Hunting for a cause of painful diplopia

To the Editor: The article by Stevens and Schweitzer[1] contains many useful teaching pearls for frontline physicians and generalists. I concur with the final diagnosis reached and the excellent teaching points emphasised in the article.

I would like to make two important points regarding localisation. First, binocular diplopia can be caused by diseases in a variety of locations in the neurological axis, not just the extraocular muscle. Other possible locations include the brainstem, the cranial nerves (III, IV and/or VI), the neuromuscular junction and the orbit itself. Accompanying features will help distinguish the location; for example, the presence of hemiparesis, cerebellar signs, or lower cranial nerve abnormalities would localise to the brainstem.

Second, localisation is critical before organising neuroimaging, as knowing where the lesion is will prove useful for the radiologist. The likelihood of subtle pathologies being detected by the radiologist increases significantly when the site of potential localisation is included in the clinical request information. This helps to reduce the possibility of false negatives or misinterpretation if clinical correlation is not applied to test requests.[2]

Finally, there are two differential diagnoses to consider in this case. Myasthenia gravis, an uncommon disorder of the neuromuscular junction, is known to be a great mimicker and can cause various patterns of ophthalmoparesis and diplopia[3] and it should be considered in all cases of binocular diplopia. In the article by Stevens and Schweitzer,[1] this diagnosis was less likely in the patient given the painful nature of the ophthalmoparesis. The other rare differential diagnosis with serious implications to consider is a dural (or indirect) carotid-cavernous fistula. Patients with this condition can present with painful diplopia without significant visual loss; they are frequently misdiagnosed by specialists and are eminently treatable endovascularly.[4] The absence of orbital signs (eg, proptosis) and ocular signs (eg, arterialised "corkscrew" conjunctival vessels) assisted in excluding this condition as a differential in this case.

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