DIFFERENCE OF IMAGE FEATURES ON COMPUTED TOMOGRAPHY BETWEEN LUPUS ENTERITIS AND MESENTERIC VASculitis OF OTHER CONNECTIVE TISSUE DISEASES

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Background: Lupus enteritis (LE), lupus mesenteric vasculitis, occurs occasionally in systemic lupus erythematosus (SLE). Not only LE but also other mesenteric vasculitis can lead to bowel haemorrhage or perforation and will be fatal, but it is difficult to demonstrate histologically-proven vasculitis on endoscopic biopsy. Although several computed tomography (CT) features of LE are reported, we have little knowledge about whether they differ from those of other mesenteric vasculitis.

Objectives: To clarify the imaging pattern on CT which can distinguish LE from other mesenteric vasculitides.

Methods: Patients diagnosed with LE and non-LE at our hospital were consecutively registered from January 2009 to August 2017. The diagnosis of LE was made by the criteria of [1, 2]. which is defined as either vasculitis or inflammation of small or large bowel with supportive imaging and/or biopsy findings. Non-LE was defined as mesenteric vasculitis of other connective tissue diseases (CTDs). We compared the contrast-enhanced CT patterns of LE with non-LE. Statistical analyses were performed using XLSTAT.

Results: A total of 8 patients were diagnosed with LE and enrolled in this study. The mean age was 41.1 years old, range 23–53, and 7 were females. CT exams of all 8 patients demonstrated small bowel wall thickening, dilatation of intestine and comb sign (indicating engorgement of mesenteric vessels). Severe bowel wall thickening (>8 mm) was observed in 87.5% (n=7), ascites in 75.0% (n=6) and target sign (indicating abnormal bowel wall enhancement) in 62.5% (n=5). 5 patients were enrolled in non-LE (1 eosinophilic granulomatosis with polyangiitis, 1 IgA vasculitis and 3 Behcet’s disease). Comparison of CT findings between LE patients and non-LE patients were summarised on table 1. Bowel wall thickness and comb sign were more common in both groups, however the prevalence of dilatation of intestine in LE patients was significantly higher than in non-LE patients. Although not significant, complication of large bowel involvement was shown only in LE patients.

References:

Disclosure of Interest: None declared


THU0388

DIFFERENCE OF IMAGE FEATURES ON COMPUTED TOMOGRAPHY BETWEEN LUPUS ENTERITIS AND MESENTERIC VASculitis OF OTHER CONNECTIVE TISSUE DISEASES

THU0387

HIGH-THROUGHPUT QUANTITATIVE HISTOLOGY IN SYSTEMIC SCLEROSIS SKIN DISEASE USING COMPUTER VISION

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Background: There are no validated systems to quantify dermal architecture of skin biopsy sections in systemic sclerosis (SSc). Significant advances in computer vision, called deep neural networks (DNNs), have demonstrated human-level pattern recognition abilities using mathematical transformations of images into millions of quantitative features. Publicly available DNN algorithms have the potential to radically augment current histological analyses via robust, reproducible, and high-throughput image quantification.

Objectives: Apply publicly available DNN algorithms to trichrome-stained sections of dermal biopsies from patients with SSc to identify quantitative features of images that correlate with clinical skin fibrosis assessment via the validated modified Rodnan skin score (mRSS) and skin gene expression.

Methods: One rheumatologist performed local mRSS (lmRSS) assessments (0–6). One biopsy was paraffin embedded, sectioned, stained with trichrome, and photomicrographed. Images were transformed into high-level quantitative features using AlexNet and the Matlab Neural Network Toolbox. Correlations between quantitative features and lmRSS were determined with Bonferroni-Holm correction. One biopsy underwent gene expression profiling by DNA microarray. The degree of correlation between each gene and lmRSS was assessed and a functional gene network was determined using the GIANT database.

Results: We identified 90 quantitative features that correlated significantly with local skin score (p<0.05, Bonferroni-Holm correction). Using these features, biop- sies sorted into three clusters corresponding to low (mean=0.13), intermediate (mean=0.91), and high (mean=1.7) lmRSS. Gene expression for 488 genes in the biopsies correlated significantly with quantitative features (p<0.05, Bonferroni-Holm correction). Among these 488 genes, 185 genes formed a large functional network in the GIANT database including genes associated with the cell cycle, apoptosis, IL12 signalling, and wound healing such as CD44, THBS1, CAV1, and VEGFA.
DIFFERENCES IN CLINICAL COURSES AND SERUM MARKERS OF INTERSTITIAL LUNG DISEASE ASSOCIATED WITH ANTI-AMINOACYL-TRANSFER RNA SYNTHETASE ANTIBODY AND ANTI-MELANOMA DIFFERENTIATION-ASSOCIATED GENE 5 ANTIBODY-POSITIVE POLYMYSITIS/DERMATOMYOSITIS

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Background: Polymyositis/dermatomyositis (PM/DM) is a chronic autoimmune disease that is often complicated by interstitial lung disease (ILD). Anti-aminocyl-transfer RNA synthetase antibody (ARS-Ab) and anti-melanoma differentiation-associated gene 5 antibody (MDAS-Ab) are highly detected in PM/DM with ILD. It was reported that ARS-Ab-positive-ILD (ARS-ILD) is often recurrent1, and patients with MDAS-Ab-positive-ILD (MDAS-ILD) develop fatal rapidly progressive ILD2.

Objectives: To evaluate the differences in clinical courses between ARS-ILD and MDAS-ILD, including the changes in serum ILD markers.

Methods: We retrospectively investigated 25 patients with ARS-ILD and 26 patients with MDAS-ILD who received induction therapy between 2001 and September 2017 at Kobe University Hospital. The survival rate and relapse-free survival rate were analysed with Kaplan-Meier estimation and the log-rank test. The differences in serum ILD markers between patients with ARS-ILD and MDAS-ILD were evaluated with the Student’s t-test.

Results: Disease subtypes at diagnosis with PM/DM-associated ILD were as follows: Eleven ARS-ILD and no MDAS-ILD patients had PM, 10 ARS-ILD and 5 MDAS-ILD patients had DM, and 4 ARS and 21 MDAS patients had amyopathic DM. The survival rate for MDAS-ILD was significantly lower than for ARS-ILD (p<0.01, figure 1A). On the other hand, there was no significant difference in the relapse-free survival rate between ARS-ILD and MDAS-ILD (p=0.25, figure 1B).

The serum level of Krebs von den Lungen-6 was not significantly different between ARS-ILD and MDAS-ILD (1044.3±768.1 U/ml in ARS-ILD vs 1044.8±766.5 U/ml in MDAS-ILD, p=0.33), but the serum level of ferritin was significantly higher in MDAS-ILD than in ARS-ILD (286.4±422.3 ng/ml in ARS-ILD vs 696.2±839.5 ng/ml in MDAS-ILD, p<0.01). Although the serum level of surfactant protein D (SP-D) in ARS-ILD was high, the SP-D level in MDAS-ILD was normal (158.9±82.1 ng/ml in ARS-ILD vs 46.3±22.1 ng/ml, p<0.01).

Conclusions: MDAS-ILD patients should monitored for both rapidly progressive disease and relapsing disease. A normal SP-D level is a feature of MDAS-ILD.

REFERENCES:

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THU0389 BORDERLINE PULMONARY HYPERTENSION WAS ASSOCIATED WITH REDUCED CARDIAC OUTPUT DURING EXERCISE IN PATIENTS WITH CONNECTIVE TISSUE DISEASES

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Background: In patients with systemic sclerosis (SSc) border line mean pulmonary arterial pressures (mPAP: 21–24 mmHg at rest) are a frequent finding and could represent an intermediate stage between normal pulmonary pressures and manifest pulmonary hypertension (PH).1

Objectives: The objective of this prospective study was to compare right ventricular function and pulmonary arterial compliance (PAC) at rest and during exercise between systemic sclerosis (SSc)-patients with normal and borderline mean pulmonary artery pressures, respectively.

Methods: SSc-patients (n=112) underwent clinical assessment. including right heart catheterization at rest and during exercise and were divided in three groups according to their resting mPAP values: normal mPAP (≤20 mmHg), borderline mPAP (21–24 mmHg) and manifest pulmonary hypertension (PH, mPAP >25 mmHg). Results were compared between groups by ANOVA followed by post-hoc student’s t-test.

Results: SSc Patients with borderline mPAP showed significantly lower cardiac index (CI) increase during exercise and higher PVR values than SSc patients with normal PAP at rest. Six-Minute-walking distance (6MWD) and PAC (stroke volume/6ystolicPAP-diastolicPAP) were significantly lower in the borderline mPAP group compared to patients with normal PAP.

REFERENCE:

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