diameters of IMB, MN and SMB. Logistic regression models determined their association with RA, and test characteristics for RA were calculated. Lesion-sizes were plotted.

Results: 634 participants underwent MRI: 157 consecutive patients with RA (109 women; age 59±11SD), 284 with other early arthritides (158 women; age 56±17SD), and 193 healthy controls (136 women; age 50±16SD). Univariable, IMB, MN and SMB were more prevalent in RA (all $P<0.001$), DSMA was not ($P=0.16$). Multivariable, MB, SMB and MN were all associated with RA independent of each other ($P<0.016$). IMB was most frequent (sensitivity 69%), followed by SBM and MN (25% and 19%), specificity was high (70%, 96%, 94% respectively compared to other arthritides and 84%, 99% and 97% compared to healthy controls).

Although IMB, MN and SNB were more frequent in RA, the lesion-size was mainly similar in all groups. For MN a dorsoplantar diameter >6mm or transverse diameter >5mm was highly specific (specificity 100% compared to healthy controls), however it was infrequent (sensitivity 12% and 13%, respectively). For IMB and SMB no cut-off size could be distinguished with high specificity.

Conclusion: Intermetatarsal bursitis, Morton's neuroma and submetatarsal bursitis are increased prevalent in early RA and could be considered as disease features.

Disclosure of Interests: None declared

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SAT0560

THE PROGNOSTIC VALUE OF ULTRASONOGRAPHIC FINDINGS IN INDIVIDUALS WITH ASYMPTOMATIC HYPERURICEMIA

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Background: Chronic and steady asymptomatic hyperuricemia (AHU) can eventually lead to the deposition of monosodium urate crystals in joints and soft tissues. The rate of progression from AHU to clinically evident gout varies and mainly depends on serum uric acid levels. However, little is known about the prognostic value of ultrasonographic findings in individuals with AHU in detail.

Objectives: To explore the prognostic value of ultrasonographic findings in individuals with asymptomatic hyperuricemia.

Methods: We analyzed the ultrasonographic findings (snowstorm sign, double-contour (DC) sign, tophi, bone erosion, and abnormal blood flow) of bilateral knees, ankles and the first metatarsal-phalangeal joints (1st MTP) of individuals with AHU at Peking University People's hospital between June 2014 and May 2016. All individuals were followed up for two years.

Results: Among 218 individuals with AHU, the prevalence of snowstorm sign, DC sign, tophi, bone erosion and abnormal blood flow was 41%, 23%, 4%, 9% and 13%, respectively. Gout attacked in 36 patients during 2-year follow-up with 4.5 years of HU duration. The first attack affected the 1st MTP in 60%, the ankle in 31%, and the knee in 11% of the patients with gout. Patients with gout attack has longer hyperuricemia duration compared with individuals with AHU without gout attack. DC sign, tophi, and bone erosion on ultrasound were more frequently presented in patients with gout attack compared with individuals with AHU without gout attack. However, the prevalence of snowstorm sign and abnormal blood flow on ultrasound has no significant differences between patients with gout attack and individuals with AHU without gout attack.

Conclusion: Longer hyperuricemia duration, DC sign, tophi, and bone erosion on ultrasound in individuals with AHU could be associated with gout attack.

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SAT0561

METATARSOPHALANGEAL JOINT MEDIAL COLLATERAL LIGAMENT MEASUREMENT, A NOVEL ULTRASOUND FEATURE OF MONOSODIUM URATE DEPOSITION IN THE JOINT.

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Background: Acute gouty arthritis most commonly initially affects the first metatarsophalangeal joint (MT1). (1) Musculoskeletal ultrasound (US) is a reliable tool for detecting monosodium urate crystal (MSU) deposition in gout and hyperuricemia with validated, ultrasound features of double contour (DC) sign, tophus, and erosions. (2, 3) The collateral ligaments of MT1, which originate on the medial and lateral epicondyles of the metatarsals and extend to the proximal phalanx, function to stabilize the joint. (4) While tophus deposition typically occurs between the medial collateral ligament (MCL) and head of MT1, small MSU aggregates may be indistinguishable from surrounding tissue. In this study using US, we propose that an increased vertical depth between the superficial surface of the MCL to cortical surface of MT1 (dMC-MT) is indicative of MSU deposition (see figure 1). The aim was to evaluate associations of dMC-MT with serum uric-acid level (sUA) in a cohort of individuals with hyperuricaemia and non-episodic foot pain. We propose a novel sonographic feature of MSU crystal deposition in the MT joint.

Objectives:

- 1.) To evaluate the association between sUA and dMC-MT
- 2.) To record the presence/absence of classical features of MSU deposition including; double contour sign, erosions and tophi in a cohort of patients with hyperuricaemia and foot pain.
- 3.) To evaluate the associations between sUA and dMC-MT in those with/without classical features of MSU deposition (DC, erosion, tophi).

Methods: Following informed consent, hyperuricaemic patients (n = 52) underwent bilateral US of the 1MT using LogiqE9 at 15 MHz. Features of MSU deposition including DC sign, tophus and juxta-articular erosion were recorded. The dMC-MT was measured as the mean of the perpendicular distance between the superficial surface of the midpoint of the MCL to the MT1 head. Statistical analysis was performed using SPSS V.25 software. Data presented as MEAN ± S.E unless otherwise indicated.

Results: DC sign, tophus and erosion occurred in 31%, 20.7% and 19% of cases, respectively. Mean sUA was higher in tophus positive (540 ± 36) versus non tophus (470 ± 16) ($p<0.01$) and erosion positive (522 ± 32) versus non erosion (477 ± 17) patients. dMC-MT was significantly greater in tophus positive patients (0.34cm ± 0.17cm) versus non tophus (0.27cm ± 0.01cm) ($p < 0.01$). dMC-MT was significantly greater in erosion positive patients (0.31cm ± 0.18cm) versus non erosion (0.28cm ± 0.01cm) ($p < 0.05$). In DC negative patients dMC-MT was significantly correlated with increasing sUA ($r = 0.34$ $p = <0.05$). No correction between dMC-MT and sUA was seen in DC positive patients.

Conclusion: dMC-MT is significantly greater both in patients with tophus and erosions indicating its role as an additional marker of MSU crystal deposition. Furthermore a significant association between dMC-MT and sUA in DC negative patients suggests that dMC-MT may be a more sensitive indicator of early urate deposition in a subset of patients where the earliest site of urate deposition has not occurred directly on to articular hyaline cartilage. dMC-MT may therefore be a sensitive tool for very early urate deposition. Further studies clarifying a role for dMC-MT are now required.

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