



Comment on ‘Neuroradiology for ophthalmologists’

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To the Editor:

We read with interest the paper by Othman et al. [1]. Ophthalmologists have reported a significant increase in referrals for patients with possible disc swelling [2]. We suggest two further imaging modalities are important to consider when evaluating these patients.

Motion-stabilised infra-red video recordings (using OCT scanners) can establish whether spontaneous venous pulsations are present [3]. This technique is increasingly used at our Institution in cases where the risks of direct intracranial pressure monitoring are not felt to be justified.

Another approach is to use B-scan ultrasonography, which is feasible even when direct visualisation of the optic disc is not possible, such as after orbital trauma (where the eyelids are swollen shut) or in patients with media opacities. It also does not require pharmacological dilatation, which is advantageous for patients having regular neurological observations.

Ultrasound examination of the optic disc requires the use of a 7.5–10 MHz or a linear array ultrasound transducer, with water-soluble ultrasound transmission gel providing contact between the transducer and eyelid. Examination is performed in two positions, with the patient looking straight ahead and both their eyes closed, and with the eye being assessed turned 30 degrees towards the transducer. Scans should be performed in sagittal and transverse planes, looking at the hypoechoic linear radiation posterior to the globe that is the optic nerve.

Optic nerve sheath diameter (ONSD) is best measured 3 mm behind the globe [4], at the point of maximal dilatation with minimal fibrous trabecular mesh [5]. Positive

examination findings for raised ICP include the ‘doughnut’ or ‘crescent’ sign, an ONSD of >5 mm, or a >10% reduction in ONSD with the 30-degree test, where turning the eye stretches the optic nerve and sheath, reducing the pressure of the subarachnoid fluid and therefore the ONSD [6]. Experienced sonographers are estimated to need to do 10 scans to learn the technique, with novices requiring 25 scans to achieve competency [7].

ONSD measurements from B-scan are accurate and reliable compared to results obtained from neuroimaging [8, 9] and have been shown to correlate with intracranial pressure measurements [10].

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Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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