

OCT applications in the management of retinoblastoma

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Objectives

To review a series of patients in which OCT was used in the management of retinoblastoma.

Methods

Review of consecutive patients with retinoblastoma and managed by the senior author between May 2022 and May 2024 at the Bascom Palmer Eye Institute, Ocular Oncology Service. OCT was used to assess macular anatomy, questionable vitreous seeds, regressed or persistent tumors, and suspicious small tumors in 7 (seven) patients.

Our purpose is to illustrate these findings and discuss the diagnostic applications of OCT in retinoblastoma.

Legends to illustrations

Case #1 – OCT shows the presence of persistent tumor (*) with central chorioretinal atrophy

Case #2 – OCT shows vitreous seed (*) floating above the retina in a heavily treated eye

Case #3 – OCT shows intact macular anatomy and adjacent regressed lesion treated by laser temporally

Case #4 – OCT shows recurrent juxtapapillary retinoblastoma over a previously regressed lesion treated with laser

Case #5 – OCT shows a cystic recurrence of retinoblastoma at the superior margin of a calcified tumor residue

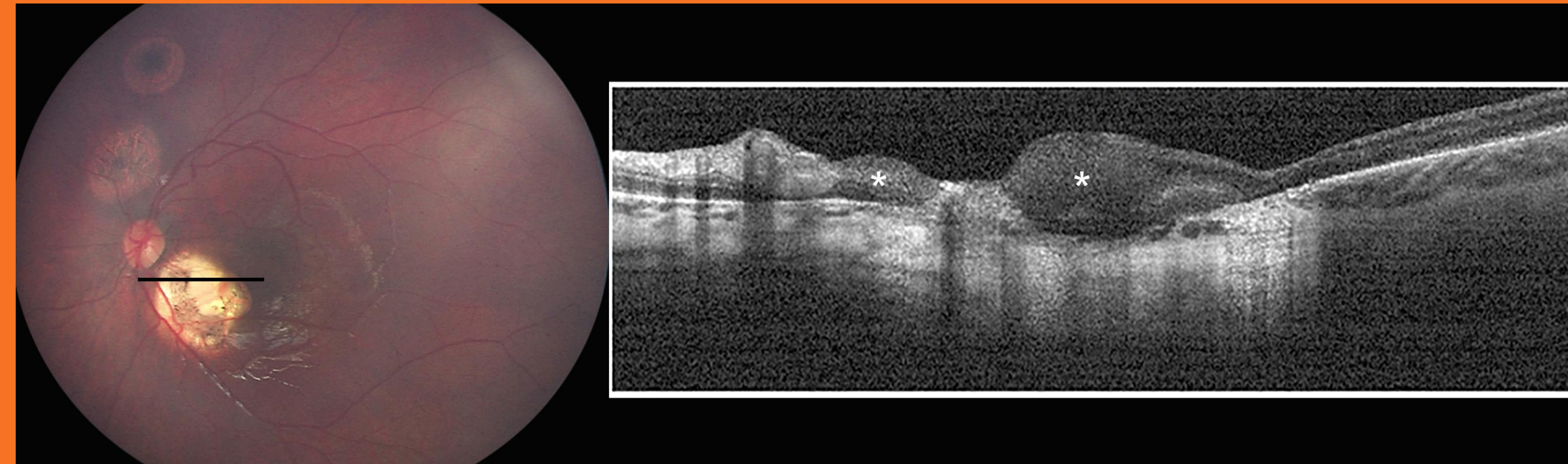
Author's affiliation

1- University of Miami, Miller School of Medicine

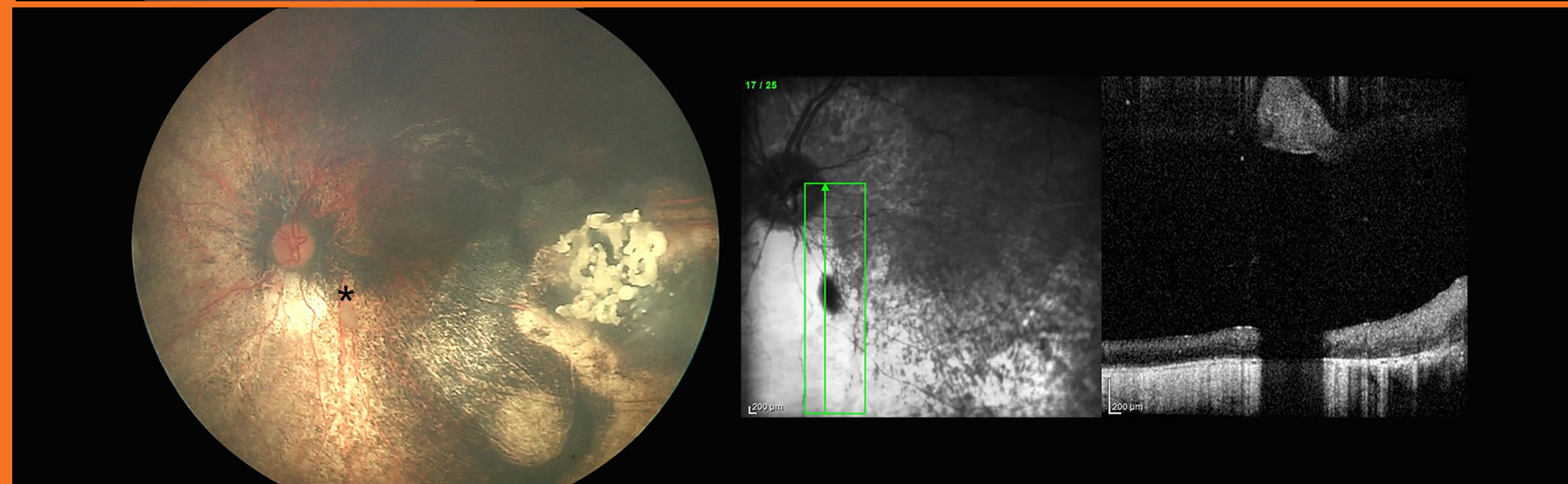
2- University of Miami, Bascom Palmer Eye Institute

3- University of Miami, Sylvester Comprehensive Cancer Center

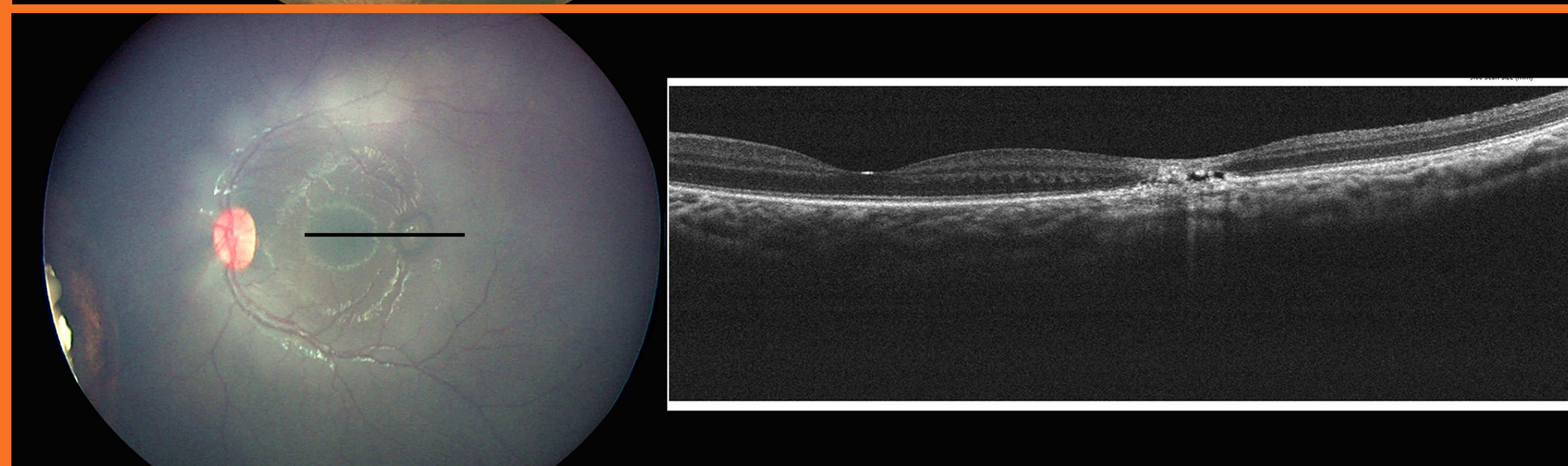
Case #1



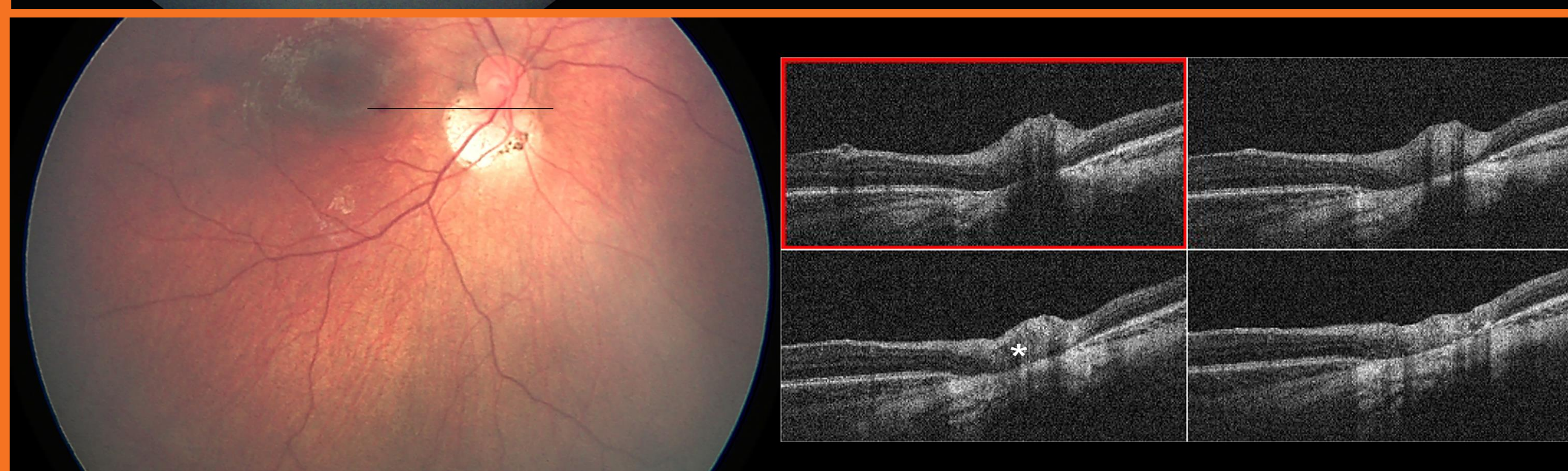
Case #2



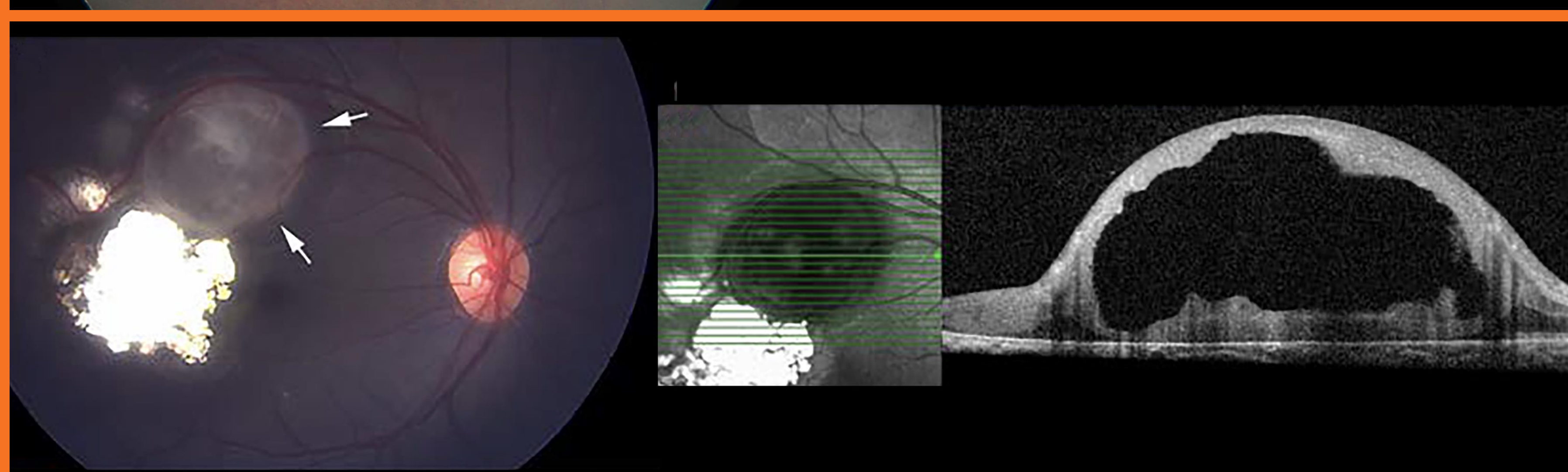
Case #3



Case #4



Case #5



Results

- We identified 8 patients in which OCT was applied to one or more of the indications above.
- OCT was used to assess the following
 - Macular anatomy in 2 cases,
 - Vitreous seeds in 2 cases (Case #2),
 - Suspicious small tumors or residual disease in 4 cases (Cases #1,3,4),
 - Atypical marginal recurrence in 1 case (Case #5).
- In 3 cases, OCT was also used immediately after treatment showing the effect of laser in macular and juxta-papillary cases (Case #3).

Conclusions

Although OCT is not a technology used routinely in retinoblastoma, these cases illustrate important clinical applications of OCT in eyes with retinoblastoma.

In addition, this small series exemplifies how the use of OCT allowed earlier and bespoke treatment for these patients.

Recommended reading

- 1- Ruben M, Yaghy A, Shields CL. Retinoblastoma Vitreous Seeds Captured on OCT. *Ophthalmol Retina*. 2020 Nov;4(11):1117.
- 2- Skalet AH, Campbell JP, Jian Y. Ultrawide-field OCT for Retinoblastoma. *Ophthalmology*. 2022 Jun;129(6):718.
- 3- Nadiarykh O, McNeill-Badalova NA, Gaillard MC, Bosscha MI, Fabius AWM, Verbraak FD, Munier FL, de Boer JF, Moll AC. Optical coherence tomography (OCT) to image active and inactive retinoblastomas as well as retinomas. *Acta Ophthalmol*. 2020 Mar;98(2):158-165.

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