Branch Retinal Arterial Occlusion

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ABSTRACT

Retinal arterial occlusion is an ocular emergency in which visual prognosis is poor mostly due to late presentation of the patient and macular involvement. The casee described, in this report is ane incidence of Branch Retinal Arterial Occlusion in a 22 year old female with grade II Mitral Regurgitation. The patiente presented witha complaint of painless, diminution of vision in the right eyn. She alsod presented with perception of black shadow in the superior visual fiel n of the same eye5 for five days. There was no significant systemic ord personal history. Her visual acuity at presentation was 6/60 and 6/6 in the right and left eyes,y which did not improve with glasses or pin-hole. Anterior segment including papillary reaction was normal in both eyes while Fundus examination of the right eye revealed retinal whitening inside the inferotemporal vascular arcade that was encroaching foveolar avascular zone. Visual field defect was detected at superonasally inside arhade but Fundus Fluorescence Angiography was normal. An echoycardiograph revealed grade II Mitral Regurgitation. The patient was kept on observation and after two2 days of follow-up, vision in the right eye was improved to 6/6 unaided but visual field defect was remained same.

Key Words

branch retinal arterial occlusion, cardio valvular disease, visual field defect.

INTRODUCTION

Retinal arterial occlusive disease is an ocular emergency which can manifest in a number of clinical fashions[1] such ase central retinal arterial occlusion (CRAO), branch retinal arterial occlusion (BRAO), cilio-retinal arterial occlusion, combined CRAO and veins occlusion, and cotton-wool spots. Among the cases of acute retinal arterial obstruction, CRAO accounts for approximately 57%, BRAO for 38%, and cilio-retinal artery occlusion for 5%[1]. The visual prognosis in eyes with BRAO is usually quite good unless the foveola is completely surrounded by retinal whitening. Such a condition needs treatment with aggression as in CRAO. Patients with retinal arterial occlusion should undergo detailed systemic evaluation including cardio-valvular.

CASE REPORT

A 22 year old female presented to the retina clinic of Nepal Eye Hospital had a chief complain of painless sudden diminution of vision and perception of black shadow in superior visual field of right eye since 5 days. It was not associated with redness, photophobia, watering, pain on ocular movement, floaters and flashes of light or coloured haloes. She had no similar episodes in past. There was no history of ocular trauma, glaucoma, diabetes mellitus, hypertension, cardiovascular disease, bleeding disorders or high myopia. The patiente was not under any medicatios c which may have contributed to her condition. On general examination she was of average built and well oriented to time and surroundings. Her blood pressure was 100/8mm of Hg with regular pulse of 72 beats per/minute.

Examination revealed that her extra-ocular movement, convergence and cover test was normal. Unaided visual

acuity was 6/60 and 6/6 in the right eye (RE) and left eye(LE)respectivelyandwasnotimprovingwithglasses orpin-hole.Slit-lampexaminationofanteriorsegment revealednormalfindingsinbotheyes(BE)withnormal papillaryreactions.Slit-lampbio-microscopicexamination with+90.Dlensrevealedclearocularmediain BEwith normal fundus findings of the LE but on RE fundus it revealednormaldiscwithmilkywhiteretinaencroaching thefoveolaravascularzonearoundtheinfero-temporal vascular arcade (Figure 1).

There was no retinal haemorrhaeing, exudates or arteriolar attenuation. Goldmann visual field showed paracentralrelativeandabsolutescotomainsupero-nasal region, partially involving the macular area (Fig 2 a). On Goldmannapplanation,Intraocularpressure(IOP)was1 mm of Hg in BE . Colour vision was tested with Ishihara polychromaticplatesanditwasnormalinBE.Adiagnosis ofrighteyeinferotemporalbranchretinalarterialocclusion was made.

ABbloodtestsuchaseTotalcount(8000/mm^3),differential count(neutrophil-70%,lymphocytes-27%,eosinophil 3%),haemoglobin(12gm%),erythrocytesedimentation rate (14 mm/ in first hour Wintrobe method), blood sugar(fasting-70mg%andpostprandil-130mg%)was normal. Rheumatoid factors and antinuclear antibody werenegative.Lipidprofileshowedcholesterol-143mg%, HDL-36mg%,LDL-79mg%andTriglyceride-139mg%. ThecardiacconsultationrevealednormalECGbutgrade II Mitral Regurgitation in echocardiography. Two days afterthecardiacconsultation,thepatientfollowedupher consultationatadifferenneyehospitalandunderwenta visualacuityandGoldmannvisualfieldtestagain.These testsshowedimprovementoftherighteyevisualacuity from previously being 6/60 to 6/6 unaided, while the

Figure 1. RE Fundus showing inferotemporal BRAO with retinal whitening

previouslypresentrelativescotoma(visualfielddefect) hadsubsided,thougtparacentralabosolutescotomawas persistent.

Thiscaseisreportedforrarityofvisualimprovementafter a week of BRAO in young women.

DISCUSSION

Retinal arterial occlusive (RAO) disease is an ocular emergencyasitisassociatedwithprofoundvisuallossdue tothemacularinvolvementandasmostofthmdiagnosed casesarepainlessandsudden.Thereareseveralocularand systemic conditions[1] associated with RAO. The mostg common conditions are as follows:

a. Abnormalities contributing to embolus formationse.g.cardiacvalvulardisease,systemic arterialhypertension,carotidatherosclerosis,or left ventricular hypertrophy.

b. Traumasuchaseretrobulbarinjection,ororbital fracture repaic.

c Coagulopathiessuchaskesickle cell disease, homocystinurea,oralcontraceptives,platelet abnormalities,proteinSdeficiency,orproteinC deficiencyc.

d Collagen vascular disease.

e. Ocularconditionssuchaseincreasedintraocular pressure,toxoplasmosis,opticneuritis,optic disc drusen, prepapillary arterial loops etc.

Thereare reportedcasesofBRAOinsyphilis[2](third stage) andcasesalsobeenreportedafterintra-vitrealinjections of Lucentis and Avastin (Anti VEGF).[3]Similarly, BRAO is observed in patients who suffer from migraines, hypotension oro use nasal oxymethazoline[1].

The causes of RAO in patients under the age of 30 years often differ from those inr patients olders. Some of theDdiseaseentitieswhichtmorecommonlycauseRAO inyoungindividualsincludemigraines,cardiacdisorders, trauma,sicklinghemoglobinopathies,ocularabnormalities (opticnervedrusenandprepapillaryarterialloop),protein C and S abnormalities and antithrombin III.

Overall,patientswithacuteRAOwhoareyoungerthan 45yearsofageare threetimesmorelikelytohavecardiac diseasesthatrequireanticoagulationorcardiacsurgery.[1]

In CRAO the visual acuity may range from counting fingers to light perception. Overall, in 90% of eyes, the visualprognosisispoor.ButinBRAOthevisualprognosis isd relative both at presentation and at the final visit [4]

unlessfoveolaisinvolved.Approximatelyt80%ofpatients' eyeseventuallyimproveto20/40orbetter,althoughthe residualfielddefectsgenerallyremais.[1,5]ASsimilarresult was observed in our case; the vision was improved to 6/6 (unaided) without treatment while the visual field defectwaspersistent.Retinalarterialocclusioninvolving maculaisanocularemergencyanditrequiresimmediate treatment to reduce the IOP as soon as possible. These treatmentsareocularmassage,para-centesis,intravenous mannitol,inhalation of mixture of O2 (95%) with CO2 (5%),useofAnti-fibrinolyticagentandtrans-luminalNd-YAG embolysis/embolectomy6.

Although the visual outcome is determined by factors suchasthecauseofarterialocclusion,natureofocclusive emboli and duration of retinal ischemia[7], aggressive treatmentmayre-establishretinalcirculationandimprove the visual outcome.

CONCLUSION

The causesr of retinal arterial occlusion in young adults arsdifferentfromthoseofolderindividualsamongwhich cardio-valvular disease is an important factor. Visual prognosis is good in BRAO.

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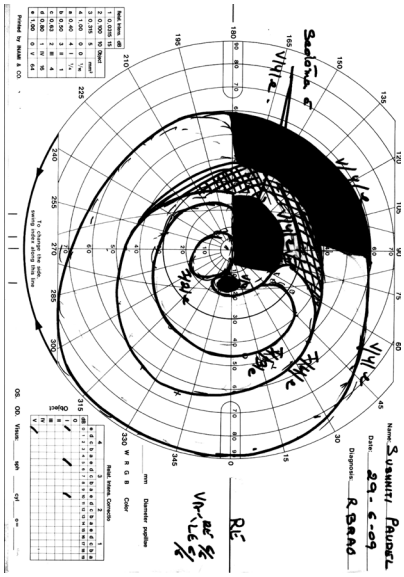

Figure 2a. Visual field on the day of presentation absolute scotomasurrounded by relative scotoma which is further surrounded by absolute scotoma in the superonasal visual field

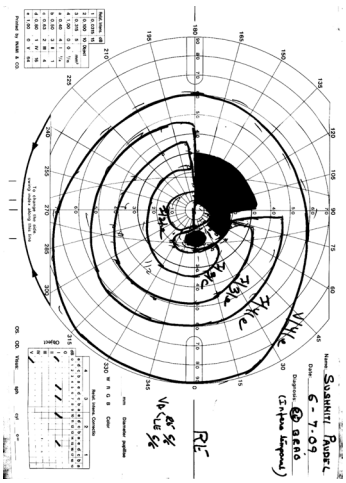

Figure 2b. Visual field taken after seventh day showing absolute scotoma in superonasal region

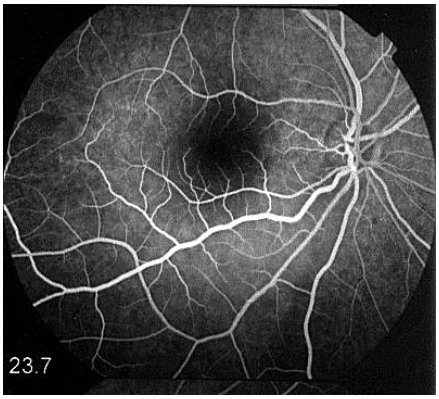

Figure 3. RE Fluorescein angiography showing thrombus near the inferior margin of the disc with perfused macula