

## **A case of Takotsubo syndrome mimicking an acute ischemic stroke. Description and considerations in acute stroke management**

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**Introduction:** Stroke mimics are acute neurological conditions resembling a vascular accident but having different origin and their diagnosis may be challenging at the symptoms onset.

**Case report:** A 75-year-old caucasian female was referred to the emergency room for the acute onset of global aphasia and generalized seizure.

**Neurological examination:** global aphasia and right hemiparesis (NIHSS score: 13).

**Brain CT:** normal.

Patient underwent thrombolytic treatment with Actylise 0.9 mg/kg. Neurologic conditions at the end of Actylise infusion were substantially unchanged (NIHSS: 12) but improved in the following 24 hours.

**Brain MRI:** negative

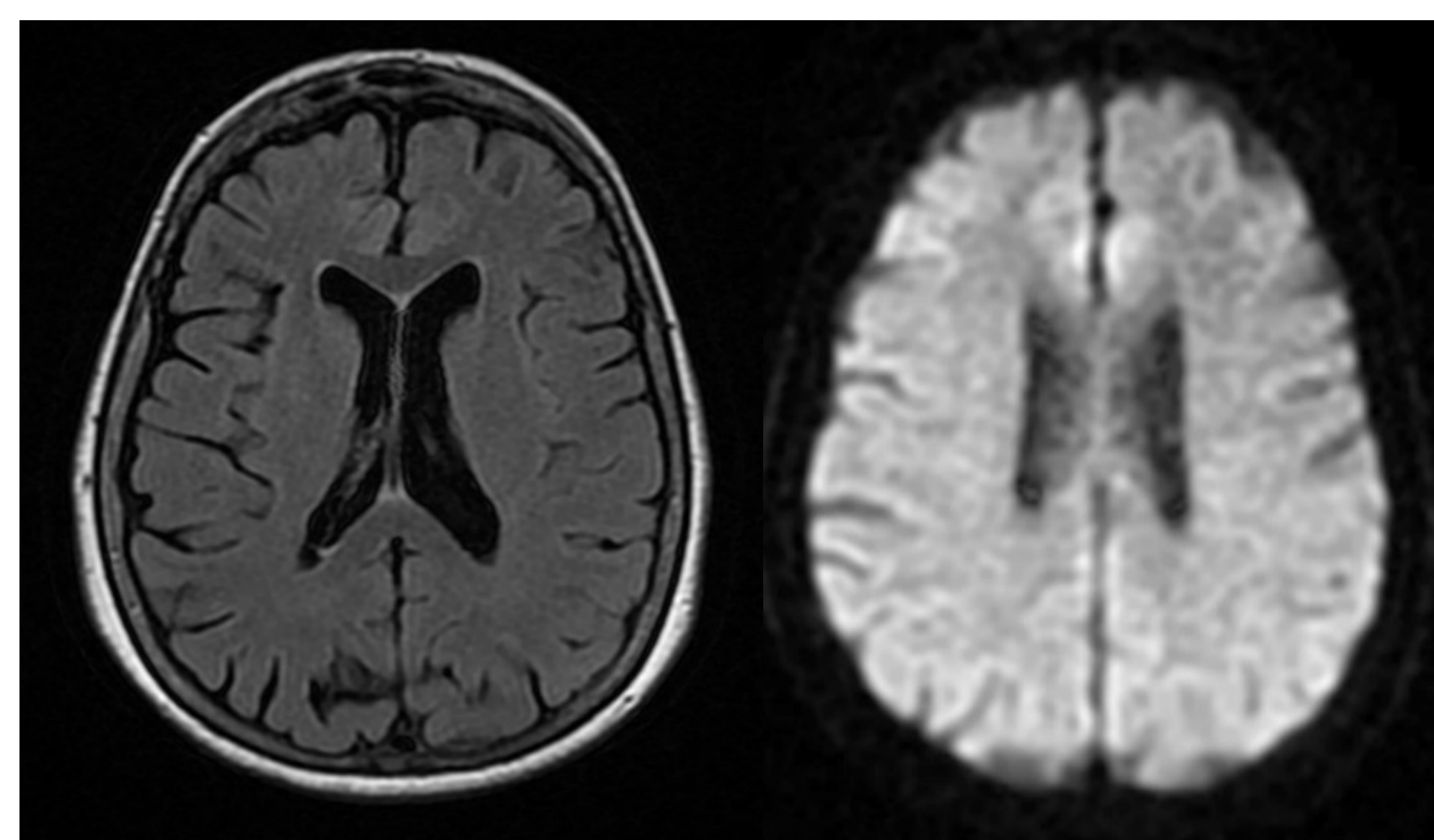
The serum troponin T HS level was 0.024 ng/ml at admission and it increased to 0.47 ng/ml the day after admission.

**ECG** showed T-wave inversions in V1-V2 and in D1-aVL.

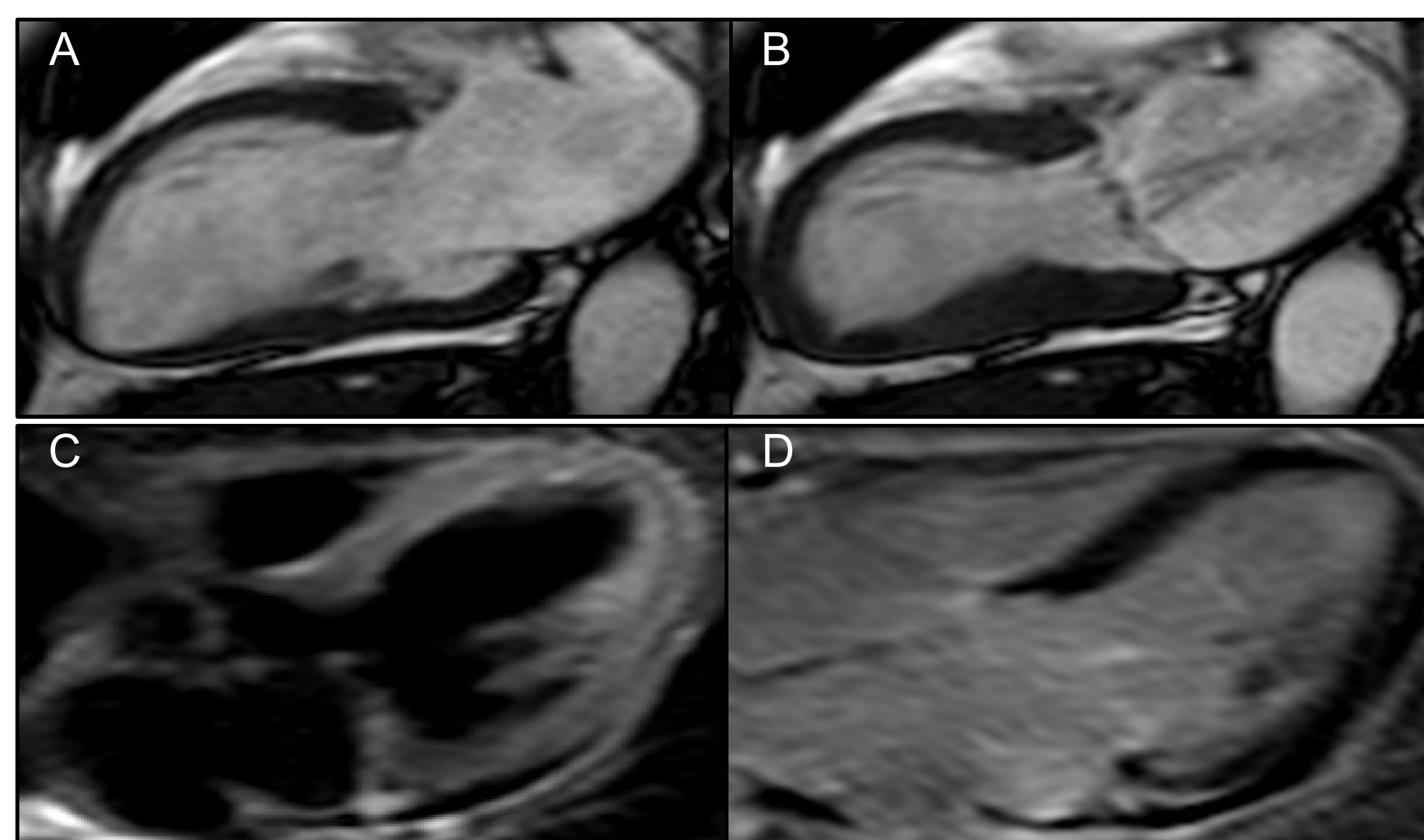
**Echocardiography** demonstrated apical akinesia with a left ventricular ejection fraction estimated at 35%.

**Coronary angiography** was performed demonstrating patency of coronary vessels.

Echocardiography was performed again two days later showing moderate left ventricular dysfunction (EF 41%) with apical akinesia and mid-septal and basal-septal hypokinesia.



Brain MRI was negative for acute ischemic lesions and previous intracranial hemorrhage.



Cardiac MR showed high tissue signal of mid-apical regions of the left ventricle wall due to edema, confirming the mid-apical apical ballooning and hypokinesia without any late gadolinium enhancement.

**Discussion:** Takotsubo cardiomyopathy is non-ischemic cardiomyopathy characterized by transient left ventricular (LV) dysfunction, electrocardiographic abnormalities that can mimic acute myocardial infarction, increase of myocardial necrosis enzymes and reversible LV apical ballooning in the absence of obstructive coronary artery disease. Takotsubo cardiomyopathy is usually triggered by emotional or physical stress; for this reason it has been suggested that the possible pathophysiological mechanisms may be catecholamine-mediated multivessel spasm, microvascular coronary spasm or catecholamine-mediated myocyte injury. Interestingly our patient had a seizure at the onset of symptoms and increased plasma catecholamine levels have been demonstrated after seizures. In this case we cannot say if seizures was the cause of takotsubo syndrome or whether takotsubo syndrome caused seizures due to cerebral hypo-perfusion secondary to acute reduction of left ventricular ejection fraction.

**Conclusions:** This case should make clinicians aware that stroke onset with seizures should deserve an even more focused evaluation about rare conditions that may be stroke mimics at the onset of Symptoms.

### References:

-Gianni M., et al. Apical ballooning syndrome or takotsubo cardiomyopathy: a systematic review. Eur heart j. 2006.27.(13):p.1523-9

- Stollberger C., et al. Seizure-associated Takotsubo cardiomyopathy. Eilepsia,2011. 52(11): p.e160-7

- Jauch, E. C., et al. Guidelines for the Early Management of Patients With Acute Ischemic Stroke. A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke, 2013. 44(3): p. 870-947