

Coats-like response in tubercular subretinal abscess masquerading as melanoma as the initial manifestation of miliary tuberculosis

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Ocular neoplasia can masquerade as an inflammatory condition and vice-versa, which if untreated, can lead to loss of vision or even life. We present a young immunocompetent adult male referred to us as choroidal melanoma. He had a large atypical choroidal mass and exudative retinal detachment. He had no systemic complaints and ocular lesions were the first manifestation of disseminated disease. Aqueous polymerase chain reaction for *Mycobacterium tuberculosis* (MTB) was negative, but Mantoux, chest radiology, acid-fast bacilli, and caseation necrosis on pleural nodule histopathology confirmed tuberculosis (TB). While on antitubercular therapy, a rare

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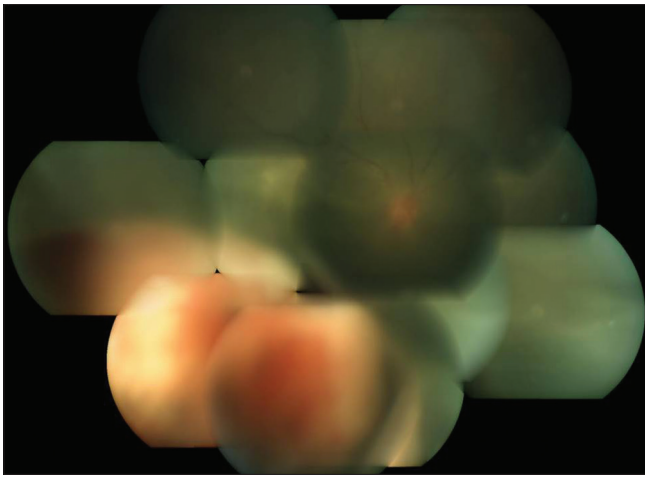


Figure 1: Montage color fundus photograph of right eye (OD) at presentation, with grade 3 vitritis and a large yellowish-white subretinal mass lesion filling the inferotemporal quadrant (ITQ) with overlying hemorrhage suggestive of subretinal abscess

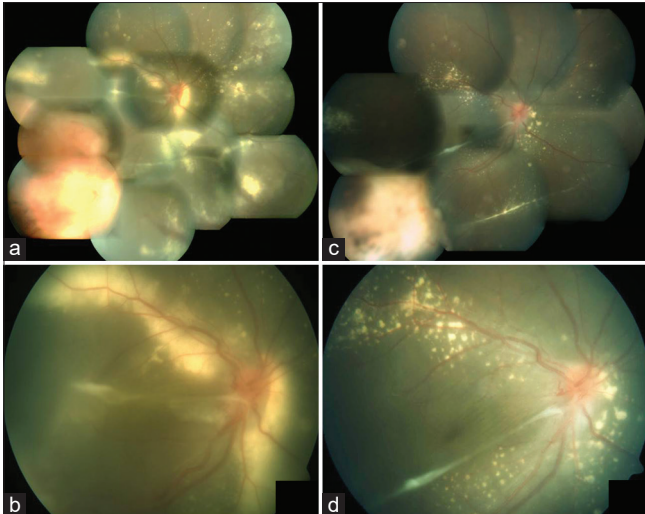


Figure 3: At 5 weeks follow-up- Montage color fundus image (a) and posterior pole color fundus image (b) showing early signs of organization of subretinal abscess and reduction in the exudative retinal detachment (ERD). Massive yellowish white subretinal exudates are noted in the posterior pole around the disc and arcades mimicking a "Coats' like response." Montage color fundus image (c) and posterior pole color fundus image (d) taken 3 months post ATT showing reduction in SRA in ITQ and the posterior pole exudates

"Coats'-like response" was noted which eventually resolved completely with treatment.

Key words: Antitubercular treatment, Choroidal mass, Coats'-like response, Miliary tuberculosis, Subretinal abscess, Ocular tuberculosis, Choroidal Melanoma

Various ocular neoplastic conditions can masquerade as uveitis and vice-versa.^[1,2] Many infective and noninfective conditions present as a choroidal mass with exudative retinal detachment (ERD). If the diagnosis is missed or delayed, it can lead to loss of vision or even life. We report an uncommon presentation and atypical course of a large tuberculous choroidal mass with ERD referred as melanoma, in a young

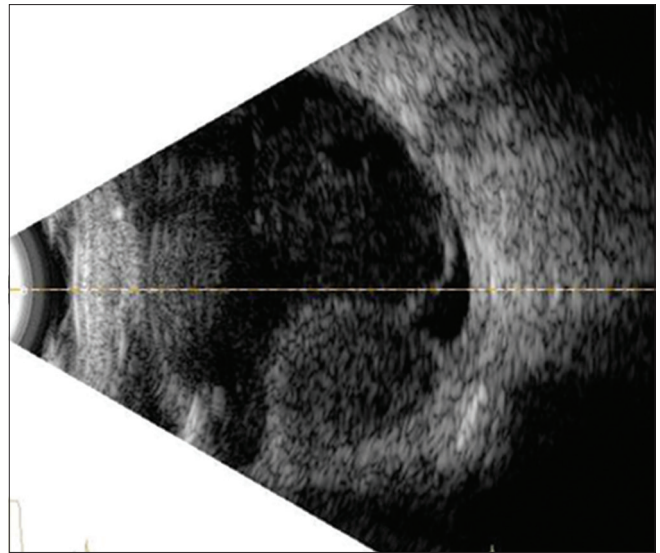


Figure 2: Ultrasound B scan of right eye at presentation, showing a well-circumscribed subretinal mass in the ITQ with circumferential basal diameter-13.5 mm, height-6.9 mm, anteroposterior basal-11.7 mm, associated shallow retinal detachment with shifting fluid. Features of acoustic hollowing, choroidal excavation, sound attenuation or orbital mass lesions were absent

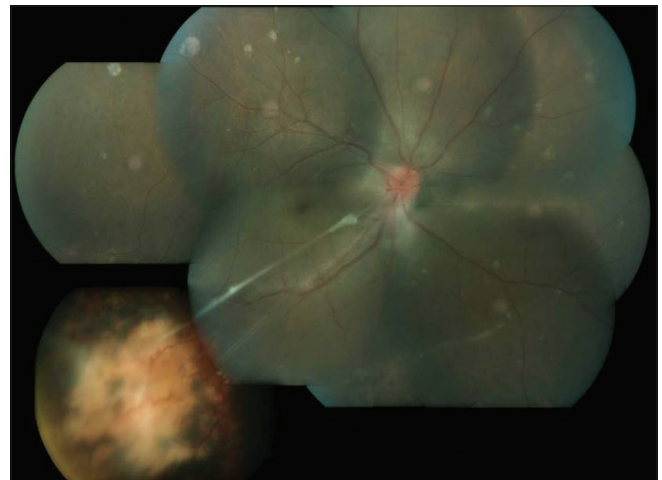


Figure 4: Color fundus montage photograph image after completion of ATT (1 year), showing a taut posterior hyaloid causing traction on the disc. The subretinal abscess and exudates have resolved completely, with residual chorioretinal atrophy

immunocompetent adult male. His ocular manifestations were the first presentation of a disseminated disease.

Case Report

A 25-year-old immunocompetent male presented with complaints of pain, redness, and diminished vision in the right eye (OD) since 1 month. He was referred as OD-choroidal melanoma for further management and was on topical steroids at presentation. He had no contact or previous history of tuberculosis (TB). Best corrected visual acuity (BCVA) in OD was counting finger-close to face and 20/20, N6 in left eye (OS). On examination, OD showed anterior chamber reaction-2+ and vitreous cells-3+. Intraocular pressure by applanation tonometry was 6 mmHg in OD and 10 mmHg in OS.

Fundus examination of right eye revealed a large subretinal mass occupying entire inferotemporal quadrant (ITQ) with surface hemorrhages and associated ERD [Fig. 1]. Left eye was normal. Ultrasound (USG) B-scan revealed ITQ choroidal mass with high surface reflectivity and low to medium internal reflectivity with no acoustic hollowing or choroidal excavation [Fig. 2]. Investigations showed a necrotic Mantoux test (30 mm). QuantiFERON-TB Gold (QFT-G) test, human immunodeficiency virus (HIV) and syphilis serology were negative. Real time polymerase chain reaction (RT-PCR) of aqueous humor was negative for *Mycobacterium tuberculosis* (MTB) and cytology did not reveal any malignant cells. High-resolution computed tomography (HRCT) chest showed lung parenchymal nodules with "tree in bud appearance" and cavitation in both upper lobes. Left-sided pleural effusion with thick peripheral enhancing pleural nodules and enlarged mediastinal lymph nodes (largest measuring 13 mm) were noted. Sputum and pleural tap were negative for acid-fast bacilli (AFB), but USG-guided pleural nodule biopsy showed AFB and caseation necrosis. Magnetic resonance imaging (MRI) of brain and orbit showed dome shaped lesion in right globe, hypointense on T2 weighted image with peripheral contrast enhancement and a nodular lesion hypointense on T2 with perifocal edema in left occipital lobe. Interestingly, patient did not have any pulmonary or central nervous system (CNS) symptoms. With a diagnosis of miliary TB, he was started on antitubercular therapy (ATT) consisting of isoniazid (H), rifampicin (R), ethambutol (E), and pyrazinamide (Z) for 2 months followed by HRE for 10 months under care of an infectious disease specialist. He was also started on oral prednisolone at a dose of 1 mg/kg body weight tapered over a period of 2 months.

After five weeks of ATT and oral steroids, the subretinal abscess (SRA) was organizing, with reduction in extent and height of ERD. However, clinically a massive exudation mimicking a "Coats'-like response" was noted. Solitary and clumped yellow subretinal lesions in the peripapillary area, superior arcade, and few crystalline deposits in the mid-peripheral fundus were noted [Fig. 3a and b]. The same treatment schedule was continued. During follow-up inflammation was under control. Complete resolution of both subretinal abscess and the Coats-like response were noted at 3 months [Fig. 3c and d]. At 1-year follow-up, his BCVA OD had improved to 20/50, N6 with healed SRA and chorioretinal atrophy [Fig. 4]. His lung and CNS lesions were also found to have resolved as reviewed by both pulmonologist and neurologist. Optical coherence tomography showed epiretinal membrane and taut posterior hyaloid.

Discussion

Our patient was referred as large choroidal melanoma, which usually presents as a dome-shaped mass with overlying lipofuscin pigments and drusen. It may also present as a classical collar stud or mushroom shaped mass.^[3] However, clinically his ocular features were suggestive of a tuberculous subretinal abscess. USG findings were also not suggestive of melanoma.^[3]

His Mantoux was positive but QFT-G and aqueous RT PCR MTB were negative leading to further invasive investigations. False negativity of QFT-G test in extrapulmonary TB is reported to be 28.8%, and a combination of QFT-G and tuberculin skin test has been advocated in high TB endemic areas.^[4] Sensitivity and specificity of RT-PCR test in MTB diagnosis have been reported to be 71.4% and 76.8%, respectively.^[5]

HRCT and MRI revealed lung and occipital lobe involvement but significantly he had no systemic symptoms. Thus, ocular lesion may not be isolated and can be an indicator of an underlying disseminated TB, which if left undetected can be fulminant and life-threatening.^[6-8] He was treated with ATT for 1 year. Post treatment MRI can reveal calcification with resolution of perilesional edema.^[9]

Interestingly, during the course of treatment, the patient presented with features mimicking a "Coats'-like exudative response." Coat's like response refers to vascular alterations (telangiectasia, vascular aneurysmal dilatations) with subretinal lipid exudation. Fundus fluorescein angiogram can reveal the presence of terminal bulbs. It has been described in various other ocular conditions like parsplanitis, senile retinoschisis, retinitis pigmentosa, branch retinal vein occlusion, retinopathy of prematurity, retinal vasculitis among others but not commonly in association with TB subretinal abscess.^[10] We suspect this to be either an inflammatory response to dying microorganisms or a reaction to released cytokines.

Paradoxical worsening of TB was considered a possibility, where a worsening of the primary lesion occurs which was not the case in our patient.^[11] Choroidal mass was regressing and so were his systemic findings. He was already on a significant dose of steroids during this phase. Although option of anti-vascular endothelial growth factor (anti-VEGF) was considered for the exudative response, it was not administered since he showed improvement progressively with ATT and oral steroids.

Medline search did not reveal any such report of a large TB subretinal abscess in an immunocompetent individual without systemic complaints as the primary manifestation of miliary tuberculosis. During recovery phase on treatment with ATT an uncommon massive exudative response mimicking a Coats' like reaction was noted.

Conclusion

This case highlights that, in an endemic country like India, TB subretinal abscess mimicking choroidal mass can be the first clue of a more disseminated disease even in an asymptomatic patient. It is important not to rely upon a single investigative modality as in our case, where intraocular fluid evaluation, sputum, and pleural tap AFB were negative. Further invasive investigations may be required for diagnosis in few cases. The course of disease with treatment may not be the same in all patients and uncommon transient Coats' like response during recovery should be kept in mind.

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Conflicts of interest

There are no conflicts of interest.

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