Short Communication
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Common symptoms can uncover a rare tumor: A case report of pleomorphic xanthoastrocytoma

Abstract

Transient visual disturbances (VD), such as flashing lights and scotomas, can occur in relatively benign ocular and neurologic diseases, such as migraine with aura. However, VD can also be a manifestation of visually threatening eye conditions and life-threatening neurologic conditions. The case of a 44-year-old woman is presented to highlight the importance of comprehensive ocular and neurologic examination in the diagnosis and management of patients with VD.

Keywords: headache, homonymous hemianopia, pleomorphic xanthoastrocytoma, visual aura, visual disturbance

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Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging; MA, migraine with aura; OCT, optical coherence tomography; PXA, pleomorphic xanthoastrocytoma; RNFL, retinal nerve fiber layer; VD, visual disturbances

Introduction

Migraine with aura (MA) is a common disorder and visual symptoms represent upwards of 98% of auras.[1] Differentiating MA from other neurologic conditions can be difficult.[2] MA visual symptoms are most often described as zigzags, scotomas, and flashes.[1] However, these visual disturbances are not unique to MA. A comprehensive eye exam is indicated to rule out intraocular differentials, such as retinal traction and/or detachment, a condition which can be visually threatening. Visual disturbances can also be the sign of ominous neurologic conditions, such as seizures, cerebral ischemia, and intracranial neoplasms, which can be life threatening.[2–4] The following case highlights the importance of differentiating visual disturbances as the presenting sign of serious neurologic conditions from those associated with more benign etiologies, such as MA.

Case report

A 44-year-old woman noted visual disturbances, consisting of circles and lights, that would precede a left sided headache. After suffering a severe headache for two weeks, she sought emergency care. While initial symptoms could be suspicious for MA, inpatient evaluation revealed the presence of a right homonymous hemianopia and computed tomography (CT) of the head was ordered. Imaging revealed a 3.9 x 3.0 cm hyperdense mass in the posterior left parietal lobe with adjoining 1.5cm round lesion. There was surrounding vasogenic edema and resultant 4 mm midline shift. She underwent a craniotomy for resection of a grade 2 pleomorphic xanthoastrocytoma. Gross total resection was attempted though postoperative magnetic resonance imaging (MRI) showed a residual 1.5 cm nodular lesion in the superior aspect of the left parietal resection cavity.

After discharge, she was referred by her neurosurgeon for formal eye examination. Afferent assessment revealed normal acuities and no afferent pupillary defect. Confrontation and formal automated visual fields continued to reveal inferior temporal constriction in the right eye and inferior nasal constriction in the left eye consistent with a right homonymous hemianopia (Figure 1). Efferent examination was intact without significant extraocular motility restriction. Dilated examination revealed healthy optic discs and a spontaneous venous pulse was appreciated in both eyes, suggesting normal intracranial pressure. Additionally, optical coherence tomography (OCT) of the retinal nerve fiber layer (RNFL) and ganglion cell was intact.

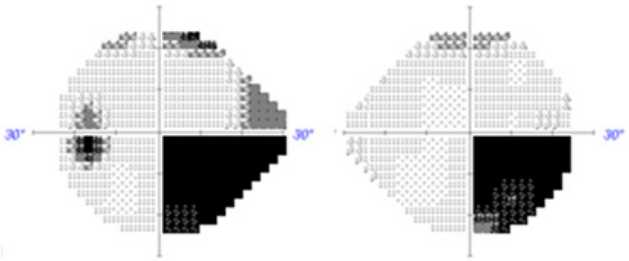

Figure 1 Automated visual field showing right inferior homonymous hemianopia status post resection of left parietal PXA.

Results

The patient underwent a six-week course of post-operative radiation treatment. Most recent MRI continued to show a 1.5 cm lesion within the resection cavity. She has been monitored closely by neurosurgery and with eye care providers. Fortunately, 18 months postoperatively, the patient has remained stable from a neurologic and visual standpoint.

Discussion

Pleomorphic xanthoastrocytoma (PXA) is a rare primary tumor of the central nervous system, representing only approximately 1% of all astrocytic tumors.[5] PXA most commonly occurs in the second decade of life, but age of diagnosis can vary as highlighted by the case above in which the patient was 44 years of age at diagnosis. Most PXA are supratentorial in location, and most often found in the temporal lobe. Presenting symptoms may reflect the area of the brain involved, such as seizures in temporal lobe lesions, or in contrast may be related to elevated intracranial pressure.[6–8] While seizures are the most common sign of PXA, visual manifestations have been reported.[4] On neuroimaging, PXA are typically superficial and border the leptomeninges. These tumors often have surrounding vasogenic edema as well as a cystic component. Surgery is the treatment of

choice and gross total resection is preferred if possible.[5] As resection has been shown to improve patient outcomes in cases of PXA, this case highlights the importance of careful neuro-ophthalmic examination in patients with headache and visual disturbance symptoms.

Conclusion

VD preceding headaches can often be the sign of MA; however, as demonstrated in the case above they can also be the presenting sign of neurologic conditions which require treatment and/or may be life threatening. When patients present with complaints of VD, a comprehensive ocular evaluation, including dilation and formal visual field testing, and neurologic exam should be performed. Any possible indicator of secondary headache warrants further investigation and likely neuroimaging.

Acknowledgments

None.

Conflicts of interest

The author declares that there are no conflicts of interest.

References

1. Viana M, Grazia S, Mattias L, et al. Clinical features of migraine aura: results from a prospective diary-aided study. *Cephalalgia*. 2017;37(10):979–989.
2. Terrin A, Giulia T, Mario E, et al. When migraine mimics stroke: a systematic review. *Cephalalgia*. 2018;38(14):2068–2078.
3. Guerrini R, Pierre G. Epileptic syndromes and visually induced seizures. *Epilepsia*. 2004;45(1):14–18.
4. Hashmi M, Asad AJ, Shaista AS, et al. Pleomorphic xanthoastrocytoma: an atypical astrocytoma. *J Pak Med Assoc*. 2012;62(2):175–177.
5. Fouladi M, Jenkins J, Burger P, et al. Pleomorphic xanthoastrocytoma: favorable outcome after complete surgical resection. *Neuro Oncol*. 2001;3(3):184–192.
6. Shaikh N, Nupur B, Tim JK, et al. Pleomorphic xanthoastrocytoma: a brief review. *CNS Oncol*. 2019;8(3):CNS39.
7. Amulya AN, Nadia NL, Caterina G, et al. Pleomorphic xanthoastrocytoma in children and adolescents. *Pediatr Blood Cancer*. 2010;55(2):290–294.
8. Perkins, Stephanie M., et al. Patterns of care and outcomes of patients with pleomorphic xanthoastrocytoma: a SEER analysis. *J Neurooncol*. 2012;110(1):99–104.

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