CASE REPORT

Treatment of a Choroidal Neovascular Membrane by Intravitreal Ranibizumab in a Patient with Bilateral Choroidal Osteoma

Bilateral Koroid Osteomlu Bir Hastada Koroid Neovasküler Membranının İntavitreal Ranibizumab ile Tedavisi

Peykan TÜRKÇÜOĞLU[2], Mete GÜLER[1], Turgut YILMAZ[3]

1. M.D. Associate Professor, Adıyaman University, Faculty of Medicine, Department of Ophthalmology, Adıyaman/TURKEY
GÜLER M., meteglr@yahoo.com
2. M.D. Assistant Professor, Göznuru Eye Hospital, Gaziantep/TURKEY
TÜRKÇÜOĞLU P., peykan74@yahoo.com
3. M.D. Professor, İnönü University, Faculty of Medicine, Department of Ophthalmology, Malatya/TURKEY
YILMAZ T., tyilmaz23@yahoo.com

Geliş Tarihi - Received: 01.10.2013
Kabul Tarihi - Accepted: 13.01.2014
Ret-Vit Özel Sayı 2015;23:178-182

Yazışma Adresi / Correspondence Adress:
M.D. Associate Professor, Mete GÜLER
Adıyaman University, Faculty of Medicine, Department of Ophthalmology, Adıyaman/TURKEY

Phone: +90 416 223 38 00
E-Mail: meteglr@yahoo.com

SUMMARY

A 23-year-old patient admitted to our clinic with a sudden vision decrement in her right eye 2 weeks after delivery. Visual acuities were counting fingers OD and logMAR 0.1 OS. Fundus examinations revealed bilateral orange colored, relatively flat, plaque like lesions and a subretinal hemorrhage at parafoveal area, in the right eye. USG, CT, FFA, and OCT imaging conducted and a diagnosis of right choroidal neovascular membrane in bilateral choroidal osteoma background was made. The choroidal neovascular membrane was treated with 3 sequential monthly intravitreal ranibizumab injections and visual acuity improved to logMAR 0.5.

Key Words: Choroidal neovascular membrane, choroidal osteoma, ranibizumab.

ÖZ

Yirmiüç yaşında kadın hasta doğumdan iki hafta sonra sağ gözünde ortaya çıkan ani görme kaybı şikayeti ile kliniğimize başvurdu. Görme keskinlikleri sağ gözde parmak sayma, sol gözde ise 0.1 logMAR seviyelerinde idi. Fundus muayeneleri sağ gözde parafoveal alanda subretinal hemoraji ile birlikte her iki gözde turuncu renkli, kısmen düz, plak benzeri lezyonları göstermekte idi. USG, BT, FFA ve OCT görüntülemeleri uygulandı ve her iki gözde koroid osteoma ile birlikte sağ gözde koroidal neovasküler membran tanısı konuldu. Koroidal neovasküler membran 3 ay devam eden aylık intravitreal ranibizumab enjeksiyonları ile tedavi edildi ve görme keskinliği 0.5 logMAR seviyesine yükseldi.

Anahtar Kelimeler: Koroidal neovasküler membrane, koroid osteomu, ranibizumab.

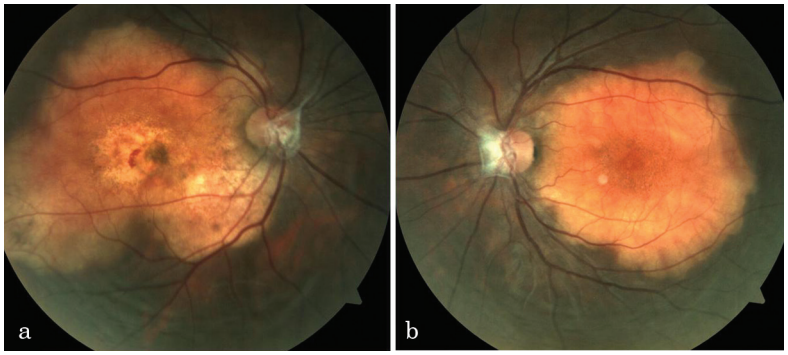

Figure 1a,b: *Yellowish-white minimally elevated lesion with well-defined margins located in the posterior pole in the right eye. Subretinal hemorrhage at parafoveal area is seen (a), a similar lesion is seen in left eye without any hemorrhage (b).*

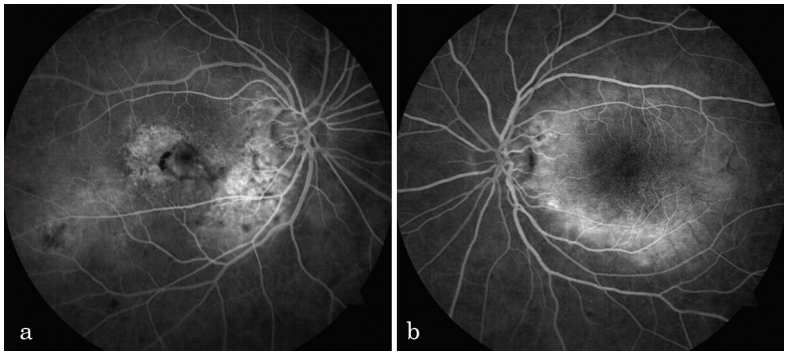

Figure: *FA shows early, irregular, diffuse mottled hyperfluorescence in right eye. Late staining of the CNVM is evident in right eye (a), similar staining pattern is seen in early stages of FFA in left eye without any CNVM (b).*

INTRODUCTION

Choroidal osteoma is a rare, benign choroidal tumor, consists of mature, cancellous bone located in the choroidal tissue.[1] It is typically seen as a well-defined, slightly elevated, white-to-cream or orange lesion in fundus.[2] It is generally located in juxtapapillary or peripapillary areas. Rarely, it confined to the macula.[3] These tumors usually found in healthy young women (90%) with unilateral involvement (75%) in the second or third decades of life.[3] Patients with choroidal osteoma can present with metamorphopsia, blurred vision, and visual field defects, but most are asymptomatic.[4] Despite its benign nature of the tumor, vision compromised by gradual atrophy of the overlying retina. Choroidal neovascular membrane (CNVM) might be another reason for decrement of vision in these cases however it is rare.[5] We reported a case of bilateral choroidal osteoma in whom a CNVM developed in her right eye, which is a very rare event and successfully treated with intravitreal ranibizumab injection.

CASE REPORT

A 23-year-old woman presented to our clinic with a sudden decrement in her vision in the right eye 2 weeks after delivery. Visual acuities were counting fingers OD and logMAR 0.1 OS. The intraocular pressures were within the normal limits. Both anterior segments were normal. Fundus examination revealed orange colored, relatively flat, plaque like lesions placed at the posterior pole within arcades in both fundus and also a hemorrhage at parafoveal area at the center of the lesion in the right eye (Figure 1a,b). Conducted fluorescein angiography (FFA) showed patchy early hyperfluorescence and late diffuse hyperfluorescence of the plaques in her both eyes, additionally, FFA revealed a juxtafoveal early lacy hyperfluorescence, later leakage at the hemorrhagic area which supposed to be classic CNVM in the right (Figure 2a,b). B-scan ultrasonography (USG) of her both eyes revealed placoid lesion at the posterior ocular coats characterized by localized areas of high ultrasound reflectivity with a corresponding orbital shadowing (Figure 3). Optical co-

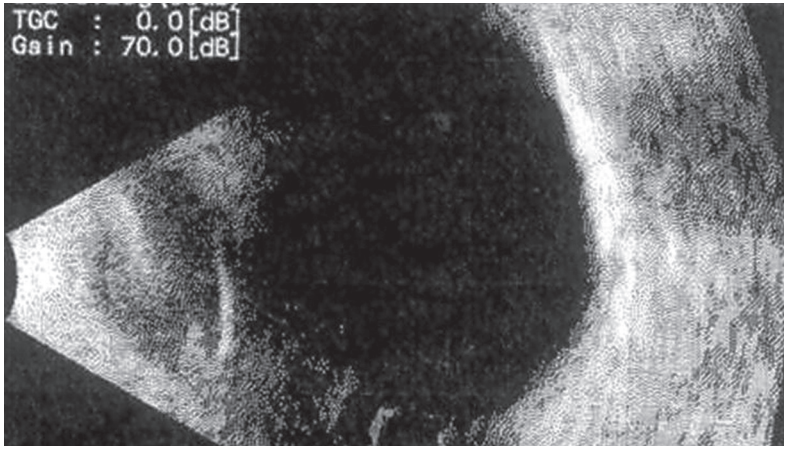

Figure 3: *US image shows highly reflective anterior surface and orbital shadowing behind the mass.*

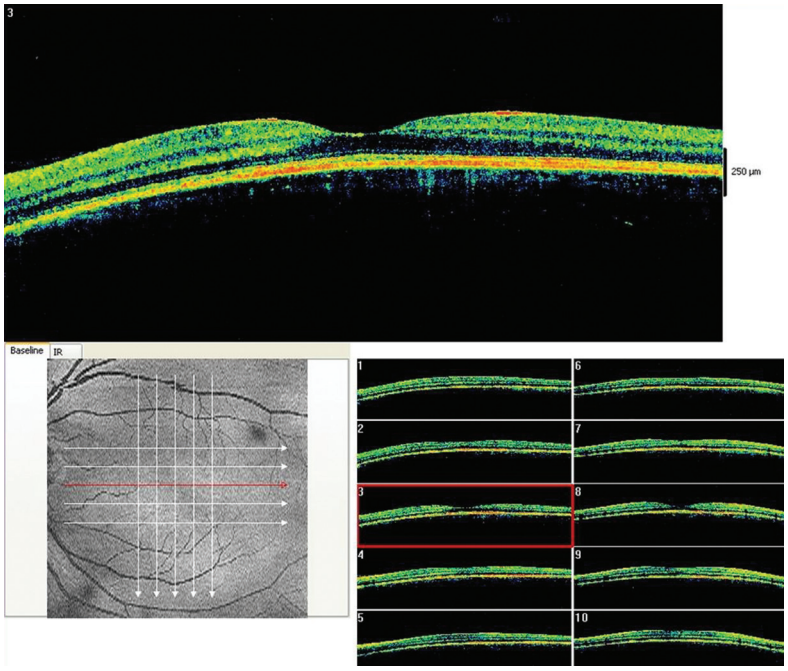

Figure 4a: *OCT in the left eye describes increased hyperreflectivity and thickening of retinal pigment epithelium-choroid junction.*

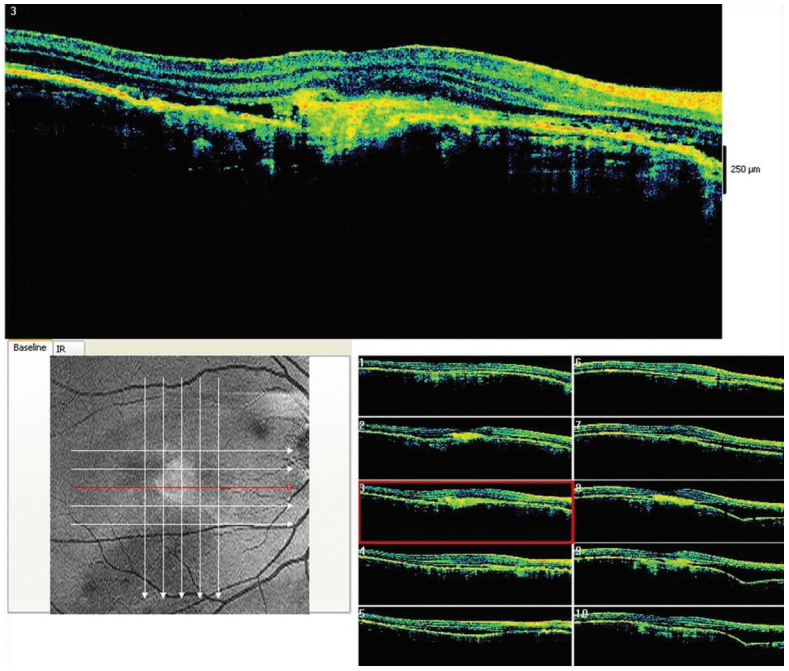

Figure 4b: *OCT confirms the CNVM and denoted that retina elevated over an optically dense plaque in the fovea in the right eye.*

herence tomography (OCT) in her left eye described increased hyperreflectivity and thickening of retinal pigment epithelium-choroid junction (Figure 4a). OCT confirmed the CNVM and denoted that retina elevated over an optically dense plaque in the fovea in her right eye (Figure 4b).

Computed tomography (CT) of the orbit demonstrated bilateral plate-like thickening with calcification of the choroid that was isodense with the normal skeletal bone (Figure 5).

With these findings the patient was diagnosed as bilateral choroidal osteoma with CNVM in the right eye and treated with 3 sequential monthly intravitreal ranibizumab injections. Following the three ranibizumab injections, the retinal and subretinal hemorrhage completely absorbed and visual acuity improved from CF to logMAR 0.5 (Figure 6).

Repeated FFA at 3 months demonstrated fibrosis of the CNVM with absence of fluorescein leakage (Figure 7). OCT revealed absence of fluid and scarred CNVM (Figure 8).

After 1 year of follow-up, improved visual acuity maintained with no evidence of CNVM recurrence.

DISCUSSION

The choroidal osteoma must be differentiated from other intraocular tumors especially from amelanotic choroidal melanoma, metastatic carcinoma, circumscribed choroidal hemangioma,

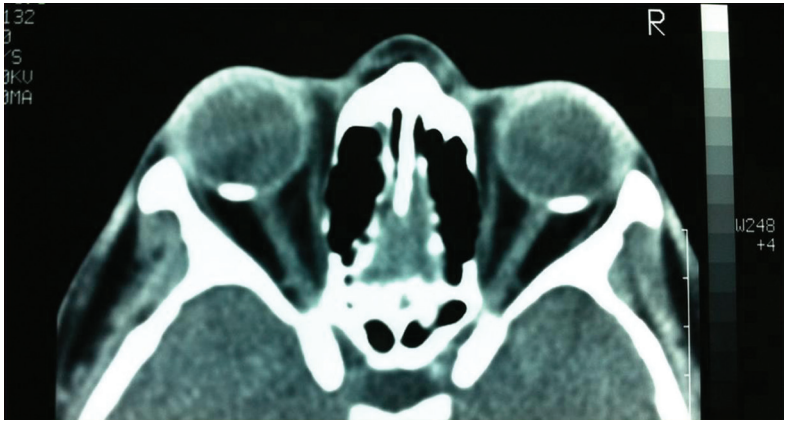

Figure 5: *CT demonstrates a dense plaque-like opacity at the level of the choroid at the posterior poles.*

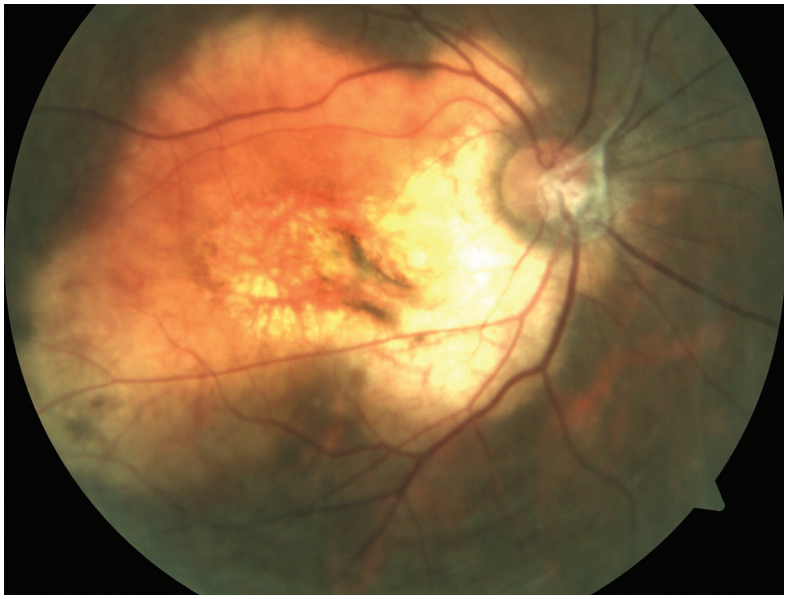

Figure 6: *Fundus photograph of the right eye after the treatment shows resolution of subretinal hemorrhage.*

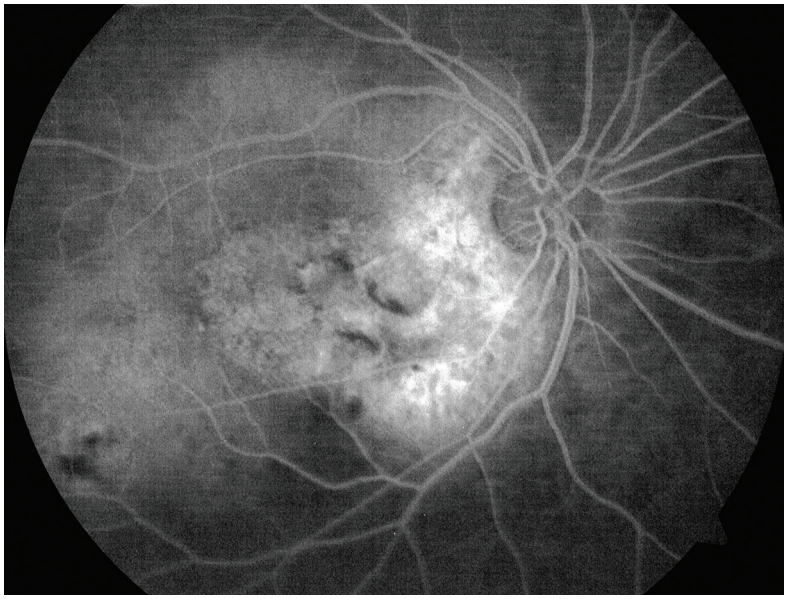

Figure 7: *FFA showed cessation of leakage after intravitreal ranibizumab treatment.*

as well as cases of dystrophic and metastatic calcification.[6] If the diagnosis is suspected clinically, USG, CT, FFA and recently OCT can be used to confirm diagnosis. In USG, high ultrasound reflectivity with a corresponding orbital shadowing can be seen. Calcification of the choroid can also be seen in CT of the orbit in which isodense with the normal skeletal bone. In FFA the classical choroidal osteoma findings are patchy early hyperfluorescence and late diffuse hyperfluorescence of choroidal osteomas.[1] Recently, OCT imaging characteristics have been described. Fourier-domain OCT imaging of tumors have revealed a distinctive latticework pattern of reflectivity resembling the spongy bone structure seen histopathologically. Additionally OCT has demonstrated different reflectivity patterns in both calcified and decalcified portions of the choroidal osteoma, which may correspond to different stages of tumor evolution.[7] Our patient showed typical characteristics of choroidal osteoma all in USG, CT, FFA, and OCT imaging. Choroidal neovascular membrane is the most frequent cause of visual loss in choroidal osteoma, with more than half of patients expected to develop CNVM.[8] The probability of developing CNVM was 47% by 10 years and 56% by 20 years. Tumors with overlying hemorrhage and irregular surface were at

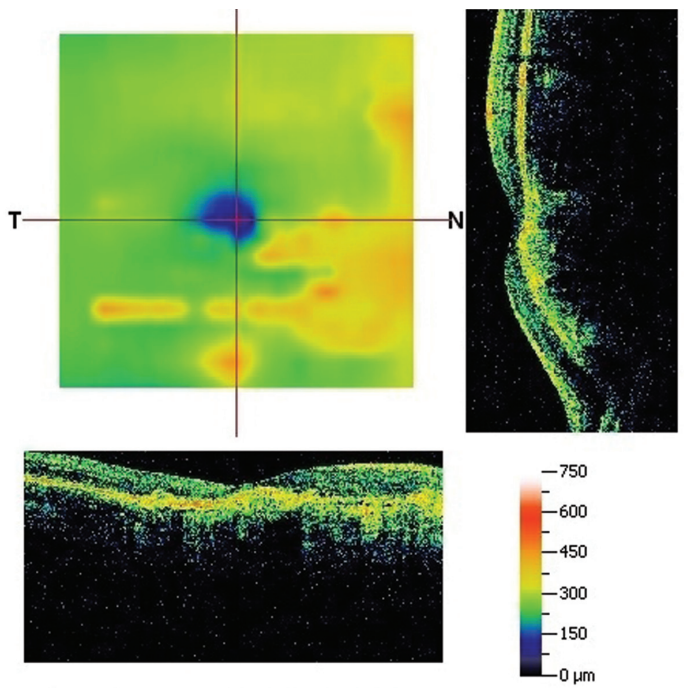

Figure 8: *Macular OCT of right eye showed resolution of CNV and subretinal fluid after the treatment.*

the greatest risk for development of CNVM. Disruption of the retina pigment epithelium and thinning or loss of the Bruch membrane and choriocapillaris might contribute to the development of CNVM.[9]

Laser photocoagulation, surgical removal of the CNVM, photodynamic therapy (PDT), and transpupillary thermotherapy has been used for the treatment of CNVM associated with choroidal osteoma.[10] Özdoğan et al.,[11] reported a case of a choroidal neovascular membrane secondary to unilateral choroidal osteoma which had a recurrence after argon laser treatment. They effectively treated the choroidal neovascular membrane with photodynamic therapy.Recently, intravitreal injections of anti-VEGF agents such as bevacizumab and ranibizumab were described as possible interventions for CNVM secondary to choroidal osteoma with encouraging results.[10,12] This was inspired by the safe and effective use of intravitreal anti-VEGF antibodies in treating CNVM in cases of neovascular age-related macular degeneration as well as other types of CNV.[12,13]

Song and colleagues used single intravitreal ranibizumab injection for the treatment of CNVM secondary to choroidal osteoma, and observed regression of CNVM and recovery of visual acuity.[14] Morris et al. reported a case of a 25-year-old female with choroidal osteoma and subfoveal CNVM which was successfully treated by using low-fluence PDT with verteporfin followed by a single injection of intravitreal ranibizumab.[15] In another case, Wu and coworkers presented, CNVM treated with intravitreal ranibizumab injections and visual acuity improved from 20/800 to 20/30 and maintained till 1.2 years.[12] To our best of knowledge and pubmed search, our case is the first case in literature, in whom unilateral CNVM development was occurred in bilateral choroidal osteoma background and successfully treated with 3 sequential monthly intravitreal ranibizumab injections.

REFERENCES/KAYNAKLAR

1. Lehto KS, Tommila PV, Karma A. Choroidal osteoma: clues to diagnosis. Acta Ophthalmol Scand 2007;85:218-20.
2. Gass JD, Guerry RK, Jack RL, et al. Choroidal osteoma. Arch Ophthalmol 1978;96:428-35.
3. Shields CL, Sun H, Demirci H, et al. Factors predictive of tumor growth, tumor decalcification, choroidal neovascularization, and visual outcome in 74 eyes with choroidal osteoma. Arch Ophthalmol 2005;123:1658-66.
4. Karanjia R, Gale JG, ten Hove MW. Macular choroidal osteoma with progressive widespread outer-retinal dysfunction. Can J Ophthalmol 2010;45:179-80.
5. Song JH, Bae JH, Rho MI, et al. Intravitreal bevacizumab in the management of subretinal fluid associated with choroidal osteoma. Retina 2010;30:945-51.
6. Pámer Z, Kovács B. A case of a fast-growing bilateral choroidal osteoma. Retina 2001;21:657-9.
7. Navajas EV, Costa RA, Calucci D, et al. Multimodal fundus imaging in choroidal osteoma. Am J Ophthalmol 2012;153:890-5.
8. Pandey N, Guruprasad A. Choroidal osteoma with choroidal neovascular membrane: Successful treatment with intravitreal bevacizumab. Clin Ophthalmol 2010;4:1081-4.
9. Aylward GW, Chang TS, Pautler SE, et al. A long-term follow-up of choroidal osteoma. Arch Ophthalmol 1998;116:1337-41.
10. Kubota-Taniai M, Oshitari T, Handa M, et al. Long-term success of intravitreal bevacizumab for choroidal neovascularization associated with choroidal osteoma. Clin Ophthalmol 2011;5:1051-5.
11. Özdoğan S, Gürelik G, Özdel Ş, ve ark., Koroid osteomuna sekonder gelişen koroid neovaskülarizasyonunda fotodinamaik tedavi. Ret-Vit 2006;14:221-3.
12. H Y Wu Z, Y Y Wong M, Y Y Lai T. Long-term follow-up of intravitreal ranibizumab for the treatment of choroidal neovascularization due to choroidal osteoma. Case Report Ophthalmol 2012;3:200-4.
13. Lim LS, Mitchell P, Seddon JM, et al. Age-related macular degeneration. Lancet 2012;379:1728-38.
14. Song MH, Roh YJ. Intravitreal ranibizumab in a patient with choroidal neovascularization secondary to choroidal osteoma. Eye (Lond) 2009;23:1745-6.
15. Morris RJ, Prabhu VV, Sh h PK, et al. Combination therapy of low-fluence photodynamic therapy and intravitreal ranibizumab for choroidal neovascular membrane in choroidal osteoma. Indian J Ophthalmol 2011;59:394-6.