

“Inverted Snowing-Cloud” Sign in Endogenous Candida Endophthalmitis

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Abstract

Candida spp. is the most common cause of endogenous fungal endophthalmitis. The diagnosis of this rare disease is based on clinical findings supported by positive blood culture. Recently, it has been shown that optical coherence tomography (OCT) characteristic findings are beneficial in making a correct diagnosis of fungal infection in cases with endogenous endophthalmitis. The current photo-essay aims to highlight the role of OCT in diagnosis of *Candida* endogenous endophthalmitis where OCT imaging of one of the retinal lesions disclosed a pre-retinal hyper reflective lesion with overlying punctate vitreous opacities. We propose “inverted snowing-cloud” sign for this OCT pattern considering the resemblance of the vitreous opacities to snowflakes.

Keywords: *Candida*, Endogenous Endophthalmitis, Optical Coherence Tomography

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Endogenous fungal endophthalmitis is a rare disease commonly affecting individuals with predisposing conditions such as immunodeficiency, indwelling catheter, and prolonged hospitalization.^[1] *Candida* spp. is the leading cause of fungal endophthalmitis.^[2] Observing typical fluffy lesions in the vitreous of a high-risk patient with positive blood-culture is diagnostic of *Candida* endogenous endophthalmitis.^[3]

The current photo-essay highlights the role of OCT in early diagnosis of *Candida* endogenous endophthalmitis. A 54-year-old man presented with gradual bilateral visual loss. He had a history of prolonged hospitalization for prostate abscess leading to the placement of a permanent urinary catheter, one week prior to the onset of visual symptoms. The corrected distant visual acuity was counting fingers at 1 m and 20/25 in the right and left eyes, respectively. Both eyes appeared to be silent on external examination despite significant anterior chamber reaction and hypopyon

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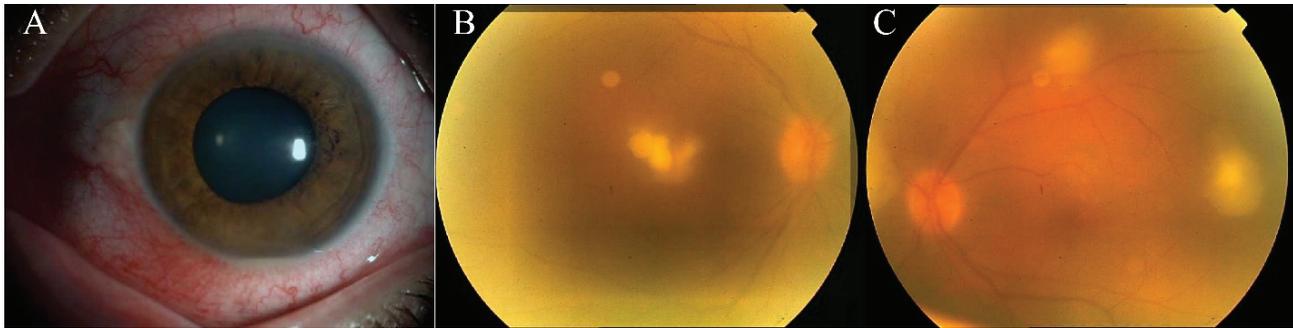


Figure 1. Slit photo of the left eye demonstrating minimal conjunctival injection despite the formation of the hypopyon in the anterior chamber (A). Fundus photo of both eyes showing multiple fluffy pre-retinal yellowish lesions with the involvement of the macula in the right eye (B & C).

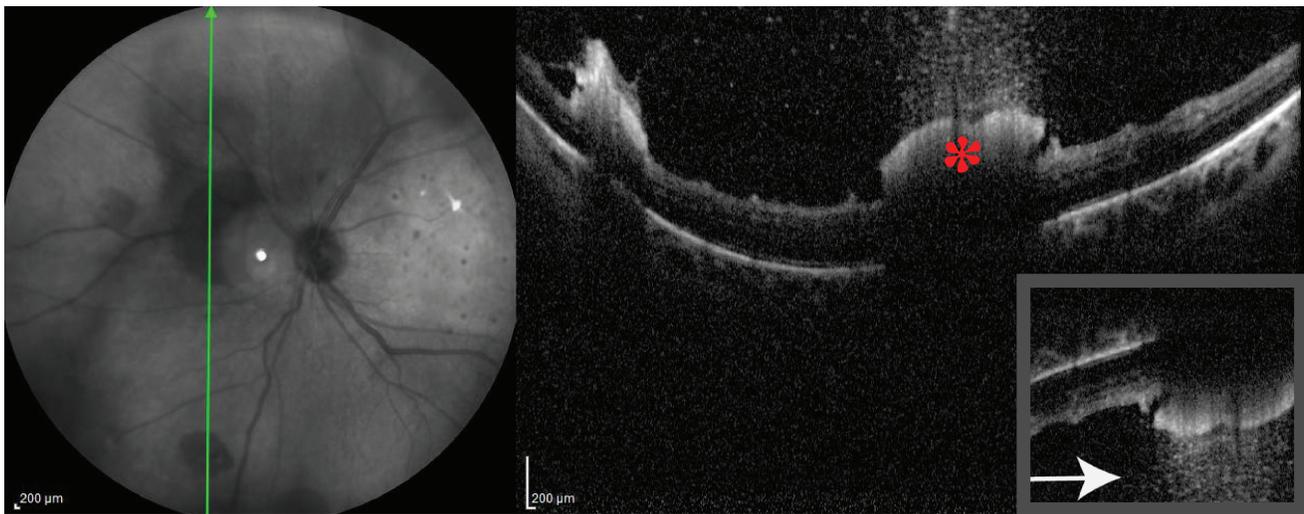


Figure 2. Optical coherence tomography (OCT) of one of the lesions in the left eye shows hyperreflectivity of the inner retina (asterisk) with posterior shadowing ("rain-cloud" sign) alongside vitreous aggregates extending to the vitreous cavity. In the inset, by inverting the image, the resemblance to a "snowing-cloud" becomes more evident with vitreous aggregates representing snowflakes (Asterisk).

[Figure 1A]. Vitreous cells were present in both eyes. Fundus examination revealed multiple yellowish pre-retinal fluffy lesions, one of which affected the fovea of the right eye [Figure 1B and 1C]. OCT imaging of the pre-retinal abscesses disclosed a hyperreflective lesion with posterior shadowing obscuring inner retinal layers. Inflammatory aggregates extending to the vitreous cavity from the lesion were evident [Figure 1].

We propose "inverted snowing-cloud" sign for this peculiar OCT pattern, as by inverting the image, the pre-retinal lesion resembles a white cloud with the vitreous aggregates representing the snowflakes. Previously, Invernizzi et al suggested "rain-cloud" sign as a characteristic feature in OCT of early intra-retinal lesions of

Candida where the pre-retinal hyperreflective lesion and accompanying posterior shadowing represent "rain-cloud".^[4] Our proposed term (inverted snowing-cloud) incorporates the presence of a hyperreflective retinal lesion with overlying punctate vitreous opacities. More recently, Zhuang et al described four types of OCT manifestations of endogenous *Candida* endophthalmitis as type 1 representing subretinal lesions, type 2 lesions located in the inner retinal layers, type 3 lesions involving full-thickness macula, and type 4 as sub-inner limiting membrane lesions.^[5]

It is worthwhile to mention that "inverted snowing-cloud" might not be characteristic for *Candida* endophthalmitis and can be observed in other localized retinochoroiditis diseases with

concurrent vitritis; further investigation of OCT findings of toxoplasma retinitis and endogenous *Aspergillus* endophthalmitis are warranted. Based on the vitreous culture and clinical and imaging findings, the diagnosis of *Candida* endophthalmitis was confirmed in our patient. In addition to systemic and intravitreal voriconazole, the patient underwent vitrectomy in both eyes.

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Conflicts of Interest

There are no conflicts of interest.

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