Measurement of the Optic Nerve in a Resource-Limited Setting

Sir,

We read with great interest the article by Aduayi *et al*.[1] concerning the possibility to detect an increase in the intracranial pressure utilizing ultrasound in a resource-limited setting.

We would like to make some comments on this article because in our opinion there are some points that need to be clarified.

First of all the authors utilized a B-scan to measure the optic nerve, this kind of measurement can be influenced by the so-called blooming effect. Such effect that can be less important when we deal with large lesions but can be misleading when we expect that a difference <0.5 mm can make a difference as it happens in a differential diagnosis of optic nerve lesions. The presence of this effect can explain the different cutoff found in different papers. In these cases, the measurements with the so-called standardized A-scan can be much more precise even if it requires some skill and is a little bit more difficult to perform.[2]

Moreover, the authors stated that an increase in the optic nerve diameter is typical of an intracranial hypertension, and this is partially true because an optic neuritis or an optic nerve glioma can show a similar picture.

The only way to be sure that the optic nerve increase is due to an intracranial hypertension is to perform the so-called 30-degree test.[3,4]

This test that has been introduced since late 70s by Ossoinig[2] consists in a measurement of the arachnoidal diameter in straight gaze; then, the maximal arachnoidal diameter is remeasured in maximal abduction of the eye (30-degree gaze). A decrease of the maximal arachnoidal diameter >5% from the initial straight gaze measurement proves subarachnoidal fluid and differentiates this fluid distension of the optic nerve from either (a) solid thickening of the sheaths (e.g., in Graves' orbitopathy, in optic nerve sheath meningiomas, or leukemic infiltration of the optic nerve)[5] or (b) swelling of the pial and arachnoidal sheaths with engorged vessels in cases of severe orbital congestions (e.g., in arteriovenous fistulas or in acute orbital inflammation).

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Conflicts of interest

There are no conflicts of interest.

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