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Original Research Article

Concurrent Cerebellar Tonsillar Herniation and Myocardial Bridging of LAD in a Young Male Presenting with Syncope and Hemiparesis: A Rare Association

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Abstract

We report the case of a 38-year-old male who presented with a single episode of loss of consciousness, left-sided chest pain, and acute left upper limb weakness. Evaluation revealed two rare but clinically significant findings: cerebellar tonsillar herniation (~8.8 mm descent, likely Chiari I malformation) and myocardial bridging of the mid-left anterior descending artery (LAD). The patient improved with conservative management and remains asymptomatic on follow-up. This case highlights the importance of thorough evaluation of syncope with neurological and cardiac overlap.

Introduction

Syncope and transient neurological deficits are common presentations, but simultaneous detection of Chiari I malformation with tonsillar herniation and myocardial bridging of LAD is unusual.

Both conditions can independently contribute to syncope and transient neurological symptoms. This case emphasizes the significance of a multidisciplinary approach when overlapping neurological and cardiac pathologies coexist [1,2].

Case Presentation

A 38-year-old male, with past history of residual bilateral lower limb weakness due to childhood poliomyelitis, presented to the neurology outpatient department with:

- One episode of loss of consciousness (LOC) at ~10:30 AM, witnessed by family.
- Associated left-sided chest pain and left upper limb weakness on awakening.
- No history of headache, projectile vomiting, seizures, or visual disturbances.

Examination

- General: Conscious, oriented, afebrile, stable vitals (BP 120/80 mmHg, PR 100/min).
- Cardiac: Normal S1/S2, no murmurs
- Neurological: Higher functions normal; left upper limb weakness (proximal > distal, power 3–4/5); left plantar extensor, brisk DTRs; impaired pain sensation over C5–C6 dermatome.

Investigations

- CT Brain: No acute abnormality.
- MRI Brain: No parenchymal lesion.
- MRI Cervical Spine: Cerebellar tonsillar herniation (~8.8 mm descent) through foramen magnum without syringomyelia → consistent with Chiari I malformation.
- MRV: Hypoplastic left transverse and sigmoid sinus.
- Coronary Angiography: Type III myocardial bridging of mid-LAD, other coronaries normal.
- Other labs: Normal.

Hospital Course

- Managed conservatively with analgesics and antiplatelets.
- For cardiac findings: started on Atorvastatin 10 mg and Diltiazem 30 mg.
- Neurosurgical opinion obtained; no immediate surgical intervention advised and planned for follow-up in OPD basis.
- Patient improved, regained near-normal left upper limb power, and was discharged asymptomatic.

Discussion

This patient presented with syncope, chest pain, and focal neurological deficit. The co-existence of Chiari I malformation and myocardial bridging raises important diagnostic and management considerations:

1. Chiari I Malformation: Cerebellar tonsillar herniation >5 mm is typically considered pathological and may present with headache, syncope, or focal deficits due to brainstem compression or CSF flow obstruction. Our patient had 8.8 mm descent, which may explain transient neurological symptoms [1].

2. Myocardial Bridging of LAD: Though often an incidental angiographic finding, deep myocardial bridges (>2 mm, Type III) may be clinically significant. They can cause ischemia, angina, arrhythmias, or sudden cardiac death, particularly during tachycardia [2,3]. In our case, LAD bridging likely contributed to chest pain.

3. Overlap: Both conditions may have contributed to syncope. Comprehensive evaluation prevented misdiagnosis and unnecessary interventions.

Conclusion

This case underscores the need for broad evaluation in patients presenting with syncope and transient neurological deficits.

Rare dual pathology—Chiari I malformation with myocardial bridging of LAD—may coexist and mimic more common causes.

Conservative management with neurosurgical and cardiology follow-up led to excellent outcome.

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