

CRYPTOGENIC STROKE IN A YOUNG WOMAN WITH PATENT FORAMEN OVALE AND MAY-THURNER-COCKETT SYNDROME

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INTRODUCTION

Ischemic stroke is a major cause of morbidity and mortality. It frequently leads to devastating consequences on quality of life and on the ability to regain the work force. This is more dramatic when the stroke happens at a younger age. Ischemic strokes have an unknown etiology in 26%-40% of patients of all ages and in 64% of patients younger than 55 years. These strokes are commonly called cryptogenic. Herein, we present the case of a young woman with cryptogenic stroke and congenital cardiovascular abnormalities.

CASE DESCRIPTION

A 40-year-old woman presented with acute onset right hemiparesis and dysesthesia. Brain MRI showed bilateral basal ganglia acute ischemic infarcts larger on the left (Fig. 1). Her hypertension has been controlled for 4 years. She has no history of diabetes mellitus, migraines, cigarette smoking, alcohol abuse, oral contraception, or illicit drug use. She was not pregnant and had no signs of peripheral venous thrombosis. Further stroke work-up continued during her inpatient rehabilitation stay. Lipid panel and thrombophilia work-up were normal. Electrocardiogram showed normal sinus rhythm, while bilateral lower extremity Doppler ultrasound was negative for deep venous thrombosis (DVT). Computerized tomography of the abdomen and pelvis was normal. Transesophageal echocardiography showed normal ejection fraction without wall motion abnormality and revealed a patent foramen ovale (PFO) on contrast saline bubble study. Pelvic magnetic resonance venography (MRV) showed DVT in the inferior vena cava (IVC) and left common iliac vein (LCIV), with narrowed configuration of the proximal LCIV prior to its insertion into the IVC at the level of the crossing of the right common iliac artery (RCIA), suggests

suggesting a compression of the LCIV between the RCIA and the fifth vertebral body consistent with May-Thurner-Cockett syndrome (MTCS) (Fig. 2). The patient was discharged on warfarin and was scheduled to return for PFO closure.

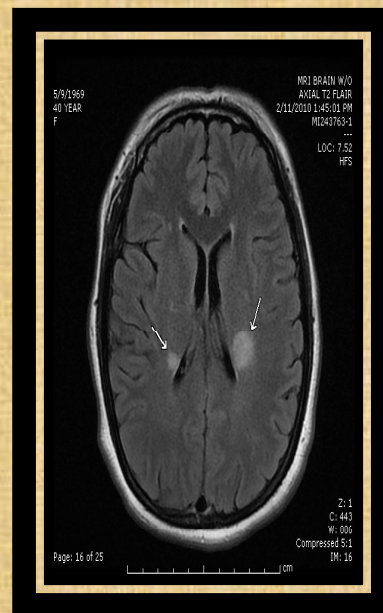


Fig. 1

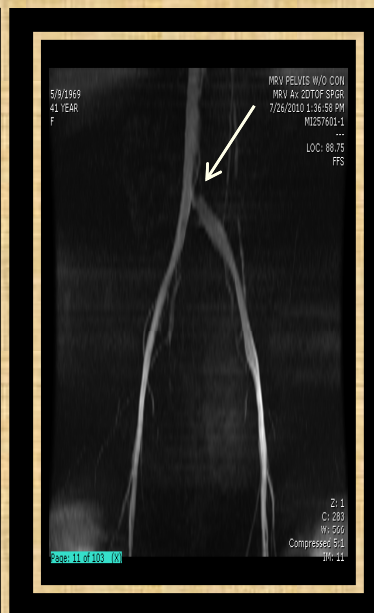


Fig. 2

DISCUSSION

The majority of patients with cryptogenic strokes have an associated PFO, which leads to the presumption that paradoxical embolism is the pathophysiological cause of these strokes. This has been particularly seen in younger stroke patients. The presence of DVT below the diaphragm has been cited as a cofactor in the increased risk of stroke associated with PFO. Pelvic veins are a recognized source of thromboemboli. MTCS is a congenital abnormality where the RCIA abnormally overlies the LCIV. This anomaly was first described anatomically

by May R, and Thurner J in 1957. Cockett F.B, in 1965, used the term iliac vein compression syndrome and called attention to the obstructive symptoms in affected patients, who are often seen without clinical signs of previous DVT. MTCS can initiate and maintain DVT formation through compression of the LCIV between the overlying RCIA and the fifth lumbar vertebra, resulting in impeded venous blood flow from the left lower extremity. When associated with PFO, MTCS increases the risk for both primary and recurrent embolic strokes.

Many pelvic DVT are not recognized by conventional Doppler ultrasound, and are only diagnosed with invasive ascending venography or pelvic MRV. The magnetic resonance study is a noninvasive modality that allows direct visualization of the pelvic vessels. Many authors recommend it as the study of choice for the diagnosis of pelvic thrombosis.

Numerous measures have been used to prevent recurrent strokes in this patient population; these include systemic anticoagulation and closure of PFO via transcatheter approach or via open heart surgery. Thrombectomy and adjunctive stent venoplasty improve long-term vein patency and help prevent pelvic DVT recurrence.

CONCLUSION

Coexistence of patent foramen ovale and May-Thurner-Cockett syndrome in young patients with no risk factors for infarcts increases the risk for primary and recurrent strokes. The recognition of these anomalies in the acute rehabilitation period is crucial since treatment is curative and helps prevent the recurrence of stroke.

