SVT Archive Case Study - May 1999

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Pseudo Occlusion of the Internal Carotid Artery: How to increase sensitivity

Colour duplex sonography is an established, non-invasive diagnostic modality. It is widely used in the investigation of carotid artery disease. Despite its widespread use, the sensitivity of colour duplex sonography in the detection of pseudo occlusion is still questioned due to problems related to many causes, including haemodynamic reasons and equipment sensitivity. We present an interesting case of pseudo-occlusion of the right internal carotid artery, affected by the levels of arterial pressure.

A 73 years-old man was referred for carotid artery evaluation following an episode of weakness of left side of face and had slurred speech. He also experienced blurred vision of the right eye. Magnetic Resonance scan showed a left occipital brain infarct. Past medical history included hypertension, myocardial infarct and atrio-ventricular block and had pacemaker placed in 1992.

Carotid duplex scan revealed a 50-55% stenosis of the left internal carotid artery and trickle flow of the right internal carotid artery, indicating a pre-occlusive state. A transcranial Doppler per formed the following day, which demonstrated low velocities globally and evidence of left to right intracranial crossover, while right middle cerebral artery had low velocity secondary to total occlusion. This finding was also confirmed by another experienced operator using Colour, Power and Duplex. At that time his blood pressure was 100/ 60 mmHg (normal BP 140/80mmHg). He was asked to exercise in order to increase his blood pressure to normal levels. Interestingly, a trickle flow returned again in the right internal carotid artery.

In conclusion we suggest that in order to increase the sensitivity of colour duplex in the detection of total or subtotal occlusion of the carotid arteries, we should routinely measure blood pressure in order to exclude any false negative findings due to haemodynamic changes.

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