Vessel inflammation and morphological changes in patients with large vessel vasculitis: a retrospective study

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Supplementary Materials

Supplementary Table 1: Clinical characteristics in patients subdivided according to PET score.

	Patients with PET Score=0 in all segments (n=45)	Patients with at least one segment with PET Score=1 (n=16)	Patients with at least one segment with PET Score=2 (n=17)	Patients with at least one segment with PET Score=3 n=22
Age at diagnosis, median (IQR)	47 (27 - 62)	51.5 (34.5 - 60)	51 (31 - 68)	43 (25 - 60)
Sex, n (%)				
Male	12 (26.7%)	2 (12.5%)	4 (23.5%)	4 (18.2%)
Female	33 (73.3%)	14 (87.5%)	13 (76.5%)	18 (81.8%)
Type of large vessel vasculitis				
TAK	24 (53.3%)	9 (56.3%)	8 (47.1%)	12 (54.5%)
LV-GCA	21 (46.7%)	7 (43.8%)	9 (52.9%)	10 (45.5%)
Newly diagnosed (%)	6 (13.3%)	4 (25%)	3 (17.6%)	12 (54.5%)
Disease activity, n (%)				
Inactive	34 (75.6%)	9 (56.3%)	11 (64.7%)	3 (13.6%)
Active	11 (24.4%)	7 (43.8%)	6 (35.3%)	19 (86.4%)
ESR (mm/h), median (IQR), missing=1	18 (11.5 - 33.5)	25 (9 -43.5)	22 (10 - 33)	70 (54 - 85)
CRP (mg/dl), median (IQR), missing=2	0.6 (0.2 - 1.8)	0.9 (0.2 - 3.8)	0.5 (0.3 - 1.7)	3.9 (1.4 - 10.7)
Vascular symptoms, n (%), missing=1	6 (13.3%)	6 (37.5%)	1 (5.9%)	10 (45.5%)
Systemic symptoms, n (%), missing=1	5 (11.1%)	3 (18.8%)	3 (17.6%)	11 (50%)
Cranial symptoms, n (%), missing=1	1 (2.2%)	2 (12.5%)	1 (5.9%)	3 (13.6%)
Visual manifestations, n (%), missing=1	0 (0%)	2 (12.5%)	0 (0%)	0 (0%)
Polymyalgia rheumatica, n (%), missing=1	4 (8.9%)	1 (6.3%)	0 (0%)	2 (9.1%)
Patients with at least one synchronous stenosis or dilation, n (%)	24 (53.3%)	8 (50%)	10 (58.8%)	15 (68.2%)
Patients with at least one follow-up CTA / MRA performed between 6 and 30 months from baseline PET, n (%)	12 (26.7%)	2 (12.5%)	5 (29.4%)	9 (40.9%)
Patients with at least one incident stenosis or dilation, n(%)	0 (0%)	0 (0%)	0 (0%)	4 (44.4%)

Supplementary Table 1: Baseline clinical characteristics and study outcomes in patients subdivided by PET score (patients with all segments with PET score=0, patients with at least one segment with PET score=1 and no segments with PET score ≥2, patients with at least one segment with PET score=2 and no segments with PET score ≥3, patients with at least one segment with PET score=3. TAK, Takayasu arteritis; LV-GCA, large vessel-giant cell arteritis; IQR, Interquartile range; ESR, Erythrocyte sedimentation rate; CRP, C-reactive protein; WBC, white blood cell; CTA, Computed Tomography Angiography; MRA, Magnetic Resonance Angiography, PET, Positron Emission Tomography.

Supplementary Table 2: Anatomical distribution of imaging findings.

Segments	Thickening		Stenosis		Dilation		PET Score				Total
	No	Yes	No	Yes	No	Yes	0	1	2	3	
Ascending aorta	69 (78.4)	19 (21.6)	88 (100)	0 (0)	76 (86.4)	12 (13.6)	39 (44.3)	26 (29.5)	13 (14.8)	10 (11.4)	88
Aortic arch	52 (59.1)	36 (40.9)	88 (100)	0 (0)	86 (97.7)	2 (2.3)	39 (44.3)	24 (27.3)	12 (13.6)	13 (14.8)	88
Innominate artery	75 (85.2)	13 (14.8)	69 (78.4)	19 (21.6)	83 (94.3)	5 (5.7)	39 (44.3)	36 (40.9)	6 (6.8)	7 (8)	88
Right common carotid artery	63 (71.6)	25 (28.4)	79 (89.8)	9 (10.2)	87 (98.9)	1 (1.1)	39 (44.3)	43 (48.9)	3 (3.4)	3 (3.4)	88
Left common carotid artery	57 (64.8)	31 (35.2)	75 (85.2)	13 (14.8)	85 (96.6)	3 (3.4)	39 (44.3)	39 (44.3)	3 (3.4)	7 (8)	88
Right subclavian artery	56 (63.6)	32 (36.4)	86 (97.7)	2 (2.3)	86 (97.7)	2 (2.3)	39 (44.3)	39 (44.3)	3 (3.4)	7 (8)	88
Left subclavian artery	57 (66.3)	29 (33.7)	65 (75.6)	21 (24.4)	84 (97.7)	2 (2.3)	38 (44.2)	39 (45.3)	2 (2.3)	7 (8.1)	86
Abdominal aorta	59 (81.9)	13 (18.1)	69 (95.8)	3 (4.2)	71 (98.6)	1 (1.4)	31 (43.1)	34 (47.2)	2 (2.8)	5 (6.9)	72
Celiac artery	71 (98.6)	1 (1.4)	62 (86.1)	10 (13.9)	71 (98.6)	1 (1.4)	31 (43.1)	40 (55.6)	0 (0)	1 (1.4)	72
Superior mesenteric artery	70 (97.2)	2 (2.8)	64 (88.9)	8 (11.1)	72 (100)	0 (0)	45 (62.5)	25 (34.7)	0 (0)	2 (2.8)	72
Right renal artery	72 (100)	0 (0)	70 (97.2)	2 (2.8)	72 (100)	0 (0)	45 (62.5)	26 (36.1)	0 (0)	1 (1.4)	72
Left renal artery	70 (97.2)	2 (2.8)	71 (98.6)	1 (1.4)	72 (100)	0 (0)	45 (62.5)	26 (36.1)	0 (0)	1 (1.4)	72
Right iliac artery	69 (95.8)	3 (4.2)	72 (100)	0 (0)	72 (100)	0 (0)	45 (62.5)	26 (36.1)	0 (0)	1 (1.4)	72
Left iliac artery	69 (95.8)	3 (4.2)	72 (100)	0 (0)	71 (98.6)	1 (1.4)	45 (62.5)	26 (36.1)	0 (0)	1 (1.4)	72
Total	**971 (80.5)**	**235 (19.5)**	**1114 (92.4)**	**92 (7.6)**	**1170 (97)**	**36 (3)**	**598 (49.6)**	**479 (39.7)**	**55 (4.6)**	**74 (6.1)**	**1206**

Supplementary Table 3. Association of PET score and wall thickening

	Thickening			% row			% column		
PET Score	**No**	**Yes**	**Total**	**No**	**Yes**	**Total**	**No**	**Yes**	**Total**
0	504	94	598	84.3	15.7	100.0	51.9	40.0	49.6
1	393	86	479	82.0	18.0	100.0	40.5	36.6	39.7
2	40	15	55	72.7	27.3	100.0	4.1	6.4	4.6
3	34	40	74	45.9	54.1	100.0	3.5	17.0	6.1
Total	**971**	**235**	**1206**	**80.5**	**19.5**	**100.0**	**100.0**	**100.0**	**100.0**

Supplementary Table 3: Association between PET score and wall thickening at morphological imaging performed within 3 months from PET-CT scan.

Supplementary Table 4. Per-segment analysis for synchronous stenoses/dilations.

	True Positives	True Negatives	False Positives	False Negatives
PET Score ≥1	73	548	535	50
PET Score ≥2	22	976	107	101
PET Score ≥3	11	1020	63	112
Wall thickening	2	227	72	5

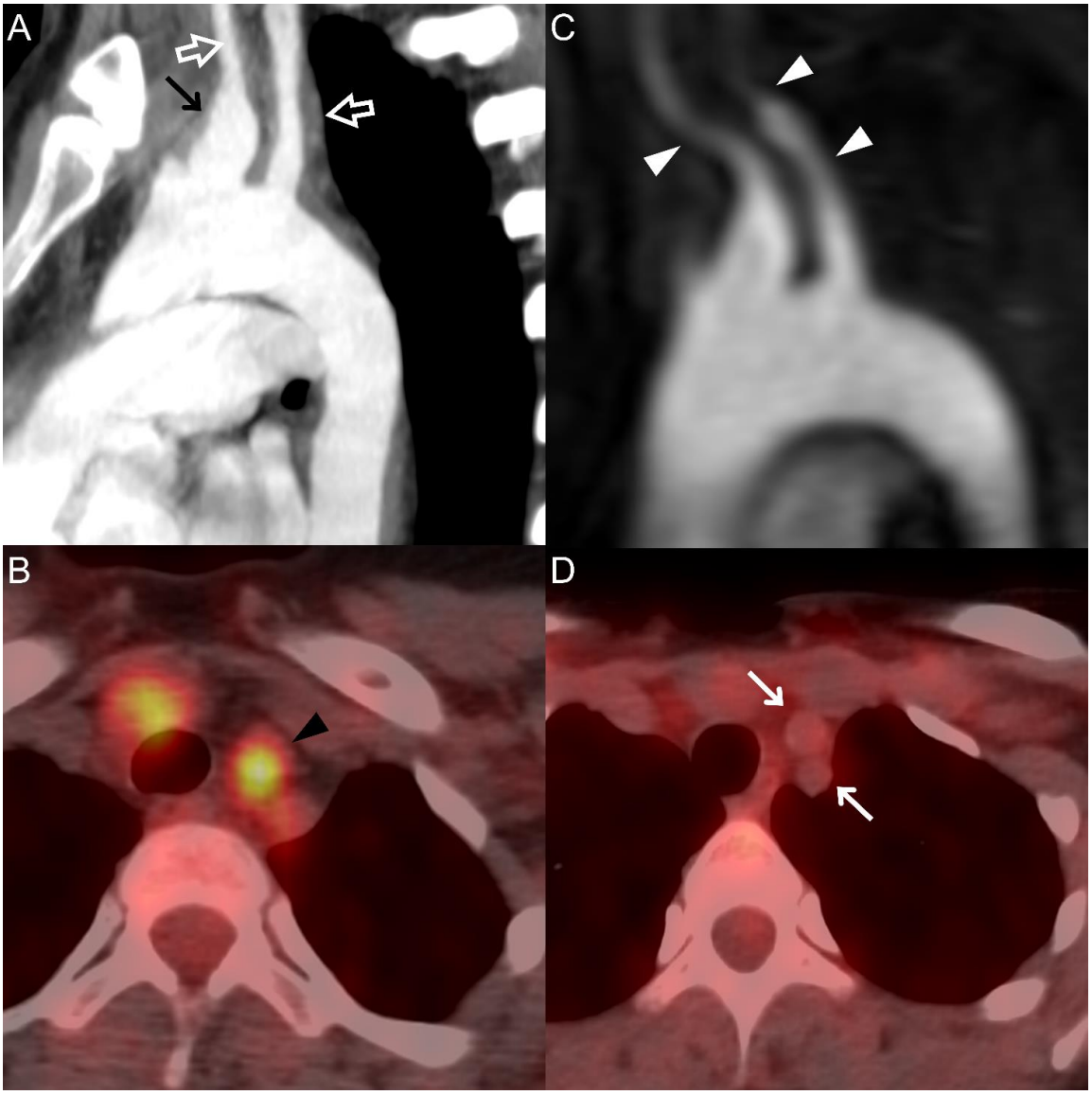
Supplementary Table 4: Per-segment analyses reporting true positive, true negative, false positive, and false negative for segments with a PET score ≥1, or ≥2, or ≥3, or with wall thickening, for the presence of synchronous stenoses or dilations in the same vascular segment.

Supplementary Table 5. Per-patient analysis.

Presence of at least one synchronous stenosis or dilation

	True Positives	True Negatives	False Positives	False Negatives	Accuracy for stenosis OR dilations			
					Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)
PET Score ≥1	33	21	22	24	57.9% (44.1%-70.9%)	48.8% (33.3%-64.5%)	60.0% (45.9%-73.0%)	46.7% (31.7%-62.1%)
PET Score ≥2	25	29	14	32	43.9% (30.7%-57.6%)	67.4% (51.5%-80.9%)	64.1% (47.2%-78.8%)	47.5% (34.6%-60.7%)
PET Score ≥3	15	36	7	42	26.3% (15.5%-39.7%)	83.7% (69.3%-93.2%)	68.2% (45.1%-86.1%)	46.2% (34.8%-57.8%)
Wall thickening	38	26	17	19	66.7% (52.9%-78.6%)	60.5% (44.4%-75.0%)	69.1% (55.2%-80.9%)	57.8% (42.2%-72.3%)

Supplementary Table 5: Per-patient analyses reporting sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of having at least one vascular segment with a PET score ≥1, or ≥2, or ≥3, or with wall thickening, for the presence of synchronous stenoses or dilations in at least one vascular segment. PPV, positive predictive value; NPV, negative predictive value.



Supplementary Figure 1: Baseline CT angiography and PET-CT scan of a 32-year-old female patient with Takayasu arteritis, showing wall thickening of left carotid and subclavian arteries (empty arrows) (A), 18F-FDG uptake with PET score =3 of the left carotid artery (black arrowhead) (B), and dilation of the left carotid artery proximally to the wall thickening (black arrow) (A). After 20 months, 18F-FDG uptake and wall thickening were resolved (black arrows), but a stenosis of both arteries, mainly visible in the left subclavian artery, has appeared (white arrowheads) (C, D).