Ocular manifestations in patients with systemic sclerosis

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Background: Systemic sclerosis (SSc) is a connective tissue disease with heterogeneous manifestations. It affects different organs and therefore requires inter-disciplinary diagnostic and therapeutic management.

Objectives: The aim of this study is to evaluate the frequency and characteristics of ophthalmic manifestation in patients with systemic sclerosis.

Methods: The study involved 31 patients with SSc. All the study subjects underwent complete ophthalmological examination involving visual acuity assessment, examination of anterior and posterior eye segments, Schirmer I test, diameter and mobility of pupils, as well as eyelid mobility assessment of intracocular pressure and ultrasound assessment of vitreous body. Data regarding age, gender, SSc subtype, disease duration, age at diagnosis, nailfold capillaroscopic pattern, systemic corticosteroid or chloroquine use, blood pressure, ocular symptoms and detailed ophthalmic history were recorded.

Results: 31 patients (3 male, 28 female, mean age 42.7 ± 14.3 years; mean disease duration 10.3±8.1 years) were enrolled in this study. 7 (22.58%) of them had no ophthalmic symptoms. Among the patients with ophthalmic symptoms, 20 (64.52%) complained of decreased vision, 13 (41.93%) - of glare, 14 (45.16%) - of burning, 8 (25.81%) - of eye fatigue, 4 (12.90%) - of pain, 4 (12.90%) - of foreign body sensation, 16 (51.61%) - of dry eye, 5 (52.03 %) -photophobia, 2 (6.45 %) - of foaters, 10 (32.62 %) - of redness. Hardening and thickening of palpebral skin was noted in 27 (87.10 %) patients. Ophthalmological examination revealed higher incidence of the following abnormalities in the study group: myopic astigmatism - in 20 (62.95 %) eyes, vascular abnormalities within fundus - in 24 (77.41 %) eyes, increased intracocular pressure (> 21 mm Hg) - in 13 (20.97 %). Mean IOP values were 18.21 ± 4.2 mm Hg.Eyelid telangiectasias was noted in 9 (29.03 %) patients, chronic blepharitis - in 13(41.94 %). Lens opacity was found in 16 (51.61 %) patients (27 eyes), mostly in the form of posterior subcapsular cataract (in 20 eyes), nuclear cataract (in 6 eyes) and cortical cataract appearing as focal cystic opacities (in 1 eye). The mean age of patients with cataracts was 49.2 ± 12.3 years (11.4 years older than patients without cataracts). Additionally, 14 of the patients with cataracts were either currently taking or had previously taken systemic corticosteroids. Superficial conjunctival hyperaemia was noted in 20 (64.52 %), and varicolous dilatation of subconjunctival and episcleral blood vessels in 9 (29.03 %) and 7 (22.58 %) patients, respectively. In 9 eyes (14.52 %) foci of pigment epithelium were found peripherally on the optic disc, in 6 (9.68 %) eyes - thinning of choroidal capillaries and retinal pigment epithelium, in 8 (12.90 %) - ischemic areas surrounded by microaneurysms and intraretinal extravasation, dilatation of the vessel-free fovea, conjunctival fibrosis - in 8 (25.81 %) patients. In 25 eyes Schirmer I test results were below 10 mm, and in 7 eyes - below 5 mm. Eyelid stiffness was associated with difficulty in lid eversion and a woody texture upon palpation. Comparing patients with and without eyelid stiffness, we found that the mean age and the age at diagnosis were significantly lower in the former group (p < 0.01 and p < 0.05, respectively). The diffuse subtype was more prevalent among pts with eyelid skin changes (p < 0.05).

Conclusion: In patients with SSc numerous abnormalities within the vision of organ may be found. Ocular symptoms are relatively common complications of SSc, and may result in serious, irreversible changes in the organ of vision. Regular ophthalmological examinations are essential among the patients with SSc.

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IL-1b, IL-5, IL-6, IL-8, IL-17, TNF, Eotaxin) and markers of nutrition (specifically total protein, albumin, insulin and C-peptide) and lipid metabolism (specifically triglycerides, high-density lipoprotein, apolipoprotein A, atherogenic index of plasma) were significantly associated with alterations of body composition in patients with SSc (p<0.05 for all correlations).

**Conclusion:** Compared to healthy age-/sex-matched individuals we found significant negative changes in body composition of our SSc patients, which are associated with the disease activity and physical activity, and could reflect their nutritional status, and gastrointestinal and musculoskeletal involvement. Detected alterations of body composition in SSc patients were significantly associated with several inflammatory cytokines/chemokines and markers of nutrition and lipid metabolism, which might further support the role of systemic inflammation and nutritional status on the negative changes in body composition of SSc patients

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**FR0256 ADVANCED MICROCIRCULATORY DAMAGE IS ASSOCIATED WITH INCREASED PULSE WAVE REFLECTIONS IN PATIENTS WITH SSc**

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**Background:** In systemic sclerosis (SSc), inflammation and microvascular damage are fundamental in the progressive fibrotic process. Although the presence of accelerated atherosclerosis in SSc is well described as in other systemic disorders namely rheumatoid arthritis, it appears that individuals suffering from the disease are at higher risk for cardiovascular events. Nailfold Video Capillaroscopy (NVC) is a non-invasive and reproducible imaging technique of the capillary vascular bed, used in the evaluation of microvascular involvement in SSc. Previous data on the association between micro- and macrovascular damage are scarce.

**Objectives:** The aim of this study was to examine the association between micro- and macrovascular involvement in patients with SSc.

**Methods:** This is a cross-sectional study including consecutive SSc patients attending to a Scleroderma Outpatient Clinic between March and September 2018. All the study participants underwent NVC and the findings were classified according to the relevant guidelines. Aortic blood pressure (BP), heart rate adjusted augmentation index [AIx(75)] and carotid-femoral pulse wave velocity (PWV) were evaluated with applanation tonometry (Sphygmocor).

**Results:** Sixty-four (95.3%) women SSc individuals with mean age 57±4±12.99 years were included in this analysis. AIx(75) was significantly associated with PWV (r=0.261; p=0.038) and inversely associated with the number of capillaries (r=-0.271; p=0.030) suggesting a link between the degree of microvascular disease and arterial stiffening. Regarding SSc-specific NVC patterns, AIx(75) were marginally lower in patients with early compared to active or late patterns (25.9±11.27 vs 32.50±11.77 vs 31.62±10.32; p=0.081 and p=0.083) confirming a trend between progressive microvascularopathy and arterial stiffness. Mean cIMT was negatively correlated with enlarged capillary loops. Brachial or aortic systolic BP (SBP) and pulse pressure (PP) levels were not correlated with any of the studied NVC parameters.

**Conclusion:** Microvascular vasculopathy is associated with higher wave reflections, indicating an association between atherosclerotic disease and microvascular injury in SSc patients. Such observations may provide possible explanations for the excessive cardiovascular and mortality risk in this population.

**References:**

[1] Soulaipoudou, S., Pagkopoulos, E., Katsiki, N. et al. Arterial stiffness correlates with progressive nailfold capillary microscopic changes in systemic sclerosis: results from a cross-sectional study. Arthritis Res Ther 21, 253 (2019)

[2] Jang K-H, Lim MJ, Kwon SR, Kim D, Joo K, Park W. Nailfold capillary microscopic changes and arterial stiffness in Korean systemic sclerosis patients. Mod Rheumatol. 2015;25:328–31.

[3] Avilia-zubieta JA, Man A, Yurkovich M, Huang K, Sayre EC. Early cardiovascular disease after the diagnosis of systemic sclerosis. Am J Med. 2015;129:324–31

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**FR0257 CAPILLAROSCOPIC VERY EARLY MORPHOLOGICAL AND QUANTITATIVE SPECIFIC ABNORMALITIES ANTICIPATE THE DEVELOPMENT OF THE “SCLERODERMA PATTERN” IN PATIENTS WITH RAYNAUD’S PHENOMENON**

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**Background:** Nailfold videocapillaroscopy (NVC) abnormalities in subjects with isolated Raynaud’s phenomenon (RP) may be present before transition to secondary RP (SRP) and development of a NVC “scleroderma pattern” and are known to predict for evolution to a connective tissue disease (CTD) within few years [1]. In a previous study, we have demonstrated that the very early increase of capillary diameter over 30 μm is an independent predictor for development of Systemic Sclerosis (SSc) associated SRP [2].

**Objectives:** Present pilot retrospective study aimed to investigate in a cohort of patients affected by CTD-related RP the presence of very early capillaroscopic morphological and quantitative abnormalities in the acquired pictures of NVC performed before the development of the NVC scleroderma-pattern. In particular, the study was addressed to identify a “very early” scleroderma pattern, in order to intercept patients with RP at high risk of evolution in a CTD, specifically SSc.

**Methods:** We selected the NVCs of 273 SSc patients presenting one of the validated NVC “scleroderma pattern.” We enrolled 26 SSc patients having a NVC analysis performed before the development of the “very early” NVC pattern. As controls, we evaluated 26 patients affected by other CTDs with stable non-scleroderma pattern over time. The 16 images per patient obtained by NVC examination were analyzed for total number of capillaries, number and the limbs diameters of capillaries with a diameter >30 μm, and microhemorrhages. Statistical analysis was performed using non-parametric tests.

**Results:** All 26 SSc patients showed dilated capillaries with a diameter >30 μm in their previous NVC. Patients later developing scleroderma pattern had statistically higher number and percentage of capillaries with a diameter >30 μm (p=0.004 and p=0.005), as well as a larger apical dilation >40 μm (p=0.002). A progressive and significant increase in all capillary diameters were only detected in patients later diagnosed for SSc (apical p=0.006, venous p=0.02, arterial p=0.03). A significant homogeneous and progressive dilation was observed from the apical region and then involving both venous and arterial branches, only in SSc patients (p=0.002).

**Conclusion:** Present pilot study demonstrates, for the first time that, before to develop a validated NVC scleroderma-pattern, all potential SSc patients present significant very early morphological and quantitative NVC changes. In particular, the progressive and homogeneous capillary loop dilation over 40 μm in over 40%...