Bilateral macular neurosensory retinal detachment secondary to systemic Dabrafenib and Trametinib therapy

Kevin J. Talbot*, and Gibran Khurshid
Department of Ophthalmology, college of medicine, University of Florida, 1600 SW Archer Road, Gainesville, FL 32610, USA

Abstract
We report the case of a patient who developed bilateral macular neurosensory retinal detachment from dabrafenib and trametinib (B-Raf inhibitor and MEK1/2 inhibitor, respectively) for stage IV cutaneous melanoma. To the best of our knowledge, this has not previously been reported as a side-effect of the simultaneous use of these two medication.

Discussion
Dabrafenib acts as an inhibitor of the enzyme B-Raf, which plays a role in the regulation of cellular proliferation and is part of the MAP kinase pathway. Dabrafenib has been FDA approved in patients with BRAF V600E/K-mutant metastatic melanoma, but cancer cell resistance typically occurred within a few months. Trametinib is an anti-cancer medication that acts as a MEK1 and MEK2 inhibitor, enzymes which are part of the same MAP kinase pathway. Trametinib has also been FDA approved in patients with BRAF V600E/K-mutant metastatic melanoma, but as with dabrafenib, cancer cell resistance typically occurred within a few months. To overcome this resistance, the above medications are often used together with good results. MAP kinase pathway inhibitors have been under investigation in the treatment of many different types of cancer, including cutaneous melanoma [1]. Some drugs in this class have been associated with ocular side effects in up to 26.5% of patients, including retinal vein occlusion, multifocal serous retinal detachment, cystoid macular edema, and uveitis [2,3]. The mechanism behind these ocular side effects remains
unclear, but it has been suggested that MAP kinase inhibition can lead to an inflammatory response with consequent breakdown of the blood-retinal barrier [4]. This explanation is unlikely to account for the development of sub-foveal neurosensory detachment in our patient given the lack of inflammation on physical exam. To the best of our knowledge there has not been a case of isolated bilateral sub-foveal neurosensory retinal detachment due to simultaneous use of these two medication. With the advent of these new promising therapeutic anticancer modalities, some having a high rate of ocular side effects, regular ophthalmic evaluation and multi-disciplinary approach to customize individual patient treatment may be warranted [5-7].

Declaration of interest

The authors report no declarations of interest.

References

2. Duncan KE, Chang LY, Patronas M (2015) MEK inhibitors: a new class of chemotherapeutic agents with ocular toxicity. Eye (Lond) 29: 1003-1012. [Crossref]