancy loss and unexplained vascular thrombosis. To fulfill the diagnosis of APS, patients must have at least one clinical event (vascular thrombosis/pregnancy complication) and one laboratory criterion (anti-cardiolipin immunoglobulin G (IgG) or immunoglobulin M (IgM) antibodies/lupus anticoagulant of the IgG or IgM class detected on two or more occasions). Lupus anticoagulant antibodies are more specific and the anti-cardiolipin antibodies are more sensitive for diagnosis of APS.[3]

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Case Report

A 44-year-old female patient presented to us with acute abdominal pain associated with giddiness and vomiting. She had a very low blood pressure (80/50 mm of Hg). Systemic examination was normal. Her initial serum cortisol was 20 μg/dl (normal 5-25 μg/dl) [Table 1].

Repeat serum cortisol done 24 h later was 1.3 μg/dl and concurrent plasma adrenocorticotropin hormone was 698 pg/ml (normal 45 pg/ml). These feature confirmed the diagnosis of evolving acute adrenal insufficiency (AAI).

Computed tomography (CT) scan of the abdomen revealed, bilateral enlarged adrenal glands, the right adrenal showed good enhancement with contrast, whereas the left adrenal showed no contrast enhancement suggesting acute ischemia [Figure 1]. CT Angiography repeated at 48 h showed that the previously enhancing right adrenal also failed to enhance with intravenous (IV) contrast. These findings indicated venous infarction of both adrenal glands [Figure 2].

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In view of the acute onset of adrenal insufficiency in an otherwise healthy female we initially considered the possibility of underlying vasculitis. This was however ruled out on subsequent evaluation. Thrombotic work-up revealed prolonged activated thromboplastin time, which didn't correct with the addition of normal plasma, indicating the presence of a circulating anticoagulant. Her prothrombin time was normal, lupus anticoagulant was positive and anti-cardiolipin antibody level was mildly elevated, 30 GPL units (normal <25 GPL units). Protein C and protein S levels were normal. Based on the above clinical and laboratory findings, this patient was diagnosed to have APS with bilateral infarction of the adrenal glands leading to AAI.

Table 1: Laborotary results

Test	Patient	Normal value
Hemoglobin (g%)	10.1	
Platelet count (per cumm)	229,000	
ESR 60'	70	
PT (s)	13.2	10.6-13.8
APTT (s)	67.3	28.7-39.3
(½ patient+½ control)	44.0	
Serum amylase (unit/L)	195	<200 U/L
Serum creatinine (mg/dl)	0.9	
Serum electrolytes (range mmol/L)		
Sodium	133-139	135-145
Potassium	3.8-4.5	3.5-5.0
Bicarbonate	23-28	22-29
ANA	Negative	
ds-DNA antibody	Negative	
C ANCA and *P* ANCA	<2.0/7.3	
Anticardiolipin antibodies (GPL units)	30	<25
Lupus anticoagulant	Moderate positive	
Cortisol serum (at admission) (mcg/dl)	20.01	05-25
Cortisol serum (after 24 h) (mcg/dl)	1.33	
ACTH after 24 h (pg/dl)	698	Up to 45
1 h post-synacthen cortisol (mcg/dl) after 24 h	1.30	
Thyroid antibody (ATG and AMC)	Negative	

ESR: Erythrocyte sedimentation rate, PT: Prothrobin time, APTT: Activated thromboplastin time, DNA: Deoxyribonucleic acid, ACTH: Adrenocorticotropin hormone, ANA: Anti-nuclear antibodies, C ANCA: C Anti-neutrophil cytoplasmic antibodies, P ANCA: P Anti-neutrophil cytoplasmic antibodies, ATG: Anti-thymocyte globulin, AMC: anti-microsomal antibodies

She was initially treated with IV steroids and heparin infusion. She was subsequently started on the oral warfarin and the dose was titrated to maintain the international normalized ratio between 2.5 and 3.0. At discharge, her abdominal pain had subsided and her blood pressure had stabilized. She was advised to continue tab. hydrocortisone, tab. fludrocortisone and tab. warfarin. At 3 month follow-up, she remained well.

Discussion

The adrenal gland has multiple arterial supplies, but drains through a single vein making it susceptible for venous infarction.[4] Primary APS presenting as AAI is indeed very rare and one needs to be alert to this possibility in a young lady presenting with abdominal pain and hemodynamic instability.[5-7] Our patient's CT scan showed evolving venous infarction initially involving the left and later also involving the right adrenal gland.

Previously, published literature reveal reports of primary APS causing adrenal insufficiency at different stages of the disease.[7] Adrenal failure can be life-threatening in about 10-26% of these patients and can be the first presentation of underlying APS.[7,8]

The exact pathophysiological mechanism is not completely understood, but the hypercoagulable state in such patients may lead to venous infarction and destruction of the adrenals leading on to Addison's disease.[8]

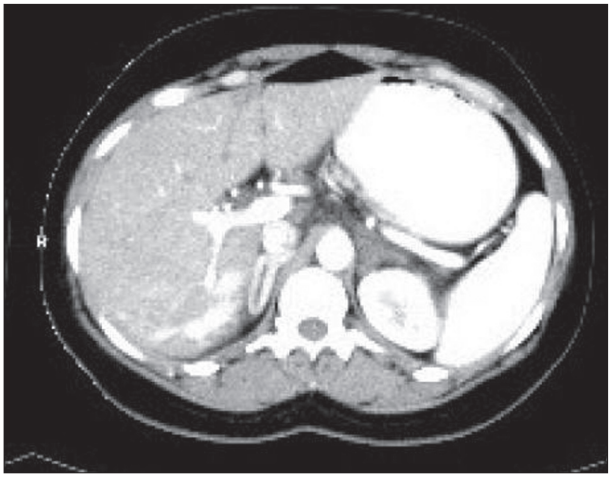

Figure 1: Contrast computed tomography scan showed enlarged hypodense left adrenal gland with normally enhancing right adrenal gland

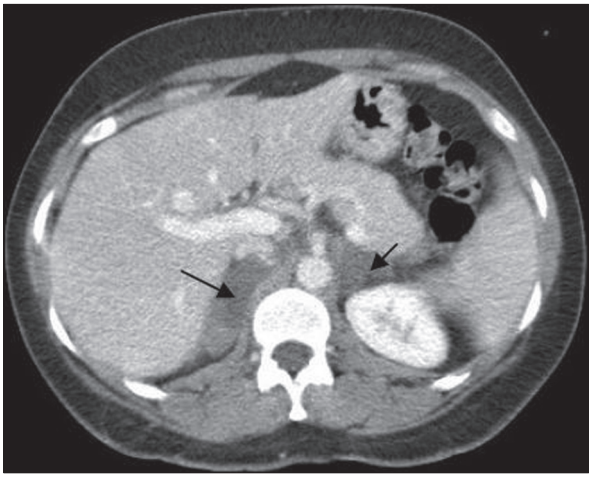

Figure 2: Computed tomography angiogram of the abdomen with contrast showed bilateral hypodense adrenal enlargement suggestive of adrenal infarct

Conclusion

AAI due to APS can present with acute abdominal pain, hypotension and hypocortisolism. It can be the first presentation of APS or it can happen later in a previously diagnosed case of APS. In all cases, a high index of suspicion is needed to make the correct diagnosis and to initiate appropriate treatment.

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