Spontaneously Reattached Retinal Detachment With Macular Hole – a Case Report

Debdulal Chakraborty (✉ devdc@rediffmail.com)

Disha Eye Hospital <https://orcid.org/0000-0001-9693-7882>

Dipankar Das

Sri Sankaradeva Nethralaya

Begum Sabiha Mashuda Khanam

Disha Eye Hospital

Research Article

Keywords: Spontaneous reattachment of rhegmatogenous retinal detachment, Macular Hole

Posted Date: July 16th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-547360/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Spontaneous reattachment of rhegmatogenous retinal detachment (SRRRD) is a rare presentation. A macular hole coexisting in a patient with a SRRRD is rarer still. The authors describe a case of SRRRD with a macular hole presenting with decreased vision which has never been described before in scientific literature. The patient underwent vitrectomy with internal limiting membrane peeling and gas tamponade, leading to type I closure of the macular hole and subsequent visual improvement.

Introduction:

Spontaneous reattachment of rhegmatogenous retinal detachment(SRRRD) is a rare phenomenon. It was first described by Cantrill^[1]. Many eyes with asymptomatic SRRRD may remain undetected^[2]. While epiretinal membrane (ERM) has been known to develop in SRRRD^[3] A macular hole(MH) in a patient of SRRRD has never been described before.

Case Report:

A 27 year old lady presented with decreased vision (20/80) in the left eye (OS) for 2 months. There was no history of prior trauma, retinal disease, surgery or consanguineous marriage of parents. Anterior segment was unremarkable and intraocular pressure was 12mmHg in OS. Dilated fundus examination in OS revealed a pigment-stippled retinal lesion with convex superior margin from 3-o'clock to 8-o'clock sparing the macula, consistent with diagnosis of SRRRD. Axial length was 23.8mm. The other eye of the patient had 20/20 vision with normal anterior and posterior segment. Ultra-widefield Optos-image(Fig. 1) documented SRRRD sparing the macula and a MH confirmed on spectral domain optical coherence tomography(SDOCT)(Fig. 2a). In the temporal quadrant just beneath the demarcation line of the SRRRD, suspected breaks with a membrane sealing it were noted. MH surgery was advised which was refused initially by the patient. After two months, the patient returned with complaint of further decrease of vision in the affected eye (20/100). Persistence of the MH was confirmed again on clinical and SD OCT examination. At this visit, the patient agreed to our advice and underwent surgery comprising of triamcinolone assisted pars plana vitrectomy(PPV), staining of the internal limiting membrane(ILM) with Brilliant Blue G (BBG) (Ocublue, Auro labs Madurai, India), followed by ILM peeling and C3F8 gas tamponade(Fig. 3). Intra-operatively a small ERM inferior to the fovea was noted. Type 1 closure of the MH was observed 1month post-operatively (Fig. 4), and confirmed on SDOCT(Fig. 2b). VA at 1 month had improved to 20/60. At 12months follow-up, the MH was still closed with VA of 20/30.

Discussion:

Rhegmatogenous retinal detachment (RRD) is a progressive condition requiring surgical intervention. SRRRD is a rare event with only few reported cases^[1-3]. SRRRD can be misdiagnosed as retinitis pigmentosa (RP), healed choroiditis or vasculitis^[1-3]. While RP is usually bilateral with pale disc, attenuated retinal arteries, and history of night blindness, a healed vasculitis exhibits irregular pigmentary

change and sclerosed vessels which were absent in the current patient. Macular holes have been described along with various retinal co-morbidities such as diabetic retinopathy, retinal vein occlusions, familial exudative vitreoretinopathy, heredo-macular disorders^[2-4] and also following ocular trauma. Till date a macular hole developing in a patient of SRRRD has never been reported.

The exact mechanism of the retina re-attaching in SRRRD is not known. Thin membranes extending over the area of SRRRD running parallel to the retina developing as a wound healing response have been noted by Brüggemann et al^[3]. Those membranes have been found to proliferate over retinal breaks leading to closure of the breaks and spontaneous reattachment of the retina^[3]. Our patient had thin membranes covering suspected retinal breaks in the temporal periphery. Chung et al^[3] have noted partial detachment of the vitreous in eyes with SRRRD. In our patient, there was no pre-existing posterior vitreous detachment(PVD) and triamcinolone assisted PVD induction was necessary. BBG was used to stain ILM. Inferior to the fovea a small epiretinal membrane was noted, which was removed along with the ILM. (supplemental video1). In heredo-macular degenerations, chronic degenerative changes in the macula and tangential traction by ERM and cystoid macular edema have been reported to be causative factors of MH^[5-8].

Surgical intervention in MH has been noted to be less successful when surgery was performed beyond three months of presentation especially in idiopathic macular holes^[7-9]. However in secondary macular holes, a period of observation has been recommended, especially in traumatic MH which may show spontaneous closure^[6]. While the MH noted in our patient had OCT characteristics of an idiopathic macular hole^[10], whether the ERM noted in our patient had a role to play in the formation of the macular hole, thereby making it a secondary macular hole is a matter of conjecture. An untreated MH in an eye with a SRRRD may significantly decrease visual acuity in an already compromised eye and hence, early surgical closure of the MH may be best for the patient. Our patient with decreased vision for four months, however, did have type 1 closure of the MH and visual improvement following surgery. Shukla et-al^[10] reported macular holes having oedematous edges in eyes with other retinal co-morbidities may behave like idiopathic holes and are better candidates for surgery. Our patient also had a macular hole with oedematous, edges noted on SD OCT and the surgical result was gratifying.

Conclusion:

We report a macular hole in SRRRD, which has never been described in literature and its treatment with PPV, ILM peeling and C3F8 gas tamponade leading to hole closure and improvement of vision in that eye.

Declarations:

i. Funding: No funding was received in any form by any of the authors

iii. Ethics approval: Ethics committee approval received from Institutional review board(Regn Number ECR/846/Inst/WB/2016/RR-19 : EC-CT-2020-138)

- iv. Consent to participate: Written consent obtained from the patient for publication. The identity of the patient will not be disclosed in any way
- v. Consent for publication: The authors hereby give you full permission, transfer, assign, or otherwise convey all copyright ownership, including any and all rights incidental there to, exclusively to the journal, in the event that such work is published by the journal
- vi. Availability of data and material: Any supplementary data/ information will be available from the corresponding author on reasonable request
- vii. Code availability: not applicable
- viii. Authors' contributions

Dr Debdulal Chakraborty: Concept, Data collection, literature search, manuscript writing and review

Dr Dipankar Das: literature search, critical analysis of manuscript

Dr Sabiha Mashuda Khanam: literature search, Data collection

Competing interests: None

Receipt of grant : Nil

Previous publication/ presentation : Nil

References:

1. Cantrill HL. Spontaneous retinal reattachment. *Retina* 1981;1:216-9.
2. Song Ee Chung, Se Woong Kang, Chan-Hui Yi A Developmental Mechanism of Spontaneous Reattachment in Rhegmatogenous Retinal Detachment Korean J Ophthalmol 2012;Vol.26, No.2,
3. Bruggemann A, Hoerauf H. Atypical macular holes. *Klin Monbl Augenheilkd* 2008;225:281-5.
4. [Bohicchio S¹](#), [Pellegrini M](#), [Cereda M](#), [Oldani M](#), [Staurenghi G](#).; Macular hole in a young patient affected by familial exudative vitreoretinopathy in young patient affected by familial exudative vitreoretinopathy. [Retin Cases Brief Rep](#). 2020 Winter;14(1): 6-9. 10.1097/ICB. 000000000000 00613.
5. Jin ZB, Gan DK, Xu GZ, Nao-I N. Macular hole formation in patients with retinitis pigmentosa and prognosis of pars plana vitrectomy. *Retina* 2008 ;28, 610–614
6. Miller JB, Yonekawa Y, Elliott D, et al. Long-term follow-up and outcomes in traumatic macular holes. *Am J Ophthalmol* 2015;160:1255–1258.e1
7. Tolentino, F.I, Schepens, C. L., and Free- man, H. M.: Vitreoretinal Disorders. Diagnosis and Management. Philadelphia, W. B. Saunders, 1976, pp. 483-485. .

8. Gass JD. Idiopathic senile macular hole. Its early stages and pathogenesis. Arch Ophthalmol 1988;106:629–639.
9. Kuhn F, Morris R, Mester V, Witherspoon CD. Internal limiting membrane removal for traumatic macular holes. Ophthalmic Surg. Lasers 2001;32, 308–315
10. Shukla D. Evolution and management of macular hole secondary to type 2 idiopathic macular telangiectasia. Eye (Lond) 2011;25:532–533.

Figures

Figure 1

Pre-operative widefield (Optos) image of left eye showing macular hole and inferior SRRRD

Figure 2

(a) Pre-operative SDOCT image showing macular hole (b) SD OCT at one month following surgery showing type 1 closure of the macular hole.

Figure 3

Intra-operative mage of macular area after ILM peeling and fluid air exchange.

Figure 4

Post- operative widefield (Optos) image of left eye showing sealed macular hole and inferior SRRRD

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SRRRDwihmachole.mp4](#)