PICTORIAL MEDICINE

Sudden loss of vision

Case summary

A 51-year-old male teacher with previously normal vision presented to the emergency department with sudden painless loss of vision in his right eye. He reported experiencing an inferonasal visual field defect over the preceding 2 days. He had noted a sudden increase in the visual defect associated with seeing 'flashes'. His left eye was asymptomatic. He had a history of diabetes mellitus but had ceased treatment and follow-up. His blood pressure was 154/86 mm Hg and glucostix 14.8 mmol/L. An examination of the right eye revealed that his visual acuity was so reduced that he could only count fingers, and demonstrated an extensive inferonasal visual field defect. A bedside ultrasound scan was performed to assess his right eye using a 12-MHz linear transducer. Figure 1 shows a longitudinal scan with the probe placed vertically, and Figure 2 is a transverse scan with horizontal probe placement. The top of the image corresponds to the anterior of the eye. What is your diagnosis?

Discussion

Conditions to be considered in a patient with sudden loss of vision in the uninflamed eye include a central retinal artery occlusion, central retinal vein occlusion, vitreous haemorrhage, retinal detachment and optic neuritis. Flashes are characteristic symptoms of a retinal detachment while poorly controlled diabetes makes a vitreous haemorrhage or retinal vein occlusion likely. Pupillary dilatation and examination using direct ophthalmoscopy is useful for differentiating between these conditions, but this can be time-consuming. In the ultrasound images shown (Figs 1 and 2), part of the retina is seen as an echogenic (white) structure separated from the posterior globe wall. The emergency physician performing the scan was able to confirm the diagnosis of retinal detachment within minutes. The ophthalmologist was consulted urgently and the patient underwent surgery to correct his rhegmatogenous retinal detachment.

Emergency physicians' use of ultrasonography to diagnose retinal detachment was first reported in 2002.[1] The technique is relatively simple and can be learned easily by a physician already trained in the basics of goal-oriented ultrasonography.[1-3] In the author's department, emergency specialists and residents have received training in the use of ultrasonography to diagnose retinal detachment. With more advanced training and by applying colour and spectral Doppler, central retinal artery and vein occlusions can be diagnosed, and vitreous haemorrhages can be differentiated from cases of retinal detachment. Recently, ophthalmologists have reported using this modality for assessing patients whose pupils cannot be dilated.[4] With the development of more portable machines, the convenience of handheld scanners and more accurate high-frequency probes, bedside ultrasound is likely to become an important adjunct in the assessment of sudden visual loss.

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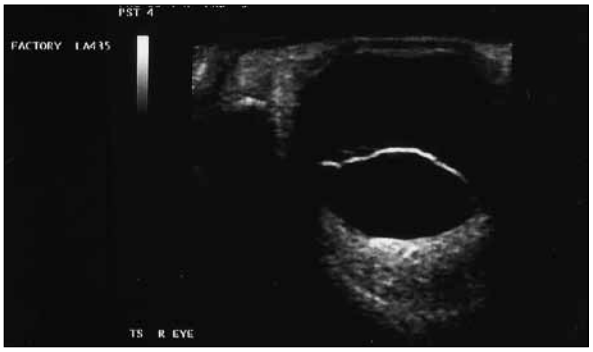

FIG 1. B-mode sonogram of the right eye (transverse section), using a 12-MHz linear transducer

FIG 2. B-mode sonogram of the right eye (longitudinal section), using a 12-MHz linear transducer

References

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