Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

OCT-Angiography Based Blood Flow Evidence as a Surrogate of Disease Activity in Polypoidal Choroidal Vasculopathy

Mariacristina Parravano

mariacristina.parravano@fondazionebietti.it

IRCCS-Fondazione Bietti

Marco Lupidi

University of Ancona

Alessio Muzi

Giulia Gregori

Maria Jolanda Carpanè

Lorenzo Mangoni

https://orcid.org/0000-0003-2119-9752

Eliana Costanzo

IRCCS - Fondazione Bietti, Rome, Italy https://orcid.org/0000-0002-9916-8895

Daniela Fruttini

University of Perugia

Clara Rizzo

NHS Foundation Trust

Cesare Mariotti

Article

Keywords:

Posted Date: May 11th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9187022/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: There is no conflict of interest

Abstract

Background/Objectives: To analyze retino-choroidal tomographic biomarkers of polypoidal choroidal vasculopathy (PCV) and correlate them with the disease activity.

Subjects/Methods: A total of 250 eyes with polypoidal choroidal vasculopathy (PCV) were included in this multicentric, retrospective, cross-sectional study. At baseline, all patients underwent multimodal imaging, including indocyanine green angiography to identify branching vascular networks (BVN) and polypoidal lesions. OCT-angiography was used to assess the detectability of BVN and polyps, while structural OCT volume scans were evaluated for features suggestive of PCV. All imaging variables were correlated with disease activity, defined by the presence of subretinal or intraretinal fluid. In eyes with retinal fluid, the topographic correspondence between OCT-A-detected polyps and fluid was further analyzed.

Results: Retinal fluid was present in 195 eyes (78%). Polyp visualization on OCT-A was significantly more frequent in eyes with retinal fluid compared with non-exudative eyes (86% vs 25%, $p<0.001$), whereas BVN detection showed a weaker association (100% vs 83%, $p=0.044$). Structural OCT features were not significantly associated with retinal fluid.

On logistic regression analysis, polyp detection on OCT-A was strongly associated with the presence of retinal fluid (OR 18.5, $p<0.001$). ROC analysis showed good diagnostic accuracy of polyp visualization on OCT-A for identifying disease activity (AUC=0.805).

Conclusions: Visualization of polyps and BVN on OCT-A is associated with disease activity in PCV. In particular, polyp detection on OCT-A is strongly related to the presence of exudative disease and may represent a lesion-specific biomarker of disease activity, providing complementary information to structural OCT findings.

INTRODUCTION

Polypoidal choroidal vasculopathy (PCV) was first described in 1990 by Yannuzzi et al as a vascular disease of the choroid that led to hemorrhagic and exudative macular degeneration.[1] Currently, PCV is considered a subtype of neovascular AMD characterized by a particular type 1 neovascularization called branching vascular network (BVN) and aneurysmal dilations referred to as polyps.[2] PCV can be clinically classified in two subtypes: quiescent and active PCV. Quiescent PCV is characterized by the presence of the typical PCV lesions in the absence of intraretinal or subretinal fluid, and does not require treatment. Active or exudative PCV is characterized by the presence of intraretinal or subretinal fluid due to the exudation of the polyps and/or BVNs.[3,4]

The gold standard to diagnose PCV is indocyanine green angiography (ICGA) that allows the detection of the typical BVN with single or multiple nodular hyperfluorescent lesions at their margins, called polyps.[5] However, ICGA is an invasive technique that is not routinely available. Spectral-domain optical coherence

tomography (OCT) is a non-invasive technique that provides specific findings such as sharply peaked pigment epithelium detachment (PED), notched or multilobulated PED, and hyperreflective ring underneath the PED, and represents an important tool for the diagnosis and follow-up of PCV patients.[6]

OCT-Angiography (OCT-A) as a non-invasive imaging modality can be used to identify the BVN and polypoidal lesions, to study the spatial relationships between the neovascular tissue and the retinal layers and to monitor the temporal changes of the lesions along with the treatment. [6,7]

Several studies have reported that, although OCT-A is effective in detecting BVN, polyps visualization remains challenging: the polyp detection rate with OCT-A varies from 40% to 92%. [6,8,9] Moreover, the polyp appearance on en-face OCT-A is described as variable: the majority of the cases appear as hypointense roundish structures, while the remaining ones as hyperintense roundish lesions surrounded by a hypointense halo.[10]

Recently, Kim et al showed that OCT-A imaging can be comparable to ICGA for the diagnosis of treatment-naïve PCV, and might be better in correctly identifying both polypoidal lesions and BVNs in treatment-naïve PCV. [11]

In our study we investigated both the polyps and BVN visualization through OCT-A and the relationship between their visualization on OCT-A and the disease activity (presence/absence of exudation). Moreover, we examined the topographic correspondence between polypoidal lesions and retinal fluid localization.

MATERIALS/SUBJECTS AND METHODS

This multicenter, retrospective, cross-sectional study included patients with polypoidal choroidal vasculopathy (PCV) evaluated at the Department of Ophthalmology, Azienda Ospedaliero-Universitaria delle Marche, Ancona, Italy; the Eye Clinic, Santa Maria della Misericordia Hospital, Perugia, Italy; the IRCCS–Fondazione Bietti, Rome, Italy, between November 2020 and July 2025. This study was driven in accordance with the tenets of the Declaration of Helsinki and with approval of the local ethics committee (CERM, Ancona, Italy). For all patients, PCV was diagnosed by means of ICGA showing the typical BVN associated with polypoidal dilations and confirmed by a senior retinal specialist (ML). Exclusion criteria were: high myopia (> 6 diopters), intraocular inflammation, severe media opacity, presence of hemorrhage, diabetic retinopathy, and the presence of any other concomitant retinal or choroidal disorders. All patients records included best-corrected visual acuity (BCVA), fundus examination, fluorescein angiography and ICGA (Spectralis HRA + OCT; Heidelberg Engineering, Heidelberg, Germany), spectral-domain OCT (Spectralis HRA + OCT; Heidelberg Engineering, Germany) and OCT-A (Spectralis HRA + OCT, Heidelberg Engineering, Heidelberg, Germany). The macular OCT-A was assessed in all patients with a scanning area of 10 x 10° (2.9×2.9 mm approximately), centered on the entire BVNs. OCT-A settings included a high-resolution mode with an A-scan rate of 85 kHz and the Automated Real Time (ART) mode of 4 averaged images The mean quality index was 30 dB.

ICGA images were analyzed in order to locate the BVN and the polypoidal lesions.

Subsequently OCT-A images were evaluated to assess whether BVN and polyps were detectable or not. In the en-face visualization of OCT-angiograms, an automatic segmentation algorithm was first used to detect the BVNs and the polypoidal lesions. In case of significant errors of the segmentation strategies, the boundaries were then manually adjusted in order to allow the appropriate visualization of the polypoidal lesions and BVNs. A polypoidal lesion was defined as an hyperintense roundish lesion surrounded by a hypointense halo with the aspect of a densely or loosely tangled vascular structures at the margins of BVNs.[8,12]

The presence or absence of the following morphological features, suggestive of PCV, was investigated on structural-OCT: notched/multilobulated PED, sharply peaked PED, hyperreflective ring underneath PED, double-layer sign.[2,6] Furthermore, the presence or absence of subretinal or intraretinal fluid (and their localization with respect to the polyps) and subretinal fibrosis were recorded. The height of the serous retinal detachment, the maximum height of the PED and the choroidal thickness were measured with the in-built caliper tool of the Heyex Software Version 1.11.2.0. (Heidelberg Engineering, Heidelberg, Germany). All the reported variables were related to the status of the disease (active/quiescent), defined by the presence of subretinal or intraretinal fluid.

In active PCVs, we analyzed if there was a topographic correspondence between the polypoidal lesion detectable on OCT-A and the fluid accumulation. All the images were analyzed by an experienced retinal specialist per center (ML, AM, MP).

The quantitative data are reported in tables with mean and SD, while qualitative ones are reported with frequency graphs or tables. The statistical test for the analysis of the frequency tables of dichotomous data was the Fisher exact test. The comparison of quantitative variables was performed by the non-parametric Mann-Whitney test.

The logistic regression and odds-ratio have been computed to determine the potential correlation between presence or absence of polypoidal lesion at OCT-A and the disease activity (presence or absence of retinal fluid). The significance level was set at $p < 0.05$. The analysis was done with software IBM SPSS V. 25.0.0.

RESULTS

Two-hundred-fifty eyes from 230 patients with PCV were enrolled. All subjects were Caucasian (138 females, 60%) with a mean age of 72 ± 7 years). Ninety eyes were treatment-naïve, while 160 received a previous intravitreal treatment (IVT) with anti-VEGF, with a mean of 13.6 ± 2.8 intravitreal injections per year.

Disease activity, defined by the presence of intraretinal fluid or subretinal fluid, was identified in 195 eyes (78%). Among these, subretinal fluid was present in 154 eyes (79%), intraretinal fluid in 27 eyes (14%),

while 14 eyes presented both subretinal and intraretinal fluid (7%). The percentages of the different characteristics investigated on structural-OCT and on OCT-A are reported in Table 1. The percentages of the qualitative variables examined in the two groups (presence vs absence of retinal fluid) are reported in Table 2.

Table 1
Demographic data and imaging characteristics investigated

General data	
Total eyes	250
Patients, n (%)	230
Female	138 (60%)
Male	92 (40%)
Age, mean	72 ± 7
Treatment naïve eyes	90 (36%)
Eyes with previous IVT	160 (64%)
OCT data	
Disease activity/fluid	195 (78%)
SRF	154 (79%)
IRF	27 (14%)
SRF + IRF	14 (7%)
Double-layer sign	240 (96%)
Subretinal fibrosis	38 (15%)
Notched/multilobulated PED	90 (36%)
Sharply peaked PED	55 (22%)
Hyperreflective ring underneath PED	33 (13%)
OCT-A data	
BVN	233 (93%)
Polyp	145 (58%)

Table 1: This table summarizes the demographic data and main structural OCT and OCT-angiography (OCT-A) features of the enrolled eyes. Disease activity was defined by the presence of subretinal fluid

(SRF), intraretinal fluid (IRF), or both on structural OCT. Percentages are calculated on the total number of eyes unless otherwise specified.

Table 2
Percentages of qualitative variables investigated in the two groups fluid/no fluid

	FLUID		P
	NO	YES	
Polyp on OCT-A	25%	86%	0.0001
BVN on OCT-A	83%	100%	0.0444
Double-layer sign	100%	95%	0.9999
Subretinal fibrosis	17%	14%	0.9999
Notched/multilobulated PED	50%	33%	0.3189
Sharply peaked PED	25%	21%	0.7116
Hyperreflective ring underneath PED	25%	9%	0.1676

Table 2: Percentages of qualitative OCT and OCT-angiography (OCT-A) variables are reported in eyes with and without retinal fluid. Comparisons between groups were performed using Fisher's exact test. Statistically significant p-values are reported.

The presence of fluid (both intraretinal or subretinal), related to all the dichotomous variables used, showed dependence with the polypoidal lesions visualization on OCT-A (p = 0.0001) and BVN visualization on OCT-A (p = 0.0444) (Fig. 1 and Fig. 2).

There are no statistically significant differences for the choroidal thickness and the PED height compared with the presence or absence of retinal fluid. The Table 3 shows the values of these variables and of the height of subretinal fluid (present only in the group with fluid presence).

Table 3
Values of quantitative variables studied in the two groups fluid/no fluid

	Fluid NO (n = 55)	Fluid YES (n = 195)	p-value
	Mean ± SD	Mean ± SD	
Choroidal thickness (μm)	281.1 ± 85.6	246.6 ± 78.3	0.2332
PED height (μm)	139.7 ± 101.9	148.7 ± 139.0	0.8705
Subretinal fluid height (μm)		110.6 ± 97.7	

Table 3: Mean values ± standard deviation of quantitative OCT parameters in eyes without retinal fluid and in eyes with retinal fluid. Subretinal fluid height was calculated only in eyes with fluid.

The ROC curve shows that having the polyp detectable on OCT-A is a good index (AUC = 0.805) to indicate the presence of disease activity (Fig. 3).

Among patients with polypoidal lesions visible on OCT-A and with the presence of fluid (195 patients), 185 patients (95%) had perilesional fluid, and only 10 patients (5%) did not have fluid localized in proximity of the polypoidal lesion.

DISCUSSION

The major findings of current study underlined the close relationship between the polypoidal lesions and BVN visualizations on OCT-A and the status of the disease. Indeed a significant correlation between the presence of intra/subretinal fluid and the clear visualization of these lesions on OCT-A is shown.

Even if ICGA still remain the gold standard for the identification of PCV, several structural-OCT features are reported as highly suggestive of PCV.[2,6,13,14] The most commonly described features in PCV include the flat PED, often described as “double-layer sign” and a thickened choroid.[2] Chaikitmongol et al identified signs with a high sensitivity and specificity for the diagnosis of PCV without the use of ICGA, especially when at least 2 out of 4 signs are present, including a notched or hemorrhagic PED detected using fundus photography or OCT and a sharply peaked PED or a hyperreflective ring underneath PED detected using structural-OCT.[6] In terms of activity PCV can be classified into quiescent, exudative, or hemorrhagic subtypes.[2] Recently it has been demonstrated that the conversion from non-exudative to exudative forms, characterized by intra/subretinal fluid, has been noted in nearly half of the non-exudative PCV cases in 5 years. The progressive “protrusion” of polypoidal lesions on OCT examination may be a significant biomarker for predicting the near-term onset of exudation.[15] From an angiographical point of view, the role of OCT-A in replacing ICGA for the diagnosis of PCV is still uncertain. [16] Some authors report that OCT-A might be even more sensitive than ICGA for the detection of BVNs, nevertheless the identification of polypoidal lesions remains difficult. [8,17] The polyps detection rate on OCT-angiograms ranges from 40% to 92%.[6–8,11,18,19] Different reasons have been used to explain the potential limitation of OCT-A in revealing polypoidal lesions. Some authors attributed it to the small size of the polyps which is insufficient to create enough flow signal for OCT-A detection.[8,11,16,20] The blood flow speed within the polyps has also been considered as a potential influencing factor for polyp’s visualization.[21,22]

Fukuyama et al. studied the blood-flow speed through the polypoidal lesions by analyzing the time of dye infiltration into the choroidal arteries and polypoidal lesions on ICGA showing that the polyps filling time of ICG dye is not associated with the polyp’s visualization on OCT-A. [23] Conversely the elapsed time from the choroid to the polyp was significantly longer in polyps that were not detectable on OCT-A.[23] This

might mean that slower or reduced blood influxes into polypoidal lesions may impede the visualization of flow signals on OCT-A. [23] The signal attenuation from PED, scars or blood and incorrect volume segmentation have also been proposed as negative contributors to polyp detection on OCT-A.[16,24,25]

In the current study, we analyzed the exudative activity of PCV lesions and their OCT and OCT-A characteristics. To the best of our knowledge this is the first study aiming to evaluate a potential correlation between specific imaging findings and the exudative status of PCV.

The recruited eyes were divided in two groups: those with exudative PCV and those with non-exudative PCV. The qualitative structural-OCT features did not show statistical differences between the 2 groups. Based on this finding, we can conclude that double layer sign, notched/multilobulated PED, sharp-peaked PED, subretinal fibrosis and hyperreflective ring lesion underneath the PED are specific tomographic biomarkers for the diagnosis of PCV but do not provide any information related to the disease activity.

The quantitative variables as well, like choroidal thickness or PED height, did not show statistically significant differences between the two groups. Therefore, choroidal thickness does not appear as a useful biomarker for evaluating disease activity, since exudation mostly relies on the integrity of the outer blood-retinal barrier rather than on specific structural choroidal features. Furthermore, PED height is not related to disease activity, probably because in patients with active PCV there is an impairment of the outer blood-retinal barrier such as to cause a passage of fluid directly under the retina.[22]

Polypoidal lesions were detectable on OCT-A in 86% of the eyes in the exudative group compared to the 25% of eyes in the non-exudative group. BVNs were visible in all the eyes with fluid (100%), and in the 83% of eyes without fluid. A statistically significant relationship was found between the presence of retinal fluid and polyp and BVN detection on OCT-A.

Furthermore, the results of the logistic regression model showed that patients with polyps visible on OCT-A have a high probability to have sub or intra-retinal fluid (OR 18.5). This means that patients that have polyps detectable on OCT-A have a risk of 18.5 times higher to show exudative PCV lesions. This result suggests that the disease activity, and then the exudation of the lesion, is a factor correlated to the polyp and the BVN visualization on OCT-A. A possible explanation of our result could be that the flow characteristics are different between exudative and non-exudative polyps. It is reasonable that, when the disease is quiescent, the blood flow speed within the BVN is lower, under the detection threshold of OCT-A. Conversely and when the disease is active there are flow changes within the polyp with a flow speed change, that leads to the polyp detection on OCT-A.

Moreover, the ROC curve shows that having the polyp detectable on OCT-A is a good index (AUC = 0.805) to indicate the presence of disease activity. Based on this findings, the polyp visualization on OCT-A appears to be closely associated with disease activity in PCV.

In eyes with exudative disease, the intra or subretinal fluid was topographically localized in 95% of cases in proximity of the polypoidal lesion. This strong spatial correspondence suggests that the polyp, rather

than the BVN, may represent the primary exudative component of the PCV lesion.

Although structural OCT remains the reference modality for detecting exudation, our results indicate that polyp visualization on OCT-A may represent a lesion-specific biomarker of disease activity, providing complementary information to the established structural OCT biomarkers. In this context, OCT-A may contribute to a comprehensive assessment of PCV activity by identifying its perfusion status and the vascular origin of exudation.

The main limitations of this study include its retrospective nature and the absence of longitudinal assessment that might strengthen a potential predictive role of our findings. Larger prospective longitudinal studies are warranted to determine whether changes in polyp visibility on OCT-A precede the onset of exudation and may therefore serve as an early indicator of disease activation.

Declarations

Acknowledgement:

None.

Conflict of Interest:

The authors declare that they have no competing interests.

Funding:

This study received no funding. The research for this paper for IRCCS-Fondazione Bietti was financially supported by the Italian Ministry of Health and Fondazione Roma. The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Author Contribution Statement:

ML conceived and designed the study, supervised the project, and contributed to data interpretation and manuscript revision. AM contributed to study design, data analysis and interpretation, and drafted the manuscript. GG, MJC, and LM contributed to data collection, image analysis, and interpretation of results. EC and MP contributed to patient recruitment, data acquisition, and critical revision of the manuscript. DF performed statistical analyses and contributed to data interpretation. CR contributed to data collection and manuscript revision. CM supervised the study and contributed to data interpretation and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

References

1. Yannuzzi LA, Sorenson J, Spaide RF, Lipson B. Idiopathic polypoidal choroidal vasculopathy (IPCV). Retina. 1990; 10(1): 1–8.
2. Cheung CMG, Lai TYY, Ruamviboonsuk P, Chen S-J, Chen Y, Freund KB, et al. Polypoidal Choroidal Vasculopathy: Definition, Pathogenesis, Diagnosis, and Management. Ophthalmology. 2018; 125(5): 708–724.
3. Anantharaman G, Sheth J, Bhende M, Narayanan R, Natarajan S, Rajendran A, et al. Polypoidal choroidal vasculopathy: Pearls in diagnosis and management. Indian J Ophthalmol. 2018; 66(7): 896–908.
4. Chaikitmongkol V, Cheung CMG, Koizumi H, Govindahar V, Chhablani J, Lai TYY. Latest Developments in Polypoidal Choroidal Vasculopathy: Epidemiology, Etiology, Diagnosis, and Treatment. Asia Pac J Ophthalmol (Phila). 2020; 9(3): 260–268.
5. Simão JM, Farinha CV, Marques JP, Nunes S, Pires IM, Cachulo ML, et al. Polypoidal Choroidal Vasculopathy in Caucasians: Morphological Findings from Multimodal Retinal Imaging. Ophthalmologica. 2021; 244(4): 315–325.
6. Chaikitmongkol V, Kong J, Khunsongkiet P, Patikulsila D, Sachdeva M, Chavengsaksongkram P, et al. Sensitivity and Specificity of Potential Diagnostic Features Detected Using Fundus Photography, Optical Coherence Tomography, and Fluorescein Angiography for Polypoidal Choroidal Vasculopathy. JAMA Ophthalmol. 2019; 137(6): 661–667.
7. Cheung CMG, Yanagi Y, Mohla A, Lee SY, Mathur R, Chan CM, et al. CHARACTERIZATION AND DIFFERENTIATION OF POLYPOIDAL CHOROIDAL VASCULOPATHY USING SWEPT SOURCE OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY. Retina. 2017; 37(8): 1464–1474.
8. Cheung CMG, Yanagi Y, Akiba M, Tan A, Mathur R, Chan CM, et al. IMPROVED DETECTION AND DIAGNOSIS OF POLYPOIDAL CHOROIDAL VASCULOPATHY USING A COMBINATION OF OPTICAL COHERENCE TOMOGRAPHY AND OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY. Retina. 2019; 39(9): 1655–1663.
9. Takayama K, Ito Y, Kaneko H, Kataoka K, Sugita T, Maruko R, et al. Comparison of indocyanine green angiography and optical coherence tomographic angiography in polypoidal choroidal vasculopathy. Eye (Lond). 2017; 31(1): 45–52.
10. Srour M, Querques G, Semoun O, El Ameen A, Miere A, Sikorav A, et al. Optical coherence tomography angiography characteristics of polypoidal choroidal vasculopathy. Br J Ophthalmol. 2016; 100(11): 1489–1493.
11. Kim K, Yang J, Feuer W, Gregori G, Kim ES, Rosenfeld PJ, et al. A Comparison Study of Polypoidal Choroidal Vasculopathy Imaged with Indocyanine Green Angiography and Swept-Source Optical Coherence Tomography Angiography. Am J Ophthalmol. 2020; 217: 240–251.
12. Bo Q, Yan Q, Shen M, Song M, Sun M, Yu Y, et al. Appearance of Polypoidal Lesions in Patients With Polypoidal Choroidal Vasculopathy Using Swept-Source Optical Coherence Tomographic Angiography. JAMA Ophthalmol. 2019; 137(6): 642–650.

13. De Salvo G, Vaz-Pereira S, Keane PA, Tufail A, Liew G. Sensitivity and specificity of spectral-domain optical coherence tomography in detecting idiopathic polypoidal choroidal vasculopathy. Am J Ophthalmol. 2014; 158(6): 1228-1238.e1.
14. Liu R, Li J, Li Z, Yu S, Yang Y, Yan H, et al. DISTINGUISHING POLYPOIDAL CHOROIDAL VASCULOPATHY FROM TYPICAL NEOVASCULAR AGE-RELATED MACULAR DEGENERATION BASED ON SPECTRAL DOMAIN OPTICAL COHERENCE TOMOGRAPHY. Retina. 2016; 36(4): 778–786.
15. Son KY, Kim SJ, Kang SW, Choi J, Choi J, Hwang S. RISK OF EXUDATION IN EYES WITH NONEXUDATIVE POLYPOIDAL CHOROIDAL VASCULOPATHY. Retina. 2024; 44(1): 47–55.
16. Puliafito CA. OCT angiography: the next era of OCT technology emerges. Ophthalmic Surg Lasers Imaging Retina. 2014; 45(5): 360.
17. Wang M, Zhou Y, Gao SS, Liu W, Huang Y, Huang D, et al. Evaluating Polypoidal Choroidal Vasculopathy With Optical Coherence Tomography Angiography. Invest Ophthalmol Vis Sci. 2016; 57(9): OCT526-532.
18. Kim JY, Kwon OW, Oh HS, Kim SH, You YS. Optical coherence tomography angiography in patients with polypoidal choroidal vasculopathy. Graefes Arch Clin Exp Ophthalmol. 2016; 254(8): 1505–1510.
19. Tanaka K, Mori R, Kawamura A, Nakashizuka H, Wakatsuki Y, Yuzawa M. Comparison of OCT angiography and indocyanine green angiographic findings with subtypes of polypoidal choroidal vasculopathy. Br J Ophthalmol. 2017; 101(1): 51–55.
20. Inoue M, Balaratnasingam C, Freund KB. OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY OF POLYPOIDAL CHOROIDAL VASCULOPATHY AND POLYPOIDAL CHOROIDAL NEOVASCULARIZATION. Retina. 2015; 35(11): 2265–2274.
21. Rebhun CB, Moult EM, Novais EA, Moreira-Neto C, Ploner SB, Louzada RN, et al. Polypoidal Choroidal Vasculopathy on Swept-Source Optical Coherence Tomography Angiography with Variable Interscan Time Analysis. Transl Vis Sci Technol. 2017; 6(6): 4.
22. Serra R, Coscas F, Boulet JF, Cabral D, Lupidi M, Coscas GJ, et al. PREDICTIVE ACTIVATION BIOMARKERS OF TREATMENT-NAIVE ASYMPTOMATIC CHOROIDAL NEOVASCULARIZATION IN AGE-RELATED MACULAR DEGENERATION. Retina. 2020; 40(7): 1224–1233.
23. Fukuyama H, Iwami H, Araki T, Ishikawa H, Ikeda N, Gomi F. Indocyanine Green Dye Filling Time for Polypoidal Lesions in Polypoidal Choroidal Vasculopathy Affects the Visibility of the Lesions on OCT Angiography. Ophthalmol Retina. 2018; 2(8): 803–807.
24. Tomiyasu T, Nozaki M, Yoshida M, Ogura Y. Characteristics of Polypoidal Choroidal Vasculopathy Evaluated by Optical Coherence Tomography Angiography. Invest Ophthalmol Vis Sci. 2016; 57(9): OCT324-330.
25. Zhan Z, Sun L, Jin C, Yang Y, Hu A, Tang M, et al. Comparison between non-visualized polyps and visualized polyps on optical coherence tomography angiography in polypoidal choroidal vasculopathy. Graefes Arch Clin Exp Ophthalmol. 2019; 257(11): 2349–2356.

Figures

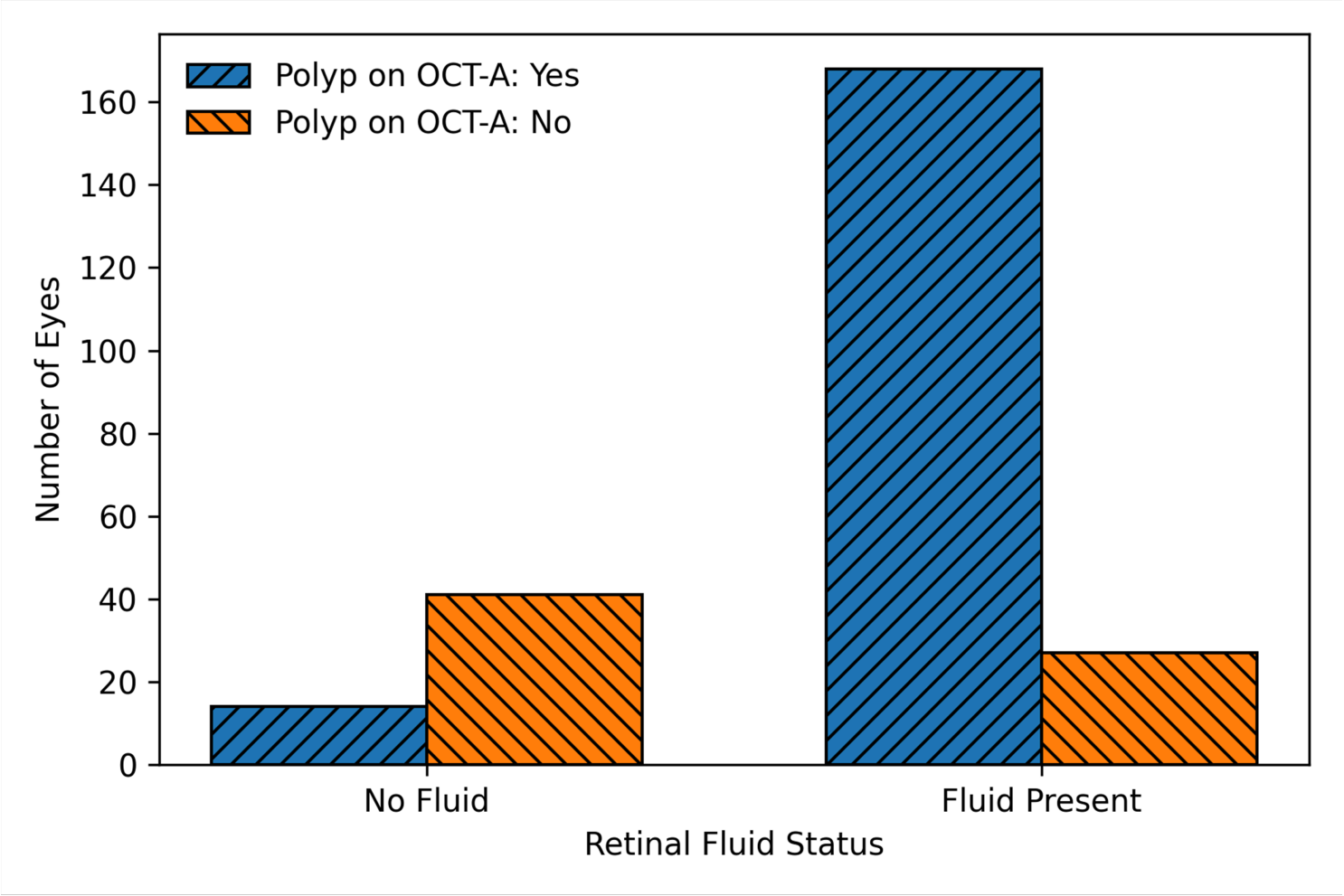


Figure 1

The polyp visualization on OCT-A in the two groups: fluid vs non-fluid.

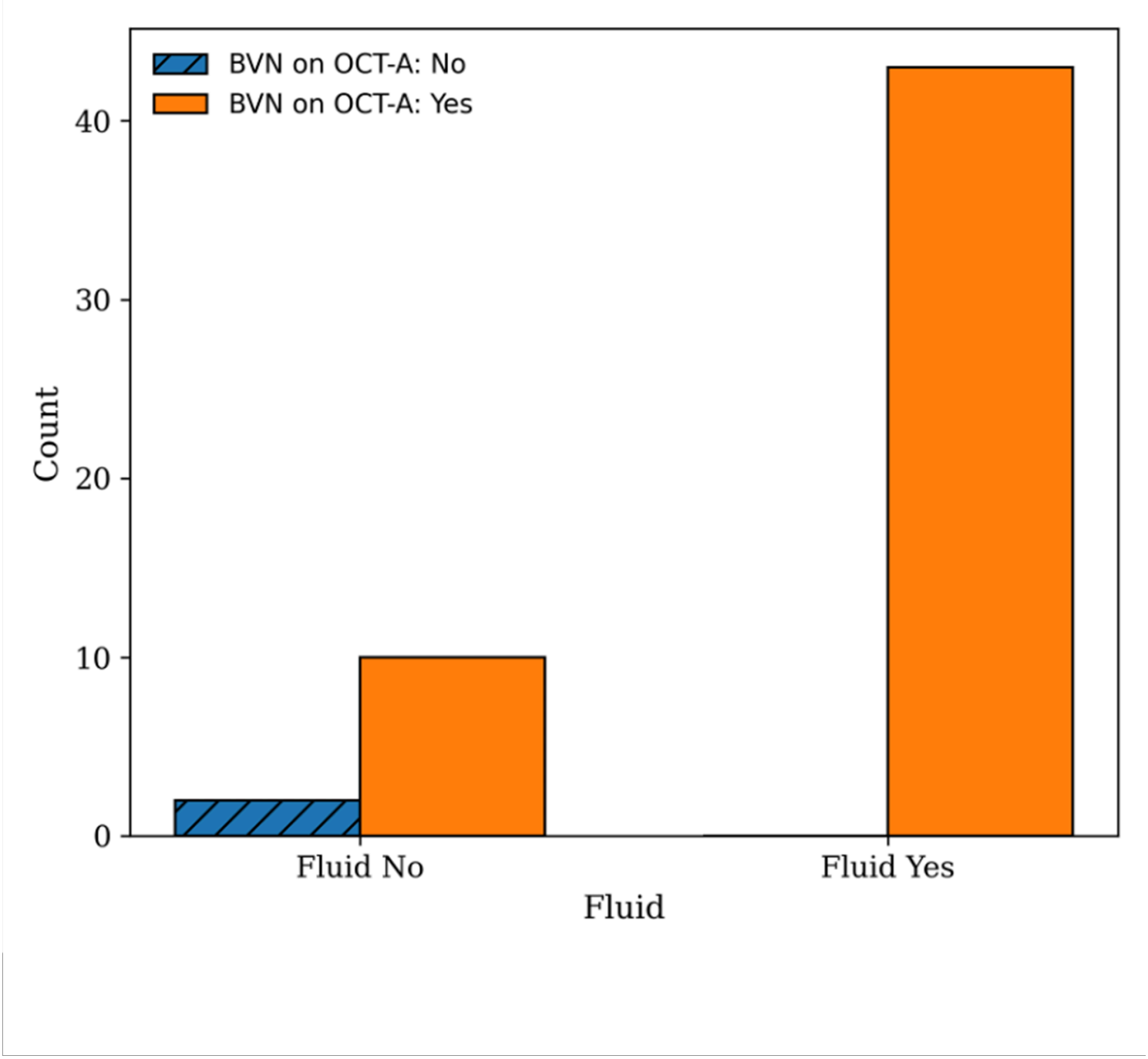


Figure 2

The Branching Vascular Network (BVN) visualization in the two groups: fluid vs non-fluid

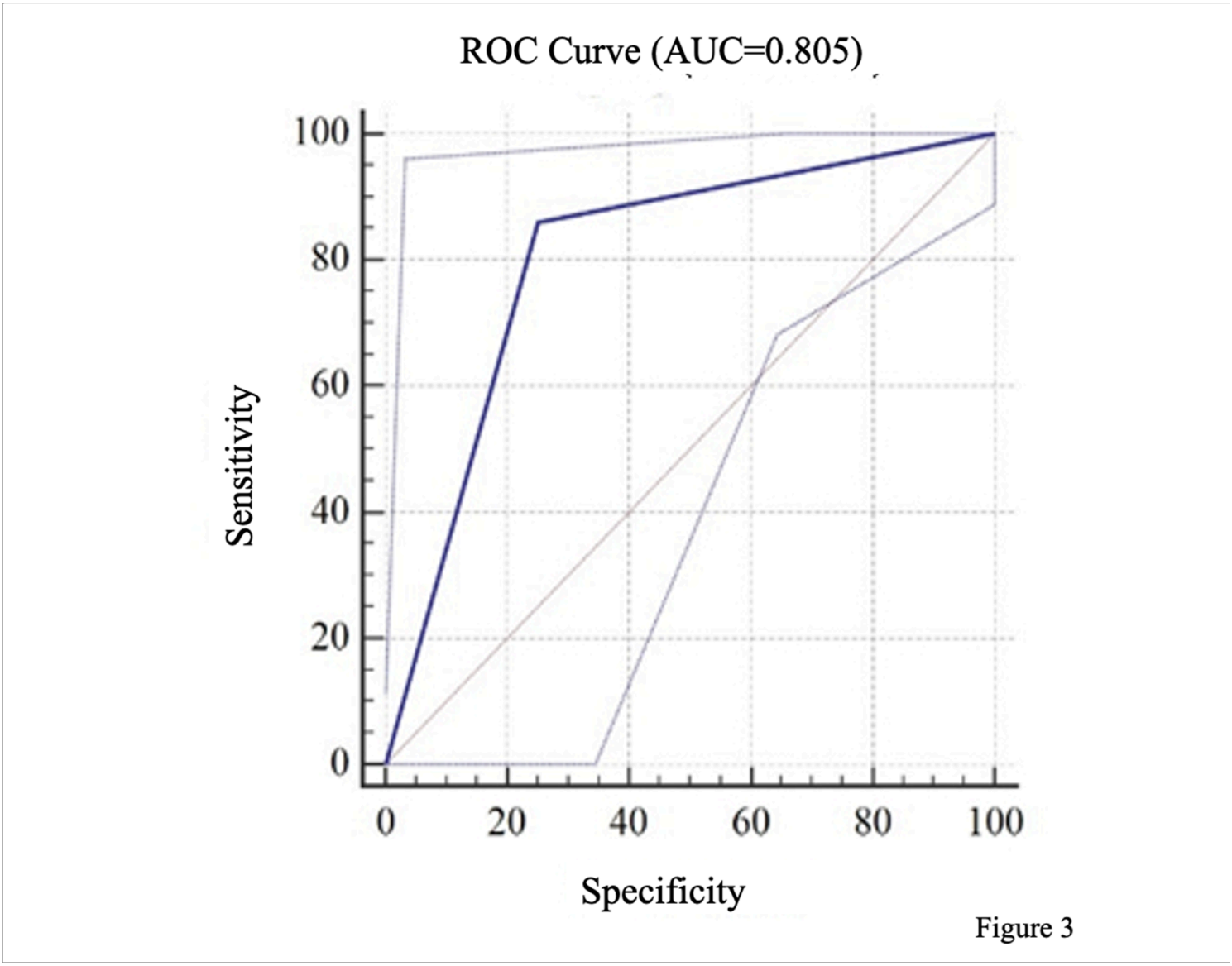


Figure 3

Figure 3

The receiver operating characteristic (ROC) curve shows that the polyp detection on OCT-A is a good index (AUC= 0.805) to indicate the presence of disease activity.