

Content available at: <https://www.ipinnovative.com/open-access-journals>

Indian Journal of Clinical and Experimental Ophthalmology

Journal homepage: www.ijceo.org

Case Report

A case report: Reactivation of tubercular infection presenting as bilateral frosted branch angiitis

Sana Mariyam¹, Naheed Akhtar^{1*}, Abdul Waris¹, Anupam Ahuja²,
Summaiyya Khan¹

¹Dept. of Ophthalmology, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

²Dept. of Ophthalmology, Ahuja Eye Centre, Aligarh, Uttar Pradesh, India



ARTICLE INFO

Article history:

Received 26-03-2024

Accepted 02-08-2024

Available online 30-09-2024

Keywords:

Frosted branch angiitis

Vasculitis

Tubercular infection

ABSTRACT

Background: Frosted branch angiitis is a rare form of angiitis having multifactorial associations. Tubercular retinitis is a common association with frosted branch angiitis. Aim of this study is to show that frosted branch angiitis can be the only presenting symptom of reactivated tubercular infection.

Result: A female patient presented with severe diminution of vision in both eyes and bilateral severe form of retinal vasculitis. She had a positive skin tuberculin test. Radiological investigation (HRCT Chest) revealed an old healed infection in the form of fibrotic streaks. She had previous history of Tuberculosis 17 years back and she didn't complete the ATT course at that time.

Conclusion: Reactivation of Tubercular infection can present as frost branch angiitis. Prompt diagnosis and effective management helps in preventing as well as reversing the loss of vision.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Reported by Ito et al.,¹ first case of frosted branch angiitis was seen in a 6 years old boy who presented with bilateral acute uveitis with severe sheathing along the retinal vessels. The appearance of bilateral retinal periphlebitis and arteritis extending from posterior pole to periphery with severe sheathing of all vessels established the term "Frosted Branch angiitis". The cause of FBA is multifactorial. Positive serology results have been reported for: herpes simplex virus (HSV)²⁻⁷ varicella zoster virus (VZV),^{2,8-11} tuberculoprotein,^{1,5,9} antistreptolysin O,^{3,12,13} Epstein-Barr virus,¹⁴ CMV,⁵ Coxsackie virus A10,¹⁵ adenovirus,⁵ measles,⁵ and rubella.¹⁶

Intraocular tuberculosis presents with variable signs and symptoms. It is not well established whether the vasculitis

in tuberculosis infection is due to the infectious agent itself or it is an immune- mediated response.¹⁷ Frosted branch angiitis can be an idiopathic condition or secondary to systemic or ocular disorders. In view of various secondary causes, extensive workup of all patients with this condition is necessary before making a diagnosis.^{18,19} It can be easily treated with corticosteroid therapy if started early. So, early diagnosis and prompt management is necessary for effective results.

2. Case Report

A 33-year-old female presented with complaint of diminution of vision in her right eye since 2 years and diminution of vision in her left eye since 4 days. Diminution of vision in right eye was chronic in onset while in left eye it was acute in onset with painless and progressive course in both eyes. No history of fever, weight loss or any other systemic illness. A history of complete course of anti-

* Corresponding author.

E-mail address: naheedophtho@yahoo.com (N. Akhtar).

tubercular drug intake 17years back. The patient did not have any history of ocular surgery or ocular trauma in either eye. The patient was conscious and well oriented to time, place and person and the patient's general and systemic examination were within normal limits.

On ocular examination, the best corrected visual acuity in Right eye (OD) was plain 6/12 and Left eye (OS) was plain 6/60 via Snellen's Chart. On non-contact tonometry examination, the intraocular pressure in right eye (OD) was 9 mm Hg and in left eye (OS) was 10 mm Hg. The ocular movements in both eyes were full in all gazes. Anterior segment of each eyes were unremarkable. Colour vision was 21/21 plates for right eye and 14/21 plates for left eye. Contrast sensitivity was normal in both eyes.

Funduscopy of both eyes revealed severe retinal vasculitis with disc oedema with sheathing of artery and vein suggestive of frosted branch angiitis. Multiple hard exudates were seen around optic disc in RE sparing the macula and in the left eye multiple hard exudates around the disc involving the macula partially (Figure 1). Fundus fluorescein angiography (FFA) showed bilateral leakage at disc with mild hyper-fluorescence along the vessel wall suggesting of bilateral retinal vasculitis. (Figure 2)

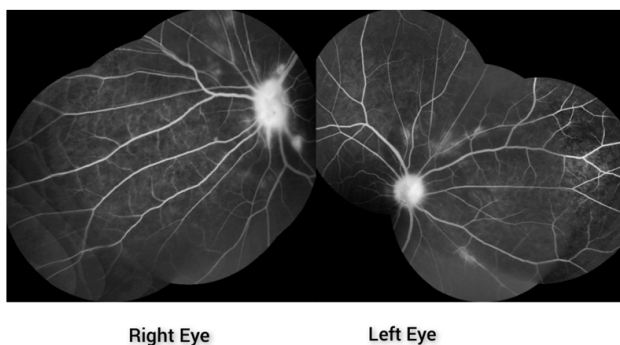


Figure 1: Funduscopy of both eyes revealed severe retinal vasculitis with disc oedema with sheathing of artery and vein suggestive of frosted branch angiitis. Multiple hard exudates were seen around optic disc in RE sparing the macula and in the left eye multiple hard exudates around the disc involving the macula partially

Patient was investigated including complete hemogram which was within normal limits. Tuberculin skin test was positive with significant induration of 27x25 mm. The TORCH screening test revealed a very high Cytomegalovirus IgG titre of 597.911 IU/ml (normal <10 IU/ml), high Rubella IgG titre of 50.188 IU/ml (normal <5 IU/ml) and high Herpes Simplex Virus IgG titre of 156.901 IU/ml (normal <14 IU/ml). The IgM titres of all these infections were normal. ACE levels, Calcium level, Antiphospholipid Antibody (APLA) profiles were normal. Dermatology reference for Behcet's disease was also normal. VDRL and Triple test (HIV, HbsAg, HCV)

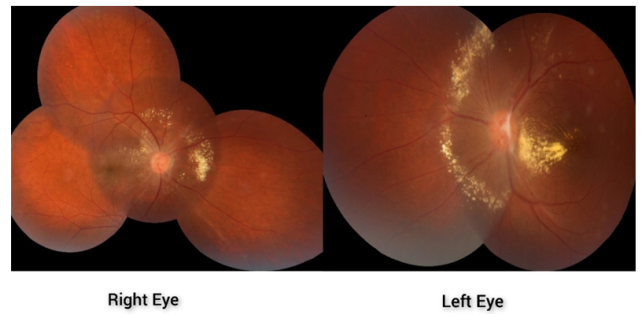


Figure 2: Fundus fluorescein angiography (FFA) showed bilateral leakage at disc with mild hyper-fluorescence along the vessel wall suggesting of bilateral retinal vasculitis

reports were also normal. HRCT Thorax showed changes of old healed infection in the form of fibrotic streaks in apico-posterior segment of left upper lobe and apical and posterior segment of right upper lobe. Furthermore, Magnetic Resonance Imaging of Brain was performed to rule out any intra-cranial lesion which did not reveal any significant abnormality. The patient was promptly counselled about the nature of the disease and the need of initiation of rapid and effective treatment.

Systemic anti-tubercular treatment was initiated with 600mg of Isoniazid, 450mg of Rifampicin, 1200mg of Pyrazinamide and 750mg of Ethambutol along with Oral steroid (Tablet Prednisolone at 1 mg/kg body weight), and topical steroid (Eye Drop Prednisolone acetate 1% w/v four times a day).

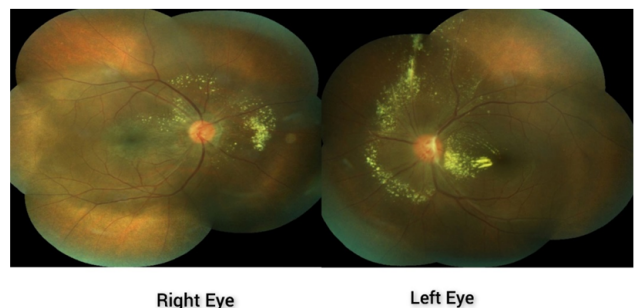


Figure 3: Fundus examination showed persistent vasculitis with resolution of few exudates in both eyes

Within two weeks of treatment initiation, there was a significant improvement in visual acuity in both eyes - her best corrected visual acuity in right eye improved to - 0.50DS 6/6 Partial and that of left eye was no acceptance 6/12. Fundus examination of both eyes showed hyperaemic optic disc with persistent vasculitis. Visual acuity continued to improve over the following weeks - In the fourth week, her visual acuity was -0.50DC at 90-degree 6/6 Partial in Right eye with further improvement of visual acuity of left eye to -0.50DC at 70-degree 6/6 Partial. Fundus

examination showed persistent vasculitis with resolution of few exudates in both eyes (Figure 3).

At 2nd month of treatment, her visual acuity of both eye was Plain 6/6 with N6 with improvement in color vision to 21/21 plates both eyes. Fundus examination showed further resolution of exudation in both eyes.

3. Discussion

We present this case which presented with severe diminution of vision in both eyes with bilateral severe retinal vasculitis and bilateral disc oedema. Her Tuberculin Skin Test was positive and radiological features was also suggestive of infection in the past. There is also past history of tuberculosis in this patient 17 years back indicating the possibility of cause of bilateral frosted branch angiitis due to reactivation of tubercular infection. In our knowledge, this is the first reported case of frosted branch angiitis due to reactivation of Tuberculosis Infection.

Our patient presented with bilateral disc oedema with bilateral retinal vasculitis after reactivation of tuberculosis infection. However, the differential diagnosis in our mind for this patient is Viral retinitis as the titre of IgG was positive for both CMV and Rubella. Previously, FBA has been seen with association with systemic tuberculosis.²⁰ We have done extensive workup of this patient to rule out all the possible secondary causes. CBC with GBP was done and all the secondary hematological causes were ruled out. HRCT Chest was done and Sarcoidosis was ruled out, APLA antibodies were measured and APLA Syndrome was ruled out. Triple test was performed to rule out HIV and related infections. Dermatological reference was sent in view of Behcet's disease and thus it was also ruled out.

In this patient, positive tuberculin skin test along with radiological findings and past history of tuberculosis strongly suggests that Tubercular aetiology is the cause for FBA in this patient. Diagnosis is necessary to start anti-tubercular treatment, which is a long-duration multidrug treatment with a potential risk of side effects.²¹

4. Conclusion

Although, frosted branch angiitis is rare but to rule out secondary causes of frosted branch angiitis in a young immunocompetent individuals is very important. Early and proper management with steroids causes rapid recovery of visual acuity in these patients. We reported this first case to highlight that in reactivation of tuberculosis infection, Frost Branch Angiitis can be the only presenting picture and for this diagnosis should be confirmed and timely management should be started to preserve the vision of the patient.

5. Source of Funding

None

6. Conflict of Interest

None


References

1. Ito Y, Nakano M, Kyu N, Takeuchi M. Frosted branch angiitis in a child. *Jpn J Clin Ophthalmol*. 1976;30:797–803.
2. Kodama Y, Masuyama Y. A case of frosted branch angiitis of the retina. *Nihon Ganka Kiyo* . 1988;39:491–97.
3. Kleiner RC, Kaplan HJ, Shakin JL, Yannuzzi LA, Crosswell HH, Mclean WC, et al. Acute frosted retinal periphlebitis. *Am J Ophthalmol*. 1988;106(1):27–34.
4. Mikami Y, Takahira M, Suzuki T, Koshio A. Acyclovir was effective in a case of frosted retinal branch angiitis. *Jpn Rev Clin Ophthalmol*. 1991;85:2050–1.
5. Nakai A, Saika S. A case of frosted-branch retinal angiitis in a child. *Ann Ophthalmol*. 1992;24(11):415–7.
6. Uenoyama S, Osamu T, Saika S, Kobata S, Okada Y. Frosted branch angiitis in an adult. *Jpn Rev Clin Ophthalmol*. 1993;87:756–60.
7. Biswas J, Fogla R, Madhavan HN. Bilateral frosted branch angiitis in an 8-year old Indian girl. *Retina*. 1996;16(5):444–5.
8. Miyazaki H, Kitahara K, Anazawa K, Noji J, Yamaguchi M, Imai Y, et al. A case of retinal vasculitis and uveitis as the complications of chicken pox. *Ganka Ophthalmology*. 1982;24:1451–4.
9. Yamane S, Nishiuchi T, Nakagawa Y, Iwase T, Hama M. A case of frosted-branch angiitis of the retina. *Nihon Ganka Kiyo* . 1985;36:1822–5.
10. Kleiner RC, Kaplan HJ, Shakin JL, Yanuzzi LA, Crosswell HH, Mclean WC, et al. Acute frosted retinal periphlebitis. *Am J Ophthalmol*. 1988;106(1):27–34.
11. Narita K, Sato A. Systemic acyclovir was effective in a case of recurrent retinal angiitis. *Jpn J Clin Ophthalmol*. 1990;44:739–43.
12. Higuchi K, Maeda K, Uji T, Yokoyama M. A case of acute uveitis in a child with frosted branch retinal angiitis. *Jpn Rev Clin Ophthalmol*. 1985;79:2660–4.
13. Yamagata S, Kobayakawa N, Watanabe H, Matsushashi M. Frosted branch angiitis with suspected streptococcal infection. *Atarashii Ganka J Eye*. 1995;12:1317–21.
14. Sugan SL, Henderly DE, Friedman SM, Jampol LM, Doyle JW. Unilateral frosted branch angiitis. *Am J Ophthalmol*. 1991;111(6):682–5.
15. Tachinami K, Katayama T, Takeda N, Kubota Y, Asaka N, . Frosted branch angiitis in an adult. *Jpn Rev Clin Ophthalmol*. 1992;86:1645–9.
16. Biswas J, Fogla R, Madhavan HN. Bilateral frosted branch angiitis in an 8-year old Indian girl. *Retina*. 1996;16(5):444–5.
17. Sharma A, Thapa B, Lavaju P. Ocular tuberculosis: an update. *Nepal J Ophthalmol*. 2011;3(1):52–67.
18. Kwon SJ, Park DH, Shin JP. Frosted branch angiitis as ocular manifestation of Behçet's disease: unusual case report and literature review. *Korean J Ophthalmol*. 2013;27(6):466–9.
19. Maleki SJ, Dourandish M, Hosseini SM. Primary idiopathic frosted branch Angiitis. *J Ophthalmic Vis Res*. 2020;15(3):424–7.
20. Agarwal M, Biswas J. Unilateral frosted branch angiitis in a patient with abdominal tuberculosis. *Retin Cases Brief Rep*. 2008;2(1):39–40.
21. Asano S. Granulomatous lymphadenitis. *J Clin Exp Hematopathol*. 2012;52(1):1–16.

Author biography

Sana Mariyam, Junior Resident  <https://orcid.org/0009-0007-0609-1168>

Naheed Akhtar, Consultant

Abdul Waris, Professor  <https://orcid.org/0000-0002-3210-7633> RP-000-0299

Anupam Ahuja, Consultant

Summaiyya Khan, Junior Resident  <https://orcid.org/0009-0004-0052-7432>

Cite this article: Mariyam S, Akhtar N, Waris A, Ahuja A, Khan S. A case report: Reactivation of tubercular infection presenting as bilateral frosted branch angiitis. *Indian J Clin Exp Ophthalmol* 2024;10(3):612-615.