

Ulnar Artery Embolus – A Diagnostic Clue

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Case Report

A 74-year-old woman with a history of smoking, hyperlipidaemia and transient ischaemic attack (TIA) presented to the emergency department with sudden onset of right upper limb (RUL) weakness and sensory disturbance. Clinical examination was notable for reduced RUL sensation. Laboratory testing was unremarkable, aside from a mixed pattern of liver enzyme derangement, with preserved synthetic function. Magnetic resonance imaging (MRI) of the brain revealed multifocal infarcts in the right middle cerebral artery (MCA) and right posterior inferior cerebellar artery (PICA) territories. During admission, the patient developed chest pain and dynamic T-wave inversions were seen on electrocardiogram. There was corresponding high-sensitivity troponin enzyme elevation. Coronary angiography demonstrated non-obstructive coronary artery disease. Notably, a radial angiogram was performed when resistance to catheter advancement was encountered. As well as anticipated arterial spasm, a filling defect in the ulnar artery was observed (Figure 1A). This was identified prior to catheterisation beyond the bifurcation of the brachial artery (Figure 1B). Clinical, radiological and histological evidence indicated advanced pancreatic adenocarcinoma. Patent foramen ovale (PFO) was apparent on transesophageal echocardiography (TEE) with positive bubble study (Figure 1C).

A unifying diagnosis of malignancy-related hypercoagulable state with paradoxical embolic phenomena affecting peripheral, cerebral and coronary (MI with non-obstructive coronary arteries) vascular territories was reached. The patient's treatment strategy comprised palliative chemotherapy, conservative PFO management and substitution of anticoagulation in the place of dual anti-platelet therapy. This case highlights several learning points. Firstly, the sequelae of malignancy-related hypercoagulable state can be the initial presentation of occult malignancy, especially in cases of mucinous carcinomas [1]. Secondly, TOE with bubble study can be a useful diagnostic tool for older adults with cryptogenic stroke. The prevalence of PFO in cryptogenic stroke has been demonstrated at up to 50%, double that of the general population. While contemporary use of TOE for this indication is generally restricted to patients <60yrs, there is now research to support extending the age threshold [2, 3]. Finally, for interventionalists, radial angiography is not only important in identifying spasm which is a common cause of procedure failure, but can also identify diagnostic clues [4].



Figure 1A: Cine angiography depicting a filling defect in the ulnar artery. The arterial catheter is noted in situ in the radial artery. Vasospasm can be visualised in the proximal brachial artery.



Figure 1B: Fluoroscopic LFH angiography depicting a filling defect in the ulnar artery (red arrow), prior to advancement of catheter beyond the brachial artery bifurcation.



Figure 1C: TEE bicaval view demonstrating a positive bubble study with bubbles easily identified traversing the interatrial septum from the right atrium into the left atrium.

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