

Amaurosis fugax and crescendo transient ischaemic attacks

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Introduction

Amaurosis fugax is defined as transient loss of vision in one or both eyes. It is derived from the Greek word 'amaurosis', meaning dark, and the Latin word 'fugax', meaning fleeting (Bernstein, 1987). The phenomenon is caused by limitations or restrictions in blood flow and often is a predictor of a permanent visual loss or stroke event in the future (Biousse and Trobe, 2005).

Case report

A 57-year-old man went to see an optometrist with transient vision loss in his left eye and occasional weakness in his left arm, which he thought was caused by fatigue associated with work. Not finding any abnormality, the optometrist notified the GP, who arranged a computed tomography scan of his head along with referral to the stroke clinic. The computed tomography scan demonstrated an established lacunar infarct (Figure 1). Since he was asymptomatic with no residual weakness, he was advised to take high-dose aspirin (300 mg once per day), and follow up in the stroke clinic pending outpatient investigations. However, he presented to the emergency department 2 days later with similar events. With complete resolution of his symptoms and a low ABCD² score, he was advised follow up in the stroke clinic. He reported to the emergency department again 3 days later with similar symptoms. During this second visit, he said that he had experienced multiple episodes of the same symptoms, and occasional weakness in his left arm, each time with resolution in 2 minutes. His past medical history included untreated hypercholesterolaemia, hypertension and a 20 pack-year smoking history. He had a family history of a previous stroke in both maternal grandparents and transient ischaemic attacks in his paternal grandfather.

On examination he was afebrile, blood pressure 149/70 mmHg, heart rate 77 beats per minute regular bilaterally, with carotid bruit on auscultation along the left carotids, and no signs of peripheral vascular disease. Neurological examination was normal. Ophthalmological examination confirmed no visual defects on confrontation and on fundoscopy.

His ABCD² score was low, but clinically he appeared to have crescendo transient ischaemic attacks with multiple episodes of transient vision loss in the left eye and weakness of his left arm. He was urgently transferred to an inpatient stroke unit and given atorvastatin 80 mg and aspirin 300 mg once daily for 14 days. Magnetic resonance imaging of the head showed ischaemic changes adjacent to the wall of the left lateral ventricle, extending into the left basal ganglia (Figure 2).

He subsequently underwent carotid artery ultrasound with Doppler scan which showed marked carotid stenosis (Figure 3).

Routine bloods, including glycated haemoglobin, coagulation profile, 24-hour electrocardiogram and transthoracic echocardiogram, were all normal. His fasting lipid profile showed a cholesterol level of 4.4 mmol/litre (normal value 5.0 mmol/litre), serum triglyceride level of 1.5 mmol/litre (normal value 1.7 mmol/litre), calculated non-high density lipoprotein cholesterol level of 3.6 mmol/litre (normal value 2.5 mmol/litre), serum high density lipoprotein cholesterol level of 0.8 mmol/litre (normal range 1.2–3.0 mmol/litre), serum low density lipoprotein cholesterol level of 2.9 mmol/litre (normal range 1–3.0 mmol/litre) and serum cholesterol: high density lipoprotein 5.5 (normal range <6).

On day 17, while still an inpatient, he underwent left carotid endarterectomy. He was discharged home that day on atorvastatin 40 mg, aspirin 75 mg and clopidogrel 75 mg once daily for 3 months, followed by statins and aspirin long term.

During follow up in the stroke clinic 4 weeks post-discharge, he reported no further episodes of visual loss or limb weakness and had no evidence of any visual impairment or limb weakness.

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Figure 1. Computed tomography scan of the head shows a focal hypodensity in the left basal ganglia caused by an established lacunar infarct (arrow).

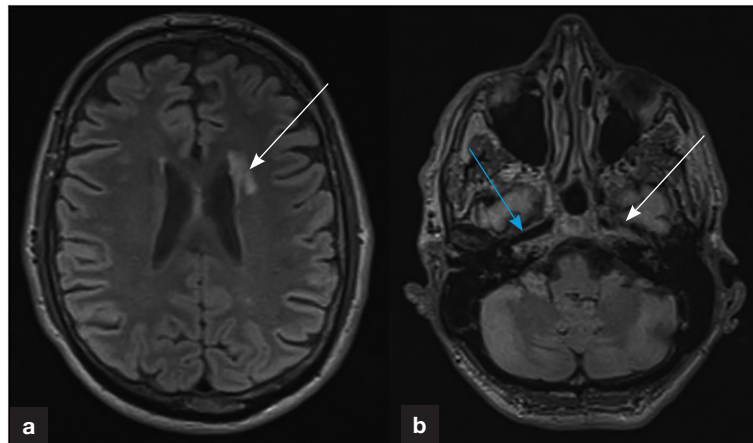


Figure 2. Magnetic resonance imaging of head. a. Flair sequence showing wedge-shaped focus within the left centrum semiovale adjacent to the frontal horn of the left lateral ventricle and extending to the left basal ganglia, likely to be established ischaemic changes (arrow). b. T2 weighted imaging showing altered signal in the intracranial portions of the left internal carotid artery extending from the skull base to the left cavernous sinus, circumferential high signal noted with central low signal, findings relate to markedly sluggish flow (white arrow), compared to normal flow along the right side (blue arrow).

Transient events of vision loss or limb weakness often happen with increasing frequency and/or severity, which could hasten permanent vision loss or stroke. The term ‘crescendo transient ischaemic attacks’ describes such multiple recurrent episodes of transient ischaemic attack over hours to days (Johnston and Hill, 2004).

This article presents a clinically challenging case of a patient with amaurosis fugax with crescendo transient ischaemic attack symptoms that was managed with a favourable outcome.

Discussion

Hill et al (2004) found that one in five patients with transient ischaemic attacks will have a subsequent stroke, heart attack or die within 1 year. Wilson et al (1993) suggested that the 12% of patients with crescendo transient ischaemic attack who were medically treated and had carotid endarterectomy ‘abolished symptoms on follow-up’.

National Institute for Health and Care Excellence (2019) guidelines recommend high-dose aspirin for the management of transient ischaemic attack. Recommendations by the BMJ (2018) and Johnston et al (2018) emphasise the role of dual antiplatelet treatment for patients at high risk of transient ischaemic attack.

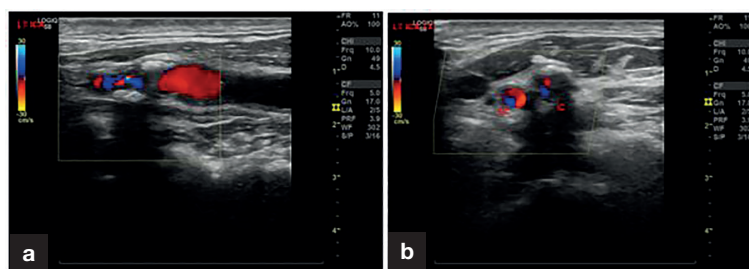


Figure 3. Ultrasound of the neck, with Doppler studies. a. Doppler of the internal carotid artery. b. Doppler of the common carotid artery. Uneven mixed atheromatous disease is seen extending from the left distal common carotid artery into the internal carotid artery over a length of 21 mm with a marked velocity jet distal to the lesion. Ultrasound and colour Doppler flow appearances show >80% stenosis.

Following a television campaign (Act-FAST) by the Department of Health, 94% of adults over 55 years of age were able to identify one of the FAST (facial drooping, arm weakness, speech difficulties and time) stroke symptoms and 74% knew to call 999 should anyone display a stroke symptom (Department of Health, 2013). The authors feel that this suggests that more effort is needed to increase public awareness of the symptoms of stroke.

Zafar et al (2021) reported a stroke case assessed as being negative for the FAST symptoms. The patient had a residual visual field defect which could have been prevented if she had been assessed using a tool that included visual symptoms in transient ischaemic attacks (via ABCD² score) or acute strokes (FAST or Act-FAST).

The Unified ABCD² score (Table 1) (Purroy et al, 2009) was developed to assess the risk of stroke in patients with suspected transient ischaemic attack in a non-specialist setting, to fast-track those at high risk to receive urgent treatment (Johnston et al, 2007). However, symptoms relating to the vision are not included in this assessment. The authors recommend the addition of ‘E’ to the ABCD² score, giving a new acronym of ABCD²-E to include visual symptoms of a transient nature that are not routinely scored.

This case highlights the importance of clinically diagnosing crescendo transient ischaemic attacks, rather than relying solely on scoring systems that do not include visual symptoms, as this would help to mitigate the high risk of patients developing preventable strokes.

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Table 1. Unified ABCD² score and stroke risk stratification

Score	Age	Blood pressure	Clinical features	Duration of transient ischaemic attack	Diabetes
0	<60 years	Normal	No speech disturbance and no unilateral limb (one-sided) weakness	<10 minutes	No diabetes
1	≥60 years	Raised 140/90 mmHg	Speech disturbance present but no unilateral limb weakness	10–59 minutes	Diabetes present
2	-	-	Unilateral limb weakness	≥60 minutes	-

From Purroy et al (2009). A= age; B = blood pressure; C = clinical features; D = duration of symptoms; D² = diabetes mellitus. The risk of stroke can be estimated from the ABCD² score as follows: score 1–3 (low): 2-day risk=1.0%, 7-day risk=1.2%; score 4–5 (moderate): 2-day risk=4.1%, 7-day risk=5.9%; score 6–7 (high): 2-day risk=8.1%, 7-day risk=11.7%

Learning points

- Patients with crescendo transient ischaemic attacks should receive a consultant review or inpatient hospital admission even if they have a low ABCD² score, as they are at a high risk of developing recurrent transient ischaemic attacks or strokes.
- The authors recommend the addition of an 'E' to the ABCD² score to include visual symptoms of transient nature that are not routinely scored. This would increase clinicians' awareness of these symptoms.
- Complete resolution of symptoms such as transient visual loss is possible through early escalation and management.
- The authors recommend that visual symptoms should be taken into account when considering the emergency transfer of patients to stroke centres for further investigations and management.

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