Uveitis in tumorji, Friday, May 16 2025, 11:00-12:00 Location: dvorana Grandis Session: Uveitis in tumorji / Uveitis and tumours Chairs: Nataša Vidović Valentinčič and Saša Počkar

OR-035

Beyond Clinical Criteria: Angiographic Differentiation of Ocular Tuberculosis and Sarcoidosis Using Semiautomated Quantitative Analysis

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Purpose: Definitive diagnosis of ocular sarcoidosis (OS) and ocular tuberculosis (OTB) remains challenging despite established clinical criteria, testing protocols, and imaging techniques. These conditions often present with overlapping features that complicate differentiation. While fundus fluorescein angiography (FA) is widely used as a diagnostic adjunct, no standardized quantitative grading systems currently exist to provide objective endpoints. Our study aimed to quantify specific FA imaging characteristics to identify potential biomarkers that could enhance diagnostic accuracy through automated analysis.

Methods: Patients diagnosed with OS and OTB affecting retinal vessels who presented to Manchester Royal Eye Hospital's Uveitis Service between 2016-2022 were identified. Patient selection followed established diagnostic criteria. This was followed by a semi-automated quantitative analysis: ultra-widefield FA (UWF-FA) images were manually delineated using MatLab® to analyze various parameters including: total image area, vasculitis zones (number, length, location), ischemic zones (number, area, location) both inside and outside the arcade, foveal avascular zone (FAZ) area, and leakage patterns. Statistical analysis compared these features between OS and OTB groups using Student's t-test with significance set at p 0.05.

Results: We analyzed 37 patients with OS (14 definite, 5 presumed, 18 probable; 32 percent female; mean age 43 years) and 35 patients with presumed OTB (51 percent female; mean age 49 years). Quantitative analysis revealed the average area of ischemic zones outside the arcade was significantly larger in OTB compared to OS (44.74 vs. 14.64 disc areas; p=0.0018). No other parameters demonstrated statistically significant differences between the groups, including vasculitis zone characteristics, ischemic zones inside the arcade, FAZ area, or leakage patterns on late-frame images.

Conclusion: This novel quantitative analysis of UWF-FA characteristics in OS and OTB identified peripheral non-perfusion as a potential distinguishing biomarker. OTB demonstrated significantly larger areas of peripheral ischemia compared to OS, providing an objective parameter that could enhance existing diagnostic criteria. This finding could be developed into an automated quantification algorithm and machine learning tool to aid differentiation between these clinically similar conditions. By identifying subtle angiographic patterns not apparent on routine clinical examination, this approach may improve diagnostic accuracy in challenging cases of posterior uveitis.

Onkraj kliničnih meril: angiografska diferenciacija očesne tuberkuloze in sarkoidoze z uporabo polavtomatizirane kvantitativne analize

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