

Commentary: Pars plana vitrectomy for acute retinal necrosis related rhegmatogenous retinal detachment

Acute Retinal Necrosis Syndrome is characterized by necrotizing retinitis, vitritis, occlusive vasculopathy with arteritis and choroiditis. The phase of active retinitis is often followed by the development of Rhegmatogenous retinal detachment, in up to 75% of untreated eyes within weeks. Despite intravenous antiviral therapy, incidence of retinal detachment is strikingly high.

The distinctive features of retinal detachment in ARN are the multiple retinal breaks, 'sieve-like' and posterior in location, often at the junction of necrotic and healthy retina. These breaks develop due to full-thickness necrotic inflammation of retina. Another prominent feature is early proliferative vitreoretinopathy, consequent to extensive vitreous inflammation in immunocompetent patients. Contractile membranes develop in the vitreous and on the surface of thinned, necrotic retina forming the tractional component.

Managing a case of ARN with retinal detachment is complex. Firstly, A prompt and accurate clinical diagnosis of ARN is critical. Treatment induction with intravenous acyclovir or oral valacyclovir therapy should be started as

early as possible in ARN. Intravenous acyclovir produces up to three times the intravitreal acyclovir level when compared to oral administration. Oral valacyclovir can also produce a high vitreous concentration and allows for outpatient management of ARN. Systemic antiviral therapy reduces fellow-eye involvement risk from 35% to less than 3%.^[1] This may halt the progression of the disease; however, intravitreal antiviral should be given in ARN threatening macula and optic nerve. The combination of systemic and intravitreal therapy has been increasingly reported to be the most effective treatment option available for patients with ARN.

Secondly, it is critical to know when to surgically intervene. Prophylactic treatment with laser, scleral buckle, and vitrectomy have been tried. However, their role is controversial considering that many studies have shown no improvement in the final visual outcome.^[2]

Thirdly, it is prudent to know how the steps of vitreoretinal surgery should be modified or augmented to manage such a case. There is not much literature available to conclusively suggest use of 25G is better than 23G. A hybrid vitrectomy which uses both 23G and 25G may offer greater utility and ease. Use of encircling band is often needed in cases of severe PVR, especially in phakic patients. Dissection of fibrovascular membranes over the surface of thinned retina should be carried out under perfluorocarbon liquid (PFCL). Gas or oil tamponade should be decided based on PVR changes. Recently, use of the newer heavy

tamponades has been advocated in cases of retinal necrosis. Heavy tamponade eliminates the need for encircling band. In fact, heavy tamponades should be avoided in conjunction with encircled as these may show a reduction of the tamponade effect around the indent.^[3] Towards the end of surgery, administration of low-dose ganciclovir and foscarnet into an oil-filled eye has been tried as adjunctive treatment for viral retinitis.^[4]

Lastly, the postop management of such cases should include systemic antiviral therapy. After starting antiviral therapy, systemic steroids can also be given to immunocompetent patients once retinal lesions starts healing. Use of Aspirin and anticoagulants to reduce retinal ischemia due to occlusive vasculitis, is controversial. The antiviral therapy must be given until disease regression or till immunocompromised status improves back.^[5]

The study published in this issue of the journal elucidates the advantages of 25G vitrectomy in rhegmatogenous retinal detachment in ARN patients.^[6] As 85% of patients were phakic in the study, use of encircling band to support vitreous base can be accounted for difficult peripheral vitreous shaving. The study also evaluates use of heavy tamponade in such cases. In spite of successful reattachment of retina, final visual acuity may be poor in many cases owing to the involvement of macula and optic disc. The damage already present at initial presentation significantly affects the final outcome.^[2]

Since it was first described by Urayama and colleagues, medical and surgical treatment strategies of acute retinal necrosis (ARN) have evolved considerably and mirrors advances in our understanding of the disease. Treatment of ARN must be individualized for every patient. However, further studies are still required to conclusively reach a treatment paradigm.

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References

1. Powell B, Wang D, Llop S, Rosen RB. Management strategies of acute retinal necrosis: Current perspectives. *Clin Ophthalmol* 2020;14:1931-43.
2. Iwahashi-Shima C, Azumi A, Ohguro N, Okada AA, Kaburaki T, Goto H, *et al.* Acute retinal necrosis: Factors associated with anatomic and visual outcomes. *Jpn J Ophthalmol* 2013;57:98-103.
3. Heimann H, Stappler T, Wong D. Heavy tamponade 1: A review of indications, use, and complications. *Eye* 2008;1342-59.
4. Meshi A, Friehmann A, Sella S, Gepstein R, Armarnik S, Assia EI, *et al.* Intravitreal Administration of antiviral agents in silicone oil-filled human eyes. *Ophthalmol Retina* 2017;1:288-93.
5. Shantha JG, Weissman HM, Debiec MR, Albin TA, Yeh S. Advances in the management of acute retinal necrosis. *Int Ophthalmol Clin* 2015;55:1-13.
6. Moharana B, Dogra M, Singh SR, Ravikumar B, Tigari B, Katoch D, *et al.* Outcomes of 25-gauge pars plana vitrectomy with encircling scleral band for acute retinal necrosis-related rhegmatogenous retinal detachment. *Indian J Ophthalmol* 2021;69:635-40.

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