Sir,

Intravitreal bevacizumab (Avastin) for choroidal metastasis secondary to breast carcinoma: short-term follow-up

Uveal metastases are the most common intraocular malignancy. The most common primary sites of cancer are from the breast (47%) and lung (21%).[1]

The treatment for choroidal metastasis depends on many factors including location, multiplicity, and activity of each tumour.[1]

Bevacizumab (Avastin®) is a full-length humanized murine monoclonal antibody against the VEGF molecule, and inhibits angiogenesis and tumour growth.[2]

In this report, we describe the effect of a single intravitreal injection of bevacizumab (4 mg) in a patient with choroidal metastasis secondary to breast cancer.

Case report

A 57-year-old-woman with stage IV non-oestrogen-sensitive breast carcinoma with bone and lung metastasis treated with eight cicles of oxaliplatin and vinorelbine 6 months ago had rapidly decreased vision in her right eye within 2 weeks. Best-corrected visual acuity (BCVA) was 10/200 in the right eye and 20/20 in the left eye. Fundus evaluation revealed a solitary elevated choroidal mass in the posterior pole (Figure 1a). Subretinal fluid accumulation involved the fovea. Optical coherence tomography (OCT) revealed intraretinal and subretinal fluid accumulation (Figure 1b). Fundus fluorescein angiography (FA) demonstrated prominent leakage with involvement of the fovea in the late phase. B-mode ultrasonography revealed a choroidal mass with an extension of 15.9×11.8 mm and a thickness of 2.9 mm (Figure 1c). Choroidal metastasis secondary to breast cancer was diagnosed.

Three weeks after intravitreal injection of 0.16 ml of Avastin® (4 mg of bevacizumab), BCVA improved to 20/60 and fundus evaluation revealed size reduction of the choroidal mass with persistent subretinal fluid involving the fovea (Figure 2a and b). Fundus FA demonstrated a decrease in the size of the lesion and a reduced leakage in the late phase. B-mode ultrasonography revealed a dramatical decrease in the size of the tumour, with an extension of 6.4×2.3 mm (Figure 2c).

No ocular or systemic complications were observed at the end of follow-up.

Comment

Treatment of metastatic choroidal tumour is usually recommended if the tumour appears active and threatens vision.[1]

Preliminary results indicated that bevacizumab significantly extended progression-free survival in patients with locally recurrent or metastatic breast cancer.[3]

The intravitreal use of bevacizumab has been published recently. The first report was for exudative choroidal neovascularization (CNV) resulting from

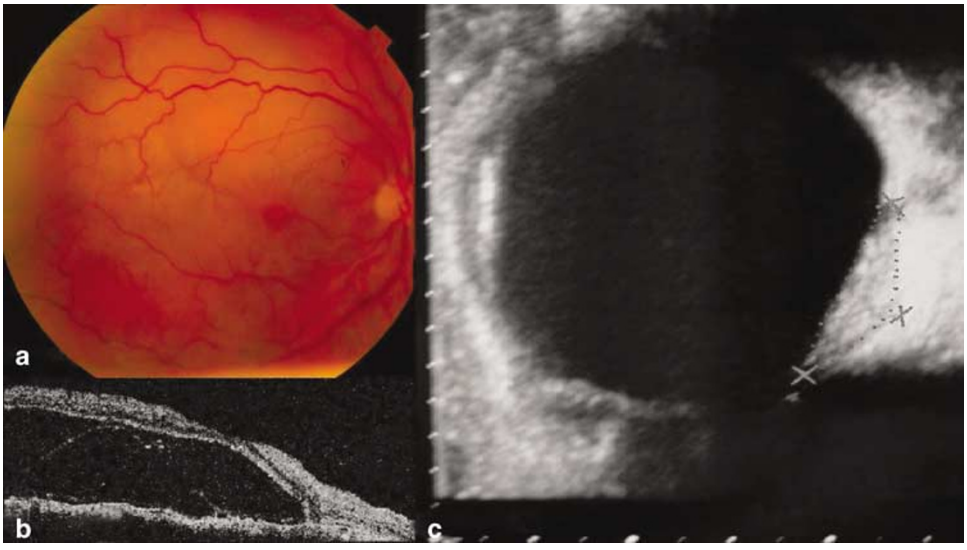

Figure 1 (a) Funduscopy at baseline. Yellowish mass in the posterior pole of the right eye. (b) OCT scan at baseline. Serous retinal detachment. Intraretinal and subretinal fluid collections. (c) B-mode ultrasonography at baseline. Choroidal mass with an extension of 15.9×11.8 mm and a thickness of 2.9 mm.

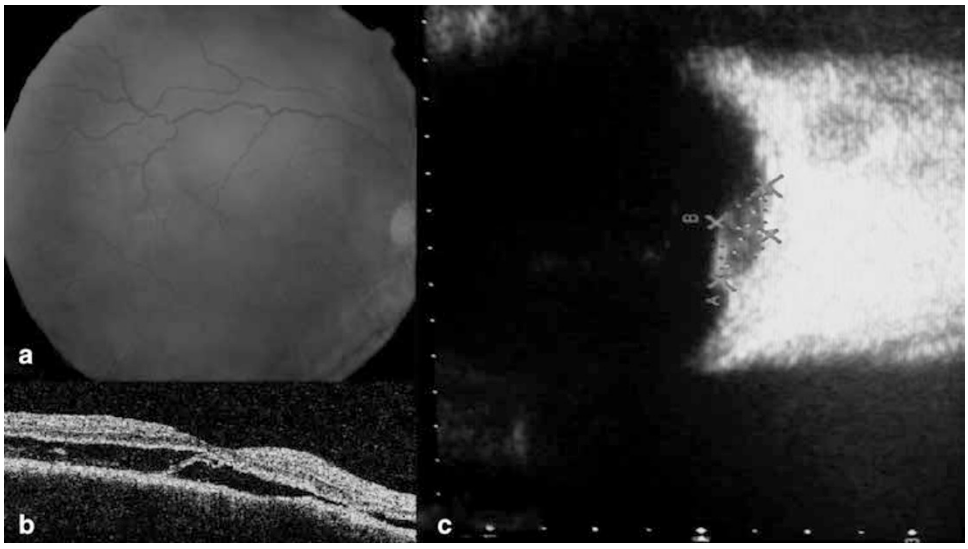

Figure 2 (a) Funduscopy 3 weeks after the injection of bevacizumab (4 mg). Size reduction of the yellowish mass. (b) OCT scan 3 weeks after the injection of bevacizumab (4 mg). Flattening of the serous retinal detachment. (c) B-mode ultrasonography 3 weeks after the injection of bevacizumab (4 mg). Choroidal mass with an extension of 6.4×2.3 mm.

age-related macular degeneration (ARMD) and the other for macular oedema caused by central retinal vein occlusion. In both cases, a dramatic improvement was observed in the macula using OCT. Bevacizumab has also been used injected via pars plana for treating retinal and iris diabetic neovascularization and injected subconjunctivally in a patient with a failing bleb following trabeculectomy.

In that case, we decided to inject a higher dose of bevacizumab (4 mg) than usually recommended for most ARMD (2.5 mg) because of the severity of the disease and the dose–effect relation between bevacizumab and inhibition of angiogenesis and tumour growth.

Electrophysiological and histological studies following intravitreal injection of varying doses of bevacizumab in rabbits indicated that bevacizumab did not appear to be toxic to the retina at a concentration of 2.5 mg.[4]

Assuming a rabbit vitreous cavity volume (VCV) of 1.4 ml, average human VCV (4–5 ml) is at least three times that of VCV in rabbits. Although it is difficult to directly extrapolate to humans, these studies support the safe use of intravitreal bevacizumab injection, even at theoretical doses of 7.5 mg in humans.

In our patient, 3 weeks after intravitreal injection of bevacizumab (4 mg), BCVA improved to 20/60. B-mode ultrasonography demonstrated dramatical reduction of the tumour size. No ocular or systemic complications were observed at the end of follow-up.

Intravitreal injections of bevacizumab may provide another treatment option for patients with choroidal metastasis secondary to breast carcinoma.

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