Images in...

PET-CT aids in the diagnosis of a choroidal mass with retinal detachment in a patient with history of breast cancer and sarcoidosis

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DESCRIPTION

The authors report a case of a 47-year-old female with a history of sarcoidosis and early stage breast cancer diagnosed and treated for potential cure 10 years earlier with right mastectomy, who presented with a progressive left visual field defect developing over 2 weeks. Physical examination demonstrated a lobulated choroidal mass with a serous retinal detachment (figure 1). MRI confirmed

a left orbital retinal detachment. F-18 flurodeoxyglucose (FDG) positron emission tomography CT (PET-CT) imaging demonstrated hypermetabolism diffusely throughout osseous structures, numerous lymph node stations and the left posterior choroid (figures 2 and 3). No calcified lymph nodes were seen on CT. Retrospective review of the MRI showed very mild enhancement correlating to the hypermetabolic choroid lesion. Biopsy of a hypermetabolic neck lymph node confirmed the presence of metastatic breast cancer. Metastatic carcinoma to the eye is regarded as the most common intraocular malignant neoplasm, which in woman is breast cancer.¹ Metastatic deposits to the eye can spread to the choroid, optic disc, iris and ciliary body. Choroid tumours are one of the causes of serous retinal detachments, whereby subretinal fluid produces localised exudative or bullous detachments of the retina.

Figure 1 T2 weighted MRI of the orbits demonstrates a V-shaped T2 hypointense signal abnormality pointing toward the optic disc, within the posterior aspect of the left globe, a characteristic MRI finding of a retinal detachment.

Figure 2 Fusion positron emission tomography CT image demonstrates F-18 flurodeoxyglucose hypermetabolism along the posterior margin of the left globe correlating to signal abnormality on MRI.

Figure 3 Whole body F-18 fludeoxyglucose positron emission tomography maximum intensity projection image demonstrates widespread hypermetabolic metastatic lesions throughout the neck, mediastinum, abdomen, as well as the axial and appendicular skeleton.

Malignant retinal detachments are an unusual clinical presentation of metastatic disease.¹ Retinal detachments are relatively uncommon affecting only 1 in 10 000 per year.² Most retinal detachments are rhegmatogenous in origin, a non-malignant condition which occurs when liquid vitreous enters the subretinal space through a retinal defect, creating a dissection plane between the retina and retinal epithelium.² The most common risk factors for rhegmatogenous retinal detachments include aging, cataract surgery, trauma and myopia.¹ Ocular sarcoid typically causes

anterior uveitis, although posterior choroidal granulomas may occur with associated retinal detachments mimicking malignant detachments.¹ Although sarcoid-related retinal detachment is a consideration in this case, the constellation of findings to include widespread metastatic disease with osseous involvement and lymph node biopsy results of metastatic breast carcinoma strongly favours a malignant aetiology. There is little data on specific MRI or PET-CT findings in ocular sarcoid as the majority of cases are confirmed by a combination of physical examination findings, laboratory abnormalities such as elevated ACE levels, imaging findings such as bilateral hilar lymphadenopathy on chest imaging, and compatible biopsy results.³ Several case reports and a small number of studies have confirmed the utility of PET-CT in evaluating ocular metastases.^{4 5} FDG is typically taken up at site of the choroidal metastatic lesion. Differentiating benign from metastatic causes of retinal detachment profoundly alters management in patients with known prior malignancy, as external beam radiation treatment may preserve vision. PET-CT can aid in diagnosis.

Learning points

- ▶ PET-CT is a useful adjunct in the diagnostic imaging armamentarium in patients with suspected ocular metastatic disease.
- ▶ Metastatic lesions can cause retinal detachments and should be suspected in the appropriate clinical setting.

Competing interests None.

Patient consent Obtained.

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