RETINAL VASCULITIS and ITS MANAGEMENT IN SERVING SOLDIERS - LONG TERM FOLLOW UP STUDY

Lt Col AJAY BANARJI *, Lt Col DP VATS ^{VSM} +,
Col RG DASH #, Col S PATRA **,
Brig PR SEN ++, Maj Gen RK JETLEY ^{VSM} ##

ABSTRACT

200 eyes of 110 male serving military personnel showing retinal vasculitis in various stages were managed with institution of steroids, ATT, photocoagulation, cryoablation and vitreo retinal surgery as indicated in a span of 78 months. 156 eyes showing evidence of vasoproliferation responded favourably to laser photocoagulation. Over all 80% of the patients showed good functional recovery with combined modalities of management thereby obviating recurrent morbidity and invalidation in trained combatant manpower in wage earning age group. Cases with complicated retinal vasculitis had to be treated in a sophisticated retina centre having facilities for Fluorescein angiography, laser and vitreo-retinal surgery.

MJAFI 1999; 55 : 209-211

KEYWORDS: Laser photocoagulation; Retinal vasculitis

Introduction

Retinal vasculitis or Eales disease is an idiopathic inflammatory venous occlusion that primarily affects the peripheral retina of healthy, young adults, predominantly males. Retinal changes include perivascular phlebitis, peripheral non-perfusion and neovascularisation. Visual loss is characteristically caused by bilateral, recurrent, vitreous haemorrhage and its sequelae.

The condition was first described in 1880 by Henry Eales [1], a British Ophthalmologist. However, retinal vasculitis was not described by Eales and it was Wadsworth [2] who described the associated signs of retinal inflammation five years later.

The aetiopathogenesis of the disease to date remains controversial and ill understood though tuberculosis has been implicated by various studies. The treatment is limited to institution of systemic steroids during the phase of active inflammation or anti-tubercular therapy when indicated.

Once the proliferation stage of the disease sets in photocoagulation remains the mainstay of treatment. In eyes with nonresolving vitreous haemorrhage, anterior retinal cryotherapy (ARC) helps in hastening the absorption of vitreous haemorrhage and also leads to regression of neovascularisation. Eyes with unresolved vitreous haemorrhage or complicated by trac-

tion bands or traction retinal detachments have to be managed by vitreo-retinal surgery.

Ocular morbidity, in cases affected by this disease in this young and otherwise healthy age group of defence personnel, has been a cause of great concern. The prognosis of the disease has improved with the availability of laser photocoagulation and advances in the field of vitreoretinal surgery.

Material and Methods

This study was carried out in Army Hospital Delhi Cantt from Jan 88 to July 96. There were a total of 200 eyes of 110 patients, who were included in this study. All these patients were serving defence personnel between 20-40 years of age, mostly transferred from peripheral centres in various stages of the disease.

A detailed ocular examination was carried out of all patients which included examination with a binocular indirect ophthalmoscope with pupils fully dilated. Although systemic evaluation was also instituted to rule out any systemic illness, apart from routine investigations, all the cases were subjected to Mantoux test, X-ray chest, blood for sugar, VDRL, rheumatoid factor, L.E. Cell phenomenon, and Serum Calcium, to rule out other diseases causing retinal vasculitis and neovascularisation.

Fluorescein angiography or angiography was routinely carried out in all cases with clear media to assess the stage and extent of the disease accurately. B scan ultrasonography was done in all cases with vitreous haemorrhage to evaluate the status of the posterior segment.

Treatment:

The treatment is aimed at reducing retinal vasculitis and reducing the risks of vitreous haemorrhage from new vessels on the

* Classified Specialist Ophthalmology, Command Hospital (NC), C/o 56 APO, ** Senior Adviser, Ophthalmology, CH (SC) Pune, + Associate professor, # Prof & Head, Department of Ophthalmology, Armed Forces Medical College, Pune 411 040, ++ Deputy Commandant, Command Hospital (SC), Pune 40, ## DDMS, HQ (NC), C/o 56 APO.

TABLE 1
Photocoagulation modalities used

	NVD+NVE	NVE	CNP > 5DD
PRP	68	66	—
Sector laser	—	22	—
Focal laser	—	—	8

NVE - Neovascularisation; NVD - Neovascularisation of disc; CNP - Capillary non perfusion; PRP - Pan retinal photocoagulation

retina or optic nerve head by retinal ablation and surgical removal of non-resolving vitreous haemorrhage and/or vitreous membranes. The present day modalities of treatment are confined to corticosteroids, ATT, laser photocoagulation with or without ARC and vitrectomy at various stages of the disease.

Corticosteroids: Systemic steroids form the mainstay of treatment for cases with active vasculitis. All the patients were given oral prednisolone in a dose of 1-2 mg/kg body weight daily during the course of the disease, gradually tapering off as the vasculitis began to subside.

ATT: Though the aetiopathogenesis of Eales' disease remains unclear, tuberculosis has been implicated by various workers. ATT is given in Eales' disease empirically. Two drugs (Rifampicin 600 mg and INH 300 mg once daily) were given for a period of six months in cases having evidence of or healed tuberculosis.

Laser Photocoagulation: Laser photocoagulation is the mainstay of treatment in the proliferative stage. All patients who underwent laser photocoagulation had a visual acuity of 6/60 or better. Fluorescein angiography or angiography was done in all cases prior to taking up for photocoagulation to accurately delineate the areas of neovascularisation and capillary non perfusion (CNP). Panretinal photocoagulation (PRP) or full scatter treatment was done in eyes with neo-vascularisation of the disc (NVD) and CNP extending to all four quadrants which were involved. Masclular grid laser photocoagulation was done in all cases undergoing PRP.

Anterior retinal cryoablation (ARC): This was done under visualisation with indirect ophthalmoscope in cases of unresolved vitreous haemorrhage, of greater than three months duration, and visual acuity less than 6/24. B scan USG was done prior to ARC to exclude traction bands, traction retinal detachment or any other associated pathology of the posterior segment. The procedure involves the application of 10-16 cryo spots anterior to the equator under local/topical anaesthesia. The duration of the application is till the cryo reaction is just visible with indirect ophthalmoscope or eight-ten seconds duration whichever is earlier.

Vitrectomy: Three port pars plana vitrectomy was done in non-

resolving uncomplicated vitreous haemorrhage.

Observations and Results

There were a total of 110 patients in the study. 60 patients (54.55%) were between 20-30 yrs of age and 39 patients (34.45%) were between 30-40 yrs of age and 11 patients (10%) were between 40-50 yrs of age. 90 patients had bilateral disease and 20 patients had unilateral disease, making a total of 200 eyes who were evaluated during the course of study.

Modes of Presentation

The eye findings at the time of presentation were vitreous haemorrhage in 40 eyes, recurrent vitreous haemorrhage in 24 eyes, vasculitis in 59 eyes, Neovascularisation (NVE) in 30 eyes, NVD+ NVE in 39 eyes and eight eyes were found to have advanced disease in the form of retinitis proliferans at the time of initial presentation.

Medical Treatment

All patients in the study received systemic steroids at some stage of the disease. ATT was instituted to 59 patients. These were patients with strongly positive Mantoux Test, evidence of old healed foci of Koch's in X-ray chest and when there was severe bilateral involvement especially when recurrent.

Laser Photocoagulation

A total of 156 eyes underwent laser photocoagulation PRP or full scatter treatment was done in 134 eyes and sector laser photocoagulation was done in 22 eyes and regression of neovascularisation was seen in 139 eyes (89.1%). Incomplete regression was seen in 15 eyes, out of which nine eyes had NVD and six eyes had raised NVE. These eyes were subjected to ARC and regression occurred in four -six months.

In addition to the above cases eight selected eyes with advanced disease in the other eye with CNP area 5 disc diameters underwent laser photocoagulation. In all these eyes fresh areas of CNP were photocoagulated during follow up and none of these eyes developed neovascularisation subsequently.

Out of the 156 eyes, 10 eyes showed improvement in visual acuity, which is possible due to macular grid, done in all cases prior to PRP. This helped in absorption of associated macular oedema. In 139 eyes the visual acuity remained static. In seven eyes there was deterioration of visual acuity and these were all eyes with relatively advanced disease. The complications of laser photocoagulation were minimal and seen mainly in eyes with advanced disease who had to undergo extensive treatment. Stress lines or Striae were seen in the macular area in three eyes, retinal haemorrhages in two eyes and tractional retinal detachment and vitreous haemorrhage were seen in one eye each.

TABLE 2
Outcome of laser photocoagulation

Clinical status	No. of Eyes	A	B	C	D		
					Impr	Static	Deter
NVD+NVE	39	24	5	6/12-6/6	6	32	1
NVE	30	27	3	6/12-6/6	—	28	2
Post Vitrectomy/NVD	27	23	4	6/36-6/9	3	16	1
Absorption of Vit. haemorrhage /NVE	40	37	3	6/36-6/9	—	32	1
CNP > 5DD	8	NA	NA	6/6	—	8	—

A : Regression of neovascularisation; B : Non - regression of neovascularisation; C : Pre-treatment visual acuity; D : Post-treatment visual acuity.

NVE : Neovascularisation, NVD : Neovascularisation of disc

Anterior retinal cryoablation:

ARC under visualisation was done in 39 eyes with uncomplicated non-resolving vitreous haemorrhage of 3 months duration. The vitreous haemorrhage resolved in 20 eyes (51.28%). ARC was also done in 15 eyes with intractable NVD/NVE which had not completely regressed following laser photocoagulation. In all 15 eyes regression of NVD/NVE occurred within a maximum period of six months.

Vitrectomy

Vitrectomy was done in 17 eyes of non-resolving uncomplicated vitreous haemorrhage which had not absorbed three months after ARC with good results. There was a rebleed in one patient within one month which subsequently cleared and one patient developed an iatrogenic retinal break leading to a retinal detachment. He was operated and following retinal detachment surgery regained 6/60 vision. A third case developed lenticular opacity and subsequently after six months underwent successful cataract surgery.

Out of thirteen eyes with very advanced disease 5 eyes were found to be inoperable and eight eyes underwent vitreo-retinal surgery with fluid gas exchange and silicone oil injection at civil institutes.

Discussion

In the phase of active vasculitis in Eales disease, systemic steroids help in controlling the inflammation with amelioration of vision, especially in eyes with associated macular involvement. Hypersensitivity to tuberculous protein has been implicated by various workers. We also found association of tuberculosis in many of our cases who were then exhibited ATT. However, laser photocoagulation played the major role in stabilising the course of the disease once it reached the proliferative stage, and prevented the dreaded vision threatening complications of Eales disease. Out of 156 eyes who underwent laser photocoagulation regression of neovascularisation was seen in 89.1% of eyes. As per various workers including Mayer Schwickerath, J.M. Pahwa and Wessing, the success rate with laser photocoagulation in Eales disease has varied from 64.5% to 91.1%. Presently argon laser photocoagulation is the most accepted modality of treatment in the proliferative stage of the disease. The hypoxic retina produces a vasoproliferative factor which leads to neovascularisation. Photocoagulation burns convert the hypoxic retina to an anoxic stage thus removing the stimulus for further neovascularisation and regression of NVD/NVE, and also directly ablates areas of NVE.

ARC was found to be a very useful adjunct in the

management of Eales disease. It helps in the resolution of uncomplicated vitreous haemorrhage possibly by sealing the breakdown of the blood retinal barrier and destroying the areas of active haemorrhage in retina. Experimental studies have shown that following ARC there is an increased macrophage response and their invasion into the vitreous cavity to engulf the RBC's. It is also very useful in regression of residual neovascularisation which has not completely responded to photocoagulation. This is brought about by directly ablating the peripheral retina and destroying the ischaemic and neovascular areas. 15 eyes in this study showed resolution of neovascularisation following ARC. For unresolved Vitreous haemorrhage, vitrectomy or vitreoretinal surgery as indicated gave good results.

To conclude, the morbidity, associated with Retinal Vasculitis or Eales' disease has been significantly reduced. More than 80% of the patients over a period of time could return to active duties. Argon laser photocoagulation was found to be the mainstay in the management of the disease especially when instituted timely, with minimal complications.

REFERENCES

1. Eales H. Retinal haemorrhages associated with epistaxis and constipation. *Brim Med Rev* 1880;9:262-63.
2. Wadsworth. Recurrent retinal haemorrhage followed by the developmental of blood vessels in the vitreous. *Ophthalmic Rev* 1887;6:289-99.
3. Keith-Llye T, Wybark. Retinal vasculitis. *Br J Ophthalmol* 1961;45:778-79.
4. Cross AG. Vasculitis retinae. *Trans Ophthalmol Soc UK* 1963;83:133.
5. Das TP, Namperumalsamy P. Combined photocoagulation and cryotherapy in treatment of Eales' retinopathy. *Proc All India Ophthalmol Soc* 1987;45:108-110.
6. Pahwa JM, Garg MP, Samuel A, et al. Eales' disease and the treatment by photocoagulation (with a review of nearly 200 cases). *Acta XXI Concilium Ophthalmologicum* 1980:832-34.
7. Biswas J, Rao NA. Epiretinal membrane in Eales' disease and other vascular retinopathies. *Invest Ophthalmol Vis Sci (Suppl)* 1990;31:369.
8. Schwickerath MG. Eales' disease. Treatment with light coagulation. *Acta Concillium Ophthalmologicum* 1962;19:862.
9. Ross WH, Goofner MJ. Peripheral retinal Cryopexy for sub-total vitreous haemorrhage. *Am J Ophthalmol* 1988;105:377-80.