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Transient bulbar lesion due to hyperglycemia: Case report

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Abstract

Introduction: Cardiovascular and cerebrovascular diseases are the main causes of morbidity and mortality in diabetic patients. Rarely, the presence of transient lesions due to brain microangiopathy has been reported. We wanted to emphasize metabolic conditions such as hyperglycemia in patients with transient clinical and MR imaging findings by presenting a case causing temporary clinical and intracranial lesions due to hyperglycemia.

Case report: A 55-year-old female patient with known DM and HT applied with blurred vision in the left eye started 2 days ago, numbness in the left arm and leg that started the day before, and slowed speech. In her neurological examination, she had hypoesthesia in the left extremities. The plantar reflex was a bilateral extensor response. There was limitation of outward gaze in the left eye. The patient's measured blood glucose was 201 mg/dL, and HbA1c was 12.3. Heterogeneous diffusion-restricting area was observed in the anterior part of the bulb in the brain MRI diffusion performed on the patient. The patient's current condition was attributed to microangiopathic vasculopathy secondary to hyperglycemia. In the control MRI performed 2 months later with tight blood sugar regulation, it was observed that the lesions were regressed.

Discussion: In our case, it was observed that the MRI images of our patient who presented with stroke clinic but had transient brain MRI findings and partially regressed after the regulation of the clinical blood glucose level. We want to emphasize that metabolic conditions such as hyperglycemia should be investigated in patients with temporary clinical and MR imaging findings by drawing attention to our case that caused temporary clinical and intracranial lesions due to hyperglycemia.

Keywords

Hyperglycemia; White matter lesions; Microangiopathy; Stroke.

Introduction

In this way, among the risk factors of cerebrovascular diseases, diabetes mellitus (DM) is among the most common factors after hypertension (HT) [1]. Cardiovascular and cerebrovascular diseases are the main causes of morbidity and mortality in diabetic patients [2]. In case of poor glycemic control, DM affects the kidneys, peripheral and central nervous system, leading to long-term microvascular complications [3]. Rarely, the presence of transient lesions due to brain microangiopathy has been reported [4,5]. We wanted to emphasize metabolic conditions such as hyperglycemia in patients with transient clinical and MR imaging findings by presenting a case that causes temporary clinical and intracranial lesions due to hyperglycemia.

Case Report

A 55-year-old female patient with known DM and HT applied to the emergency service with blurred vision in the left eye that started 2 days ago, numbness in the left arm and left leg that started the day before, and slowed speech. In her neurological examination, she had hypoesthesia in the left upper and lower extremities. The plantar reflex was a bilateral extensor response. There was limitation of outward gaze in the left eye. The patient's measured blood glucose was 201 mg/dL, and HbA1c was 12.3. Heterogeneous diffusion-restricting area was observed in the anterior part of the bulb in the brain MRI diffusion performed on the patient (Figure 1). In contrast-enhanced brain MRI, T2 hyperintense signal change was observed in the anterior part of the pons, which was initially observed to the right of the midline, then decreased in volume, then increased again and extended to the left of the midline (Figure 2). Minimal suspicious enhancement was observed in the postcontrast series. Metabolic peaks in the localization of the lesions in MR spectroscopy were within natural limits. rCBV and rCBF signals were normal on perfusion-weighted imaging. Methylprednisolone treatment was discontinued due to deterioration in blood sugar regulation and clinical progression. The patient's current condition was attributed to microangiopathic vasculopathy secondary to hyperglycemia. In the control MRI performed 2 months later with tight blood sugar regulation, it was observed that the lesions were regressed.

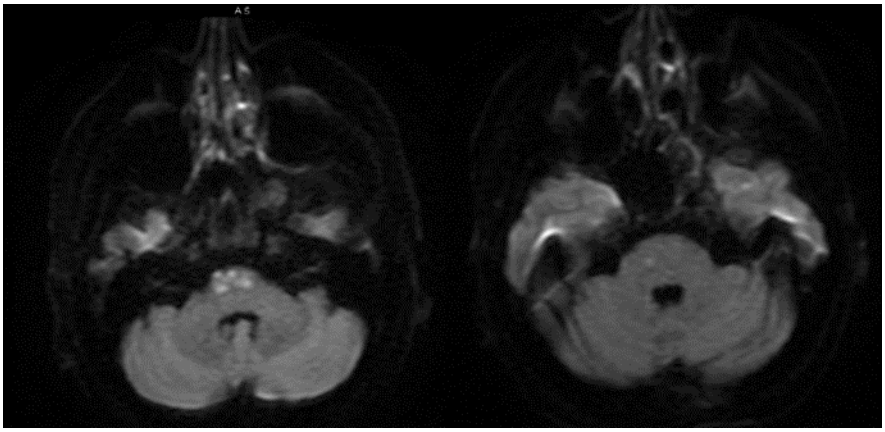

Figure 1: Restricted diffusion in the diffusion weighted sequence of MRI demonstrating enhancement of heterogeneous diffusion-restricting lesion in the bulbus

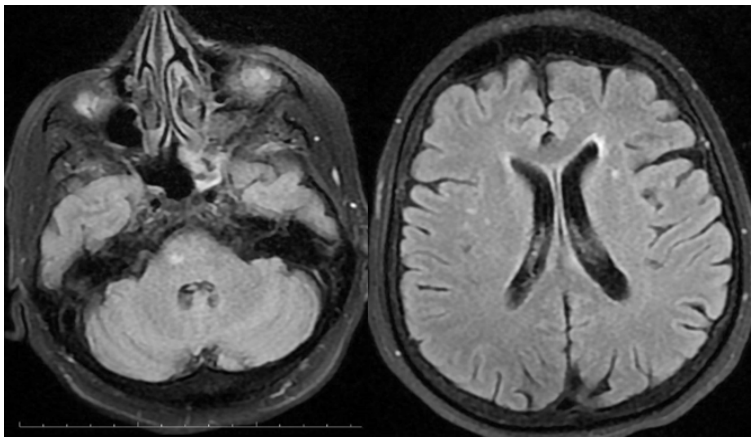

Figure 2: Axial fluid-attenuated inversion recovery (FLAIR) sequences demonstrating enhancement hyperintense appearance.

Discussion

In stroke patients, glucose levels above 144 mg/dL are known to be associated with a 3-fold increase in mortality and a higher degree of permanent disability [6]. However, the mechanism by which it does this has not been fully elucidated in studies [7]. In our case, it was observed that the MRI images of our patient who presented with stroke clinic but had transient brain MRI findings and partially regressed after the regulation of the clinical blood glucose level. Due to the demyelinating character of the patient's white matter lesions, clinical progression was observed due to elevated blood sugar after glucocorticoid therapy. We want to emphasize that metabolic conditions such as hyperglycemia should be investigated in patients with temporary clinical and MR imaging findings by drawing attention to our case that caused temporary clinical and intracranial lesions due to hyperglycemia.

Declarations

Conflict of interest: The authors declare that they have no conflict of interest.

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Author contributions: P.S; S.A.A; S.A.T; Design – P.S; S.A.T; N.H; Materials Data Collection and/or Processing: P.S; S.A.A; S.A.T; Literature Search – P.S; S.A.T; N.H; Writing – P.S; S.A.T; N.H.

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