UCB (consultant, clinical trials, advisor), Christopher Edwards Grant/research support from: Abbvie, Biogen, Roche, Consultant of: Abbvie, Samsung, Speakers bureau: Abbvie, BMS, Biogen, Celgene, Fresenius, Gilead, Janssen, Lilly, Mundipharma, Pfizer, MSD, Novartis, Roche, Samsung, Sanofi, UCB, Elizabeth Hensor: None declared, Edward Vital Grant/research support from: AstraZeneca, Roche/Genentech, and Sandoz, Consultant of: AstraZeneca, GSK, Roche/Genentech, and Sandoz, Speakers bureau: Becton Dickinson and GSK
DOI: 10.1136/annrheumdis-2020-eular.2160

OP0180

DIAGNOSTIC VALIDITY OF ULTRASOUND INCLUDING EXTRA-CRANIAL ARTERIES IN GIANT CELL ARTERITIS

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Background: Giant cell arteritis (GCA) is a chronic vasculitis of the medium and large arteries. The involvement of large vessel (LV) either isolated or associated with cranial artery is frequent, so it is necessary to use imaging techniques for diagnosis, because the biopsy in these cases is not useful. European League Against Rheumatism (EULAR) recommends an early imaging test in patients with suspected GCA, and ultrasound of temporal/axillary arteries is recommended as the first imaging modality in patients with suspected predominantly cranial GCA (1).

Objectives: To assess the validity of Colour Doppler ultrasound (CDUS) of temporal superficial arteries (TA) and LV (axillary, subclavian and carotid) in the diagnosis of GCA, using as gold standard the patient's definitive clinical diagnosis. Analyse if routine ultrasound examination of LV improves the diagnostic accuracy.

Methods: This was an observational, descriptive and analytical study of 198 consecutive patients with GCA suspicion. A baseline CDUS of the TA and LV was performed. Ultrasound diagnosis was made according to the OMERACT (Outcome Measures in Rheumatology) definitions of halo sign and was established as a limit of average intimal thickness ≥ 0.34 mm for superficial temporal arteries and ≥ 1 mm for axillary, subclavian and carotid arteries. Statistical analysis was performed using SPSS version 25.

Results: Eighty-seven patients (43.9%) were CDUS compatible with GCA, and 111 patients (56.1%) had a negative CDUS. Among the patients with positive CDUS three different patterns were detected: 45 patients (51.7%) had an exclusive cranial involvement, 31 (35.6%) had a mixed pattern with involvement of both TA and LV and 11 (12.6%) had an exclusive LV involvement. The validity (sensitivity and specificity) and security (positive predictive value and negative predictive value) of diagnostic are shown in table.

When we analyse patients with LV involvement, 87.8% have axillary artery involvement, 77.4% subclavian involvement and 34.4% carotids involvement. If we only explored the axillary arteries, 12.2% of patients with LV involvement would not be diagnosed. However, if we explored axillary and subclavian arteries, 100% of patients with LV involvement would be diagnosed.

Conclusion: Half of the patients with GCA have LV involvement and up to 12.8% exclusively LV affection in our series. Adding CDUS exploration of LV arteries to TA increases both sensitivity and diagnostic specificity. The minimum ultrasound examination of LV should include both axillary and subclavian arteries.

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	Sensitivity	Specificity	Positive predictive value	Negative predictive value
CDUS TA and LV	97,7%	97,3%	96,6%	98,2%
CDUS TA	83,9%	97,3%	96,1%	88,5%

Disclosure of Interests: Irene Monjo: None declared, Elisa Fernández: None declared, Diana Peiteado: None declared, Alejandro Balsa Grant/research support from: BMS, Roche, Consultant of: AbbVie, Gilead, Lilly, Pfizer, UCB, Sanofi,

Sandoz, Speakers bureau: AbbVie, Lilly, Sanofi, Novartis, Pfizer, UCB, Roche, Nordic, Sandoz, Eugenio de Miguel Grant/research support from: Yes (Abbvie, Novartis, Pfizer), Consultant of: Yes (Abbvie, Novartis, Pfizer), Paid instructor for: yes (Abbvie, Novartis, Pfizer, MSD, BMS, UCB, Roche, Grunental, Janssen, Sanofi), Speakers bureau: yes (Abbvie, Novartis, Pfizer, MSD, BMS, UCB, Roche, Grunental, Janssen, Sanofi)

DOI: 10.1136/annrheumdis-2020-eular.5036

OP0181

FUNCTIONAL CUT-OFFS TO DISTINGUISH PULMONARY VASCULAR AND PARENCHYMAL INVOLVEMENT IN SYSTEMIC SCLEROSIS (SSC): A QUANTITATIVE ANALYSIS OF IMAGING FEATURES AT CHEST COMPUTED TOMOGRAPHY (CT)

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Background: Interstitial lung disease (ILD) and pulmonary arterial hypertension represent the most frequent causes of morbidity and mortality in SSC, with chest CT representing the gold standard in ILD assessment, while FVC and DLco allow functional assessment.

Objectives: As qualitative analysis of given chest CT scans is hampered by low reproducibility, we aimed to perform a quantitative analysis (QA) of CT scans able to investigate the parenchymal and vascular features in SSC-ILD and thus testing the relationship with clinical-functional data.

Methods: We prospectively enrolled 80 patients who underwent PFTs and spirometry-gated chest CT scan at TLC on the same day. Clinical, lung functional and diffusion data, as well as disability indexes were collected. CT images were analyzed by a computational platform for texture analysis of ILD patterns (CALIPER) through Imbio LTA. It quantified the extent of normal lung (%N), ground-glass opacities (%GG), reticulation (%RET), honeycombing (%HC), hyperlucent (%HL), absolute (PVV, cm³) and normalized (PVV/LV, %) pulmonary vascular volumes. Cut-offs of normality for %FVC and %DLco of 80% and 70% were tested to differentiate parenchymal and vascular features.

Results: 73 patients/CT scans were eligible for both software analyses. CALIPER showed GG% as the most frequent radiological pattern (mean 5.5±10.4%). %FVC and %TLC negatively correlated with all ILD patterns, while %DLco with RET% only; PVV and PVV/LV negatively correlated with %FVC and %TLC, while %DLco with PVV/LV only. Positive correlations were found between all ILD patterns and vascular volumes (Table 1).

	LV (cm ³)	%N	%GG	%RET	%HC	%HL	PVV (cm ³)	% PVV/LV
FVC%	r .60	-.19	-.40	-.34	-.30	.35	-.26	-.44
p	<.001	-	<.001	.004	.01	.003	.04	<.001
FEV ₁ %	r .58	-.02	-.38	-.25	-.24	.23	-.35	-.49
p	<.001	-	.002	.04	.05	-	.004	<.001
FEV ₁ /FVC	r -.16	.33	.22	.16	.21	-.35	-.15	-.08
p	-	.02	-	-	-	-	-	-
TLC%	r .71	-.14	-.42	-.37	-.48	.40	-.43	-.64
p	<.001	-	.001	.01	<.001	.002	<.001	<.02
DLco%	r .38	-.05	-.21	-.31	-.22	.30	-.21	-.33
p	.01	-	-	.01	-	-	-	.006
FVC/DLco	r .03	-.08	-.06	-.003	-.09	.08	-.06	-.08
p	-	-	-	-	-	-	-	-

Cut-offs equal to 80 for %FVC and 70 for %DLco distinguished both parenchymal and vascular features, while 80 for %DLco characterized vascular features only. These results were confirmed also when patients were stratified according to absent/single/combined %FVC and %DLco impairments with 80% cut-offs (Table 2).

Conclusion: In SSC a cut-off at 80 for %DLco may help identifying vascular changes as automatically assessed on chest CT scan, without any underlying

	FVC<80%	FVC ≥80%	p	DLco<80%	DLco ≥80%	p	DLco <70%	DLco ≥70%	p
%N	82.7 (9.6)	86.2 (14.7)	-	86.6 (12.7)	80.8 (15.8)	-	84.1 (13.9)	86.4 (13.5)	-
%GG	10.3 (8.9)	2.4 (3.9)	<.001	5.0 (6.7)	3.9 (6.9)	-	6.2 (7.5)	2.4 (4.8)	.002
%RET	2.9 (2.9)	0.8 (1.3)	<.001	1.6 (2.1)	0.7 (0.9)	-	1.9 (2.4)	0.6 (0.8)	.007
%HC	0.4 (0.6)	0.1 (0.1)	<.001	0.2 (0.3)	0.1 (0.1)	-	0.2 (0.4)	0.05 (0.2)	.010
%HL	3.6 (6.8)	8.9 (12.1)	-	5.4 (8.8)	14.1 (15.4)	.050	6.3 (10.1)	9.2 (12.7)	-
PVV	125.6 (39.1)	90.9 (26.9)	<.001	101.9 (34.8)	84.7 (19.4)	.016	106.9 (38.3)	87.5 (20.5)	.012
PVV/LV	3.8 (1.6)	2.0 (0.7)	<.001	2.51 (1.3)	1.7 (0.6)	.002	2.76 (1.4)	1.83 (0.6)	.001