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Case Report

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Ischemic Stroke Secondary to Bleach Anaphylaxis

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ABSTRACT

Anaphylaxis is a severe allergic reaction characterized by life-threatening airway, breathing, and hemostatic problems. There has been an established association between cerebral infarction following wasp or bee sting in the literature. A 54-year-old female was admitted to the hospital for acute anaphylaxis due to bleach exposure and developed a new-onset left-sided weakness. Head computed tomography demonstrated midline frontal calcifications but was negative for acute ischemia or hemorrhage. Magnetic resonance imaging multifocal infarcts of the internal capsule's right temporal and posterior limb. The patient was started on aspirin 81 mg, atorvastatin 40 mg daily for secondary prevention of stroke, and physical, occupational, and speech therapies. Although exceedingly rare, decreased cerebral blood flow may occur secondary to anaphylaxis due to an abrupt drop in blood pressure leading to ischemic injury. The case characterizes a unique association between bleach anaphylaxis and ischemic stroke, which has not been previously reported.

Introduction

Anaphylaxis is a severe allergic reaction characterized by life-threatening airway, breathing, and cardiac and hemostatic problems [1]. It can be triggered within minutes of antigen exposure in some individuals, such as certain foods, insect stings, or chemicals. There has been an association established with cerebral infarction following wasp or bee sting in the literature [2]. However, an association between bleach anaphylaxis and ischemic stroke has not been previously reported to the best of our knowledge.

Case Presentation

A 54-year-old female with a past medical history of diabetes, hypertension, and hyperlipidemia was seen for a neurologic evaluation regarding left-sided weakness. She initially presented to the hospital in acute anaphylaxis due to exposure to an allergen (Bleach). She promptly received epinephrine, famotidine (Pep-

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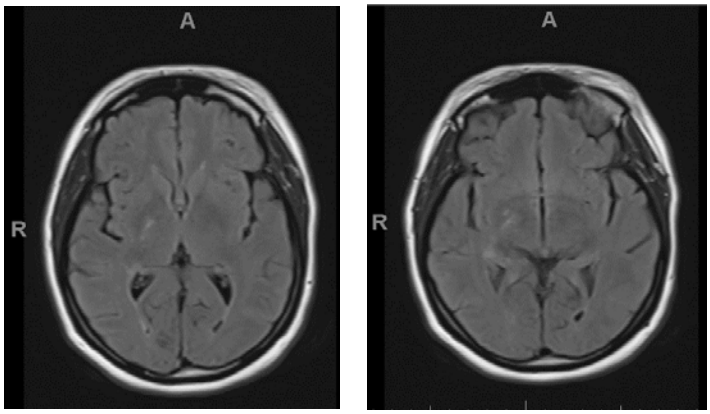

Figure 1. Multifocal diffusion restriction in the medial right temporal lobe and posterior limb of the internal capsule with mild FLAIR hyperintensity.

cid), and methylprednisolone (Solu-Medrol), which improved her symptoms. She woke up the following day with new-onset left-sided weakness. Physical examination was notable for weakness in the left arm and leg; the rest of the exam was unremarkable. Her vital signs were within normal limits, her hemoglobin A1c was 7%, and her LDL was 146 mg/dL. The National Institutes of Health Stroke Scale (NIHSS) score was noted to be 2 due to the presence of left extremity drift.

Head computed tomography (CT) demonstrated midline frontal calcifications but was negative for acute ischemia or hemorrhage. Figure 1 shows Magnetic Resonance Imaging (MRI) multifocal infarcts of the internal capsule's right temporal and posterior limb, which raised concern for a potential cardioembolic etiology. A cardiac echocardiogram was unremarkable (no valvular abnormalities, normal chamber size, EF: 60%, and no intra-cardiac shunt). Carotid artery ultrasounds and transesophageal echocardiography were also unremarkable and did not reveal a potential cardioembolic source. Workup for hypercoagulable states was negative. The patient was immediately started on aspirin 81 mg and atorvastatin 40 mg daily for secondary prevention of stroke. The patient also started to receive physical therapy, occupational therapy, and speech therapy. On follow-up one month later, the patient appeared to be doing well, with improved left arm and leg strength.

Discussion

Although exceedingly rare, decreased cerebral blood flow may occur secondary to anaphylaxis3. It is unclear what triggered this patient, given the lack of atrial fibrillation history and potential cardioembolic source. Cerebral infarctions have only been reported following bee and wasp stings [3]. Previously, a case was reported in which a 30-year-old patient developed quadrantanopia and a left occipital lobe infarction on computed tomography thirty-eight hours after admission for an anaphylactic response to a wasp sting [4]. Another case was reported in which a 44-year-old patient presented with dysarthria, hemiplegia, and facial droop due to a thromboembolic stroke one hour after experiencing an anaphylactic response to a Hymenoptera sting [5]. A possible explanation is that physiological changes during anaphylactic shock, including an abrupt drop in blood pressure due to a decrease in venous tone and extravasation of intravascular fluids, may disrupt cerebral perfusion, leading to ischemic injury [6].

Our case emphasizes the potential for ischemic injury to the brain in the setting of anaphylactic shock in response to an allergen, including bleach. Clinicians should not hesitate to begin workup and treatment for stroke in such circumstances, as rapid treatment can help lead to a potential resolution of symptoms and improved outcomes.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Conflict of interest

The authors declared no conflict of interest.

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References

[1] Potaczek DP. Links between allergy and cardiovascular or hemostatic system. International Journal of Cardiology. 2014; 170(3):278-85. [DOI:10.1016/j.ijcard.2013.11.029] [PMID]

[2] Moein P, Zand R. Cerebral infarction as a rare complication of wasp sting. Journal of Vascular and Interventional Neurology. 2017; 9(4):13-6. [PMID] [PMCID]

[3] Kounis N, Kounis GN, Soufras GD, Mazarakis A. Anaphylactic shock decreases cerebral blood flow more than what would be expected from severe arterial hypotension. Shock. 2013; 39(5):462-3. [DOI:10.1097/SHK.0b013e3182917393] [PMID]

[4] Crawley F, Schon F, Brown MM. Cerebral infarction: A rare complication of wasp sting. Journal of Neurology, Neurosurgery and Psychiatry. 1999; 66(4):550-1. [DOI:10.1136/jnnp.66.4.550]

[5] Johnson JA, Frith JA, Casselman J, Saad A, Tcheurekdjian H, Hostoffer R. Thromboembolic stroke: A sequela of Hymenoptera venom-induced anaphylaxis. Annals of Allergy, Asthma and Immunology. 2016; 116(3):262-4. [DOI:10.1016/j.anai.2016.01.007] [PMID]

[6] Dalugama C, Gawarammana IB. Ischemic stroke following a wasp sting - a rare complication: A case report. Journal of Medical Case Reports. 2018; 12(1):294. [DOI:10.1186/s13256-018-1839-0] [PMID] [PMCID]