Sir,

Is Valsalva manoeuvre useful in diagnosing dural caroticocavernous fistulas?

A 65-year-old gentleman noticed blurred vision in his left eye after spraying a cleaning liquid. It was 6/5 and 6/12 in right and left eyes, respectively. Since he had iritis, G. Maxidex was advised 2 hourly in the left eye.

During the follow-up, redness, chemosis, and arterialisation of conjunctival vessels were noted. He had also noticed an occasional swishing noise in the head. The eyes were quiet with no proptosis. Intraocular pressure (IOP) was 12 in right and 28 in left eye. Bruit, however, was not heard initially; but became evident in left lateral position with a Valsalva manoeuvre.

Hence, we suspected a left caroticocavernous fistula. A carotid angiography confirmed left type D dural caroticocavernous fistulas (Figures 1 and 2).[1] They closed spontaneously the following year.

Dural fistulas are difficult to diagnose. They lack a history of trauma. Redness is absent in a third, bruit in a half, proptosis in 80%, and ocular pulsation in almost all cases.[2] IOP is raised only in 38% of all fistulas.[3] Hence, noninvasive investigations like ultrasound B scan, CT, MRI, intravenous digital subtraction angiography, and colour Doppler are advised. However, they involve a waiting period and are inconclusive. Although hazardous, carotid angiography is decisive.

A simple clinical test that screens the patients for angiography is useful. A difference in IOP between systole and diastole of more than 1.6 between the eyes is 100% sensitive and 93% specific of caroticocavernous fistulas.[4] This requires a pneumo, contact lens, or dynamic tonometer, which are not universally available.[5] Standard tonometers are useful if there is a wide fluctuation.[6]

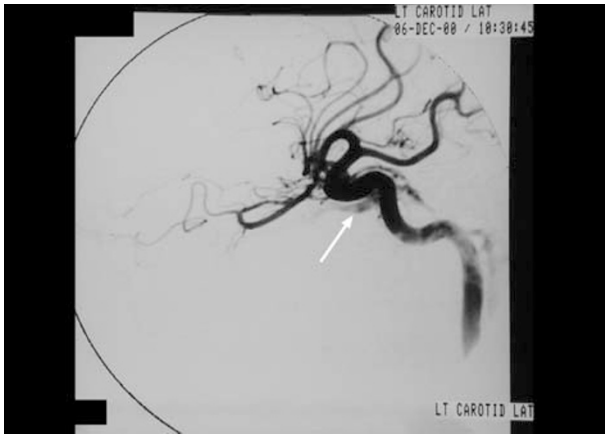

Figure 1 Angiogram of the left internal carotid artery showing filling of the dural cavernous fistula, with early shunting of the blood into the cavernous sinus (arrow), from the cavernous part of the internal carotid artery.

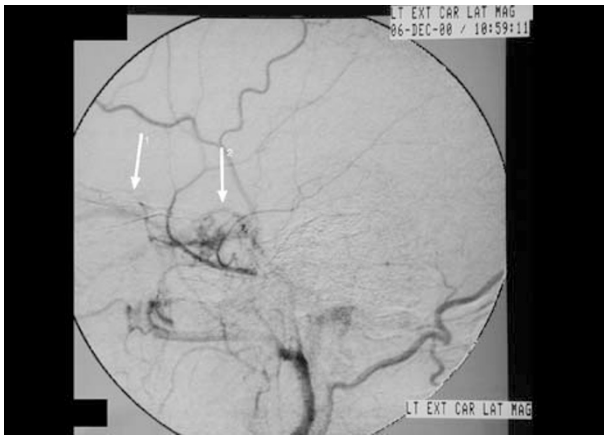

Figure 2 Angiogram of the left external carotid artery showing early filling of the superior ophthalmic vein (arrow 1) from the dural branches of the middle meningeal artery (a branch of the external carotid artery). It also shows filling of the dural caroticocavernous fistula (arrow 2).

Another clinical sign, bruit, is heard in arteriovenous communications, Paget's disease, vascular meningioma, carotid and aortic stenosis, and normal individuals.

A bruit can be made audible by worsening the turbulence by increasing the flow through the fistula.

Valsalva manoeuvre increases the flow through the internal carotid artery by 56.5% and supine position redistributes blood from the lower limbs.[7] This explains why the bruit became evident later. Hence, eliciting bruit in a doubtful case is helpful, but its predictive value needs to be determined.

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Sir,

The proview phosphene tonometer: a clinical evaluation

We enjoyed reading the article by Chew *et al*.[1] There are several issues that we think the authors may like to address.

It would be helpful for the authors to clarify whether they employed the median of several intraocular pressure (IOP) readings for analysis. All measurements of IOP are subject to random errors. Single measurement is suboptimal in reflecting the true IOP. Taking the median of several readings is a standard way to approximate the true IOP values for most tonometry. Comparison of single measurement may introduce more error into the mean difference.

The authors did not describe the visual field status of their subjects. Theoretically, a proper perception of pressure phosphene requires the presence of functioning bipolar cells, rods, and cones in the retina.[2] If the recruited subjects were having advanced glaucoma or significant retinal disease such that there was a significant bipolar cells and visual field loss, the perception of phosphene may prove difficult. However, this does not necessarily negate the potential use of the pressure phosphene tonometer (PPT) in those with early or preperimetric glaucoma.

The authors talked of testing for reliability of PPT in their aim of study, and concluded that PPT cannot be a reliable instrument. However, the authors have only tested for accuracy of PPT *vs* Goldmann tonometer (GT), not reliability, as they did not present data such as coefficients of variations, which is a proper way to assess reliability.

It is uncertain whether suboptimal hand–eye coordination, intelligence, and patient understanding will have significant influence on the accuracy in using PPT. The recruited subjects in this study consisted of an elderly population (median age = 73 years), which might have been suboptimal with regard to the factors listed above. The authors may like to give an analysis on the group with younger age, to see whether PPT might be more useful.

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Sir,

Reply to DYL Leung and DSC Lam

Thank you for the opportunity to respond to the issues raised in the letter by Leung and Lam and we are grateful to them for their interest and enquiry.

A single reading with both the pressure phosphene tonometer (PPT) and the Goldmann tonometer (GT) was