

## Retinal Vascular Tortuosity in Obstructive Sleep Apnea-COPD Overlap Patients

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**Abstract :** Background: OSA and COPD are associated with microvascular changes. Retinal microvasculature can be directly and non-invasively examined. Aim: to evaluate retinal vascular tortuosity in patients with COPD, OSA, and overlap syndrome. Subjects and method: Sixty subjects were included; 15 OSA patients, 15 COPD patients, 15 COPD-OSA overlap patients, and 15 matched controls. They underwent digital retinal photography, polysomnography, arterial blood gases, spirometry, ESS, and stop-bang questionnaires. Results: Tortuosity of most retinal vessels was higher in all patient groups compared to the control group; tortuosity was more marked in overlap syndrome. There was a negative correlation between tortuosity of retinal vessels and PO<sub>2</sub>, O<sub>2</sub> saturation, and minimum O<sub>2</sub> desaturation, and a positive correlation with PCO<sub>2</sub>, AHI, O<sub>2</sub> desaturation index, BMI and smoking index. Conclusion: Retinal vascular tortuosity occurs in OSA, COPD and overlap syndrome. Retinal vascular tortuosity is correlated with arterial blood gases parameters, polysomnographic findings, smoking index and BMI.

**Keywords :** OSA, COPD, overlap syndrome, retinal vascular tortuosity

**Conference Title :** ICBIPRD 2024 : International Conference on Bronchology, Interventional Pulmonology and Respiratory Diseases

**Conference Location :** Berlin, Germany

**Conference Dates :** July 22-23, 2024