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Research Article

Study of Choroid and Retinal Vasculature in Patients Affected by Psoriasis

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ABSTRACT

Psoriasis is a chronic skin disease associated to systemic comorbidities. The link between psoriatic disease and choroidal thickening has been reported. In order to investigate the presence of choroid thickening in psoriatic patients and the correlation between choroid thickening and disease severity, we conducted an observational cross-sectional study on patients with psoriasis and healthy controls, who underwent several examinations to assess their eye health. Choroidal thickness and vascular densities were significantly higher in psoriatic patients. No significant correlation was shown between vascular densities or choroidal thickness, PASI score and psoriasis duration. In conclusion, our study confirms the presence of choroidal thickening in psoriatic patients compared to healthy controls, but this is not necessarily linked to the severity and duration of disease.

Keywords: Psoriasis; Choroid; Choroidal thickness; Retina

INTRODUCTION

Psoriasis is a disabling skin disease frequently linked to comorbidities such as metabolic syndrome, cardiovascular disease, and uveitis. The choroid, a vascular component of the eye, plays a crucial role in supplying oxygen and metabolites. Its thickening is linked to comorbidities such as uveitis and may contribute to psoriasis-related complications [1-3].

MATERIALS AND METHODS

We conducted an observational cross-sectional study of 43 patients with psoriasis and 47 age and sex-matched healthy controls from February to April 2022 to examine an increase in choroid thickening and a correlation between choroid thickening and disease severity, measured with the Psoriasis Area and Severity Score (PASI), or disease duration. Patients undergoing a systemic treatment for psoriasis were excluded from the study, while topical treatments were permitted [4,5].

Patients underwent several examinations to assess their eye health. These examinations include a measurement of their Best Corrected Visual Acuity (BCVA) using the logarithmic optometric table ETDRS (Early Treatment for Diabetic Retinopathy Study), a slit-lamp examination of the anterior segment, a measurement of intraocular pressure using Goldmann applanation tonometry, a fundus oculi examination, and the detection of biometric parameters using the OA-2000 optical biometer (Tomey Corporation, Nishi-Ku, Nagoya, Aichi-ken, Japan). Patients may also undergo optical coherence tomography using SS-OCT and SS-OCTA (Topcon Corporation, Tokyo, Japan) [6].

RESULTS

A summary of the demographic, clinical and eye examination of the participants is provided in Table 1.

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Table 1: Demographic and clinical characteristics of psoriasis patients and controls.

	Psoriasis (n=43)	Healthy controls (n=47)	P value
Age (years), mean ± SD	44.7 ± 15.0	46.4 ± 17.8	0.74
Sex (male:female)	24:19:00	19:28	0.14
BVCA (logMAR), mean ± SD	0.06 ± 0.08	0.00 ± 0.01	<0.01
Spheric equivalent (D), mean ± SD	0.03 ± 1.34	-0.5 ± 2.12	0.78
IOP (mmHg), mean ± SD	13.8 ± 2.23	12.6 ± 2.40	0.02
AL (mm), mean ± SD	23.7 ± 0.98	24.0 ± 1.19	0.15
CCT (μm), mean ± SD	530 ± 83.7	532 ± 43.0	0.16
K medio (D), mean ± SD	43.7 ± 9.23	43.2 ± 2.00	0.47
Psoriasis duration, mean ± SD (years)	13.42 ± 8.99	n/a	n/a
PASI score, mean ± SD	2.16 ± 3.25	n/a	n/a

Note: n/a=not applicable

Among psoriatic patients, the mean PASI score was 2.16 ± 3.25 and the mean disease duration was 13.42 ± 8.99 years. Choroidal thickness was significantly higher in psoriatic patients (264 ± 65.7 μm *vs.* 232.8 ± 74.6 μm, p=0.04. Vascular densities were higher in psoriatic patients in all circles considered (Table 2) [7-9].

Table 2: Vascular density in the superficial retinal capillary plexus and choroidal plexuses at OCT-A in psoriatic patients and healthy controls.

Vascular density	Psoriasis (n=43)	Healthy controls (n=47)	P value
SCP (%), mean ± SD	42.6 ± 2.35	41.2 ± 3.21	0.04
Choroid L1 (%), mean ± SD	52.6 ± 2.18	51.0 ± 3.10	<0.01
Choroid L2 (%), mean ± SD	52.7 ± 2.90	50.9 ± 4.42	0.02
Choroid L3 (%), mean ± SD	50.5 ± 4.10	47.3 ± 6.95	0.01

No significant correlation was shown between vascular densities or choroidal thickness PASI score and psoriasis duration (Table 3).

Table 3: Spearman's Rho correlation coefficient between vascular densities in the various levels analysed and PASI scores and years of disease.

	PASI score	Psoriasis duration
SCP density	0.16	-0.17
Choroid L1	-0.08	-0.02
Choroid L2	0	-0.09
Choroid L3	-0.05	-0.19
Choroidal thickness	-0.03	-0.18

DISCUSSION

The link between psoriatic disease and choroid thickening has been well-established. Research has shown a correlation between choroid thickening and the PASI score, which means that the more severe the disease, the thicker the choroid. Even patients without signs of posterior uveitis can experience choroidal thickening, especially if they have severe psoriatic disease and a high PASI score.

Our study confirms the association between choroidal thickening and psoriasis. However, unlike in previous studies, choroidal thickening was not correlated to disease severity and duration.

CONCLUSION

In conclusion, our study confirms the presence of choroidal thickening in psoriatic patients compared to healthy controls, but this is not necessarily linked to the PASI value and duration of disease. Therefore, other underlying factors may contribute to choroidal thickening in psoriatic patients. Further studies are needed to understand these factors and to prevent ocular complications.

CONFLICT OF INTEREST

The authors declare no conflict of interest for this article.

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