to recognise new aspects of one's own illness and they can be used to give support to people in different stages of their illness. Participants felt that forming groups and increasing cooperation between trained coaches and local associations need to be supported by the umbrella organisation, Finnish Rheumatism Association. Tools for Mind have successfully been used in a Fibromyalgia group and in senior groups for veterans (who did not have any RMDs).

Conclusion: The Finnish Rheumatism Association is creating new activities to endorse mental wellbeing. The training in 2018 will be used as a model for training coaches in mental wellbeing and it will be introduced in member organisations in 2019. Four training sessions will be arranged around Finland in the spring 2019. The programme will follow the pilot project programme. Training includes learning how to use the tools for mental wellbeing, going through the elements of mental wellbeing, solution-focused practices, organising peer support groups for old people with chronic illnesses and ethical principles. If possible, it is always good to have a trained Coach in the training, to tell about his/her experiences of using the Tools for Mind, how people have reacted to using the tools, and what kind of challenges and good moments the coach has experienced in group work. In 2019, the tools are utilised for example in monthly tasks concerning mental wellbeing and the Senior Mind Pack of 52 cards are being used in the member organisation visits to start conversation.

REFERENCE:

- [1] https://www.ikainstituutti.fi/content/uploads/2018/05/Improving-older-people-mental-wellbeing_hires.pdf

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THURSDAY, 13 JUNE 2019

Diagnostic challenges in vasculitis

OP0210

FALSE POSITIVES OF ULTRASOUND IN GIANT CELL ARTERITIS. SOME DISEASES CAN ALSO HAVE HALO SIGN

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Background: Giant cell arteritis (GCA) is the most common systemic vasculitis in the elderly. The halo sign has been shown as an accepted valid test in the diagnosis of GCA in trained units¹⁻². However, to further improve the specificity, the sonographer should know some pathologies that can mimic halo signs since they also produce a hypoechoic increase of the arterial wall thickness.

Objectives: The aim of our study was to identify the causes and diseases that could be associated with the false positive diagnoses of GCA made by color Doppler ultrasound (CDUS).

Methods: Observational study of 305 patients with temporal artery CDUS findings compatible with GCA. The medical histories of these patients were reviewed and demographic, physical examination, clinical and analytical data were collected. The clinical diagnosis based on the long term follow-up of the patient was established as the definitive true diagnosis.

Results: 13 of the 305 cases included (4.3%) were false positives. The characteristics of these 13 patients and their final diagnoses are shown in table 1. 69.2% were women, while 30.8% were men. The mean age was 73.3 ± 8.0 years. Analytically, the mean ESR was 64.8 ± 42.3 mm/h, CRP 50.8 ± 60.0 mg/L and hemoglobin 12.6 ± 2.0 g/dL. Five patients (38.5%) fulfilled the ACR GCA classification criteria and eight did not (61.5%). A temporal artery biopsy was performed in 8 of the 13 patients (61.5%), with negative results in all of them. Eleven patients had CDUS involvement of superficial temporal arteries. Five had 1 branch involved (38.5%), three 2 branches (23.1%), one 3 branches (7.7%) and two 4 branches (15.4%). In addition, two patients (15.4%) had isolated halo sign in the axillary arteries, one unilateral and the other bilateral. Regarding the definitive diagnosis, four patients were polymyalgia rheumatica (30.8%), three atherosclerosis (23.1%), and there was one case of non-Hodgkin's Lymphoma type T, osteomyelitis of the skull base, primary amyloidosis associated with multiple myeloma, granulomatosis with polyangiitis, urinary sepsis and narrow-angle glaucoma. Some of these cases were false positives probably due to exam errors. However, others were due to diseases that increase the arterial wall thickness probably caused by cell infiltration and related edema (as Hodgkin's Lymphoma type T and ANCA-associated vasculitis) or by hypoechoic material deposit (as atherosclerosis and primary amyloidosis/multiple myeloma).

Table 1. Final diagnoses for false positive halo signs and associated ultrasound findings

Patient	Definitive diagnosis	Biopsy result	Artery involved	Number of arterial branches
1	Non-Hodgkin's T lymphoma	Negative	Temporal	3
2	Narrow-angle glaucoma	No done	Temporal	1
3	Osteomyelitis of the skull base	No done	Temporal	4
4	Polymyalgia rheumatica	Negative	Temporal	2
5	Urinary sepsis	Negative	Temporal	1
6	Polymyalgia rheumatica	Negative	Temporal	1
7	Polymyalgia rheumatica	Negative	Temporal	1
8	Amyloidosis due to multiple myeloma	Negative (deposit of amyloid material)	Temporal	4
9	Atherosclerosis	No done	Axilar	
10	Atherosclerosis	No done	Axilar	
11	Polymyalgia rheumatica	Negative	Temporal	1
12	Atherosclerosis	Negative	Temporal	2
13	ANCA-associated vasculitis	No done	Temporal	2

Conclusion: The percentage of false positives in the CDUS for the diagnosis of GCA is low. Nevertheless, some other diseases can also produce halo sign and the clinician should be aware of this to improve the accuracy of the ultrasound test.

REFERENCES:

- [1] Chrysidis S, et al. Definitions and reliability assessment of elementary ultrasound lesions in giant cell arteritis: A study from the OMERACT large vessel vasculitis ultrasound working group. *RMD Open*. 2018;4(1):1–9.
 [2] Aranda-Valera IC, et al. Diagnostic validity of Doppler ultrasound in giant cell arteritis. *Clin Exp Rheumatol*. 2017;35(1):123–7.

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OP0211

ULTRASONOGRAPHY CAN POTENTIALLY BE THE FIRST CHOICE OF IMAGING IN SUSPECTED EXTRA-CRANIAL GCA

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Background: Color duplex ultrasonography (CDU) is recommended as first line of imaging in patients suspected for cranial GCA [1]. However, extra-cranial involvement without temporal artery involvement is found in up to 40% of GCA patients [2]. CDU is very suitable to also assess extra-cranial artery inflammation, of which the axillary artery is relatively easy to assess. However, data on the value of CDU in extra-cranial GCA is limited [3].

Objectives: We aimed to (1) evaluate the performance of axillary artery CDU in patients with extra-cranial GCA by comparing CDU findings with [18F]-FDG PET/CT findings. Furthermore, to (2) compare the sensitivity and specificity of adding assessment of axillary arteries to temporal artery CDU, over temporal artery CDU only.

Methods: Consecutive patients suspected of GCA who underwent CDU examination of the temporal and axillary arteries between 2013 and 2017 were

retrospectively included. The presence of a halo or occlusion was considered a positive CDU finding for GCA. In patients with PET-proven extra-cranial GCA, an axillary FDG uptake higher than liver uptake was considered positive. The reference was the clinical diagnosis (GCA or not) after 6 months.

Results: Of the 113 included patients, GCA was diagnosed in 41 and excluded in 72 patients at 6 months reference. PET-proven extra-cranial involvement was present in 20/41 GCA patients, of which 13 showed axillary involvement. An axillary halo was found in 8/13 of these patients, consistent with an increased FDG uptake. In 5/13, axillary involvement on PET was missed with axillary CDU (1/5 on steroids). However, in 4/5 of these an halo was found in the temporal arteries. Additionally, 6/20 patients with extra-cranial involvement did not show axillary involvement on both CDU and PET. All 6 had isolated involvement of a single artery on PET (2 aorta; 4 vertebral). CDU found a temporal halo in 3 of them. Overall, CDU of only the temporal arteries resulted in a sensitivity of 52% (95CI 35-67) and a specificity of 93% (95CI 84-97) for the reference diagnosis at 6 months. Adding CDU results of axillary arteries improved sensitivity to 71% (95CI 55-84), while specificity did not change. Although not systematically assessed, adding CDU assessment of the subclavian arteries improved sensitivity to 76% (95CI 59-87).

Conclusion: In case of an axillary halo no further FDG PET/CT scanning is required to diagnose extra-cranial GCA. In this study, investigation of both temporal and axillary arteries substantially increased the diagnostic performance of CDU. Furthermore, CDU and FDG PET arterial involvement is not always congruent, and occasionally arterial involvement is restricted to vessels not systematically assessed with CDU in our center. In patients in whom the axillary CDU is negative, a targeted CDU of selected vessels (e.g. subclavian, carotid or vertebral), or an FDG PET/CT is mandatory.

REFERENCES:

- [1] DeJaco C, Ramiro S, Duftner C, et al. EULAR recommendations for the use of imaging in large vessel vasculitis in clinical practice. *Ann Rheum Dis.* 2018;77(5):636-643.
- [2] Schmidt WA, Seifert A, Gromnica-Ihle E, et al. Ultrasound of proximal upper extremity arteries to increase the diagnostic yield in large-vessel giant cell arteritis. *Rheumatology (Oxford).* 2008;47(1):96-101.
- [3] Duftner C, DeJaco C, Sepriano A, et al. Imaging in diagnosis, outcome prediction and monitoring of large vessel vasculitis: A systematic literature review and meta-analysis informing the EULAR recommendations. *RMD Open.* 2018;4(1):e000612-2017-000612. eCollection 2018.

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THURSDAY, 13 JUNE 2019

Difficult to manage Sjögren's syndrome and Myositis

OP0212

DIGESTIVE INVOLVEMENT IN PATIENTS WITH PRIMARY SJÖGREN SYNDROME FROM THE SJÖGRENSER SPANISH REGISTRY

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Background: Primary Sjögren's syndrome (pSS) is a systemic autoimmune disease characterized by lymphocytic infiltration of the exocrine glands. Among the extraglandular manifestations, digestive involvement (DI) is frequent, and may condition the quality of life of these patients. There are few studies that systematically analyze gastrointestinal involvement in pSS.

Objectives: To describe the prevalence of DI in patients with pSS included in SJÖGRENSER Spanish registry and the phenotype of these patients, and to analyze their association with other clinical manifestations, serological markers, activity index and treatments used.

Methods: Transversal multicenter study that includes all patients of SJÖGRENSER registry (patients who meet 2002 pSS classification criteria), a study conducted in 33 units of rheumatology in Spain between 2014-2016, which collected demographic and clinical and serological data (1). Patients were classified according to the presence of DI (that included esophagus, stomach, intestine, liver and pancreas). A descriptive analysis was done, with means and standard deviations, frequencies and proportions. Student t for quantitative variables and Chi2 for qualitative ones were performed to evaluate differences between groups. The association of DI with other variables was analyzed by bivariate and multivariate binomial logistic regression analysis. In the multivariate model all variables with p < 0.2 in the bivariate were included, and the effect of age and sex was controlled.

Results: From 437 patients included (95% women, median age of 58 years), 59 (13.5%) had some DI (21 (36%) chronic atrophic gastritis, 12 (20%) esophageal dysmotility, 3 (5%) lymphocytic colitis, 23 (39%) other). 54% of patients developed DI at the time of pSS diagnosis or later, and 45% before the diagnosis, with a mean age of 49 years at the onset of pSS symptoms. Patients with DI were older, both at diagnosis, onset of pSS symptoms and inclusion in the cohort, than those without it. There were no differences in the ESSDAI index between both groups. Comparison regarding clinical and serological characteristics is shown in Table 1. Patients with DI had more thyroid involvement and C3 hypocomplementemia. In addition, patients with DI had been treated more frequently with glucocorticoids and immunosuppressants.

In the multivariate analysis, DI was significantly associated with older age at diagnosis (OR 1.03 (1.00-1.05); p=.005), more C3 hypocomplementemia (OR 2.40 (1.10-5.26) p=.027) and absence of anti-Ro antibodies (OR 0.33 (0.12-0.87) p=.025).

Conclusion: In patients with pSS from the SJÖGRENSER cohort, the prevalence of digestive involvement is 13.5%. These patients are older at diagnosis, have more C3 hypocomplementemia and negative anti-Ro antibodies. These patients need more frequently glucocorticoids and immunosuppressants, suggesting a more severe disease phenotype.

REFERENCE:

- [1] Fernandez Castro M, *Reum Clin* 2016; 12:184-9

	WITH DI (n=59; 13.5%)	WITHOUT DI (n=378; 86%)	P value
Age symptoms pSS onset	49 ± 13	45 ± 13	0.006*
Age diagnosis pSS	54 ± 12	49 ± 12	0.008*
Age cohort inclusion	62 ± 10	58 ± 13	0.036*
sex	57F (96%), 2M	359F (95%), 19M	0.585
Glandular involvement	23 (39%)	119 (31%)	0.253
Lung involvement	9 (15%)	34 (9%)	0.121
Thyroid involvement	13 (22%)	66 (17%)	0.017*
Raynaud	17 (28%)	75 (19%)	0.116
anti-Ro antibodies	52 (88%)	357 (94%)	0.066
Hypocomplementemia C3	14 (25%)	51 (14%)	0.034*
Hypocomplementemia C4	12 (21%)	50 (14%)	0.131
Glucocorticoid treatment	36 (63%)	177 (47%)	0.026*
DMARD treatment	36 (64%)	180 (49%)	0.035*

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OP0213

MYOFASCIA-DOMINANT: INFLAMMATION DETECTED ON WHOLE BODY MRI PREDICTS RAPIDLY PROGRESSIVE INTERSTITIAL LUNG DISEASE IN PATIENTS WITH DERMATOMYOSITIS

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Background: Rapidly progressive interstitial lung disease (RPILD) is a major cause of death in patients with dermatomyositis (DM). Early diagnosis and aggressive immunosuppressive therapy are required in RPILD to improve the prognosis. Clinically amyopathic dermatomyositis (CADM) and anti-melanoma differentiation-associated gene 5 antibody are known as the risk factors for RPILD. However, 70% of the patients with CADM do not develop RPILD¹. Whole-body magnetic resonance imaging (WB-MRI) can detect inflammation of whole muscle and myofascia. Although recent studies have indicated that MRI could be