A Rare Case of Stroke Secondary to Iron Deficiency Anemia in a Young Female Patient

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1. Introduction

Ischemic strokes are a common problem primarily in patients above 65 years of age [1]. In this case, we describe a young patient who suffered an ischemic stroke at 20 years of age. The patient's only comorbidity was severe IDA. This case is interesting as IDA is an etiology for stroke which is typically only seen in pediatric patients [2]. The case is significant as it suggests IDA as a possible etiology for stroke in young adults. IDA is not commonly associated with stroke in the minds of most clinicians. As IDA is a common condition in young adults, we suggest that prompt diagnosis and treatment of IDA should be a priority for young patients who present with stroke when all other more common etiologies are ruled out.

2. Case Presentation

A 20-year-old female presented to the hospital after being involved in a motor vehicle accident. The accident was preceded by a sensation of dizziness with blurring of vision and brief loss of consciousness. Her co-passengers, who witnessed the event, denied noticing any seizure-like activity. She regained consciousness within a few minutes, at which time she was alert and responding appropriately. Upon arrival to the hospital, she was noted to have some chest pain where the airbag had deployed but did not have any signs of significant trauma. She endorsed continued dizziness, blurring of vision, and photophobia. Also, she attested to some weakness in her left side involving her arms and legs. On physical exam, she demonstrated decreased motor strength in her left upper extremity but otherwise intact neurological exam. An initial head CT was negative for any ischemic changes. Laboratory tests revealed severe anemia with hemoglobin of 5.8 mg/dL and platelet count of 564, suggestive of reactive thrombocytosis. Patient also was found to have serum iron 20 μg/dL, TIBC 481 μg/dL, iron saturation 6%, and serum ferritin 39 ng/mL. MCV was 64 fl/cell and RDW was 18.2%. Other laboratory tests including white blood count,
chemistry panel, lipid panel, urea, and creatinine were within normal limits. History revealed menorrhagia with multiple evaluations for near syncpe and dizziness. However, she did not have active bleeding at the time of presentation. Her clinical course was further complicated by low grade fevers, confusion, lethargy, and changes in her mental status. She demonstrated significant neurological findings on physical exam with worsening left upper extremity strength, bilateral dysmetria, and a positive Romberg sign. A lumbar puncture did not reveal any infectious causes of her symptoms. MRI at the time revealed bilateral cerebellar and left occipital lobe nonhemorrhagic infarcts. An MRA of the brain ruled out arterial dissection or thrombus formation. She also had an echocardiogram, which did not show any signs of PFO or interatrial shunt with agitated saline study: A thorough work-up for underlying thrombophilia was unrevealing including protein S and C deficiency, lupus anticoagulant, anti-cardiolipin antibody, Factor V Leiden mutation, ANA positivity, antithrombin III deficiency, Vitamin B12 level, homocysteine level, hemoglobin electrophoresis, and rapid plasma reagin. The patient received multiple blood transfusions and showed good response with improvement in her hemoglobin. Additionally, patient received intravenous iron infusion and ferrous sulfate 325 mg TID was initiated to help correct the IDA. This adds to the small volume of case reports and case series that suggest IDA as a possible etiology for ischemic stroke, which can correct IDA in the setting of ischemic stroke, which can improve patient outcome.

The case of our patient who suffered an ischemic stroke at 20 years of age is intriguing because a thorough diagnostic work-up did not reveal any clear etiology apart from severe IDA. This adds to the small volume of case reports and case series that suggest IDA as a possible etiology for ischemic stroke in young adults. This is of interest as IDA is not a well-known cause of ischemic stroke in young adults. This highlights the importance of prompt diagnosis and treatment of IDA in young patients, especially after a thorough work-up has ruled out more widely recognized etiologies.

### Competing Interests

The authors declare that they have no competing interests.

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