showed that joint inflammation is common in ochronotic patients, associated in some cases with peripheral enthesis involvement confirming previously published data (1). The prevalence and the characteristics of the inflammatory manifestations should be further studied in larger cohorts of patients as they could play an important role in the joint damage process in these patients and provide a rationale for the use of new drugs.

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SAT0626 METACARPOPHALANGEAL JOINT SWELLING IN PSORIATIC ARTHRITIS: WHAT DOES IT MEAN?

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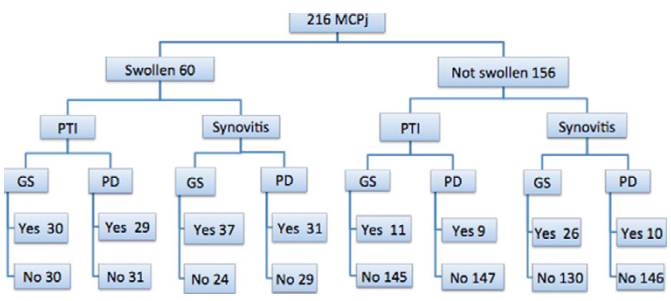
Background: Clinical metacarpophalangeal joint (MCPj) swelling is a frequent finding in psoriatic arthritis (PsA). It is assumed to be caused by intra-articular synovitis (IAS). However, ultrasound (US) have also demonstrated in PsA peritenon inflammation of the extensor digitorum tendon (PTI).To date the data about the significance of this two lesions (IAS and PTI) in MCPj swelling are sparse.
Objectives: Our objective was to explore PTI and IAS as the cause of clinical MCPj swelling in PsA patients.
Methods: 27 consecutive non selected PsA patients, fulfilling CASPAR criteria, with clinical involvement of at least one 2nd to 5th MCPj were included. A MyLab 70 XVG machine, Esaote, Genova, Italy, with a greyscale (GS) 13 MHz probe, and a 7.1 MHz power Doppler (PD) frequency (PRF 750 Hz, Gain 60) was used. Videos (3–5 sec) of each MCPj 2nd to 5th of both hands in transversal and longitudinal views were obtained for central reader analysis, scoring US as presence or absence in GS and PD of: 1) PTI (defined as an hypoechoic swelling of the soft tissue surrounding the extensor tendon at MCPj level with or without PD) and 2) IAS (OMERACT definition). US pathology for each joint and lesion was defined as at least three of five central readers having the same score. SPSS analysis was performed for frequencies, percentage of agreement and Cohen's Kappa test.
Results: 27 PsA patients with a mean (SD) age of 56 (11) years and disease duration 109 (101) months were included. Isolated peripheral involvement was present in 21 patients (78%) and 6 (22%) had both axial and peripheral affection. Mean (SD) CRP level was 8.3 (8.2) mg/l and ESR 21.9 (19.3) mm. The mean DAS28 ESR was 3.88 (1.23). Psoriasis involvement included skin and nails in 15 (55.5%) of the patients.
A total of 216 MCPj were examined, with 60 (27,7%) being clinically swollen. The figure illustrates the agreement between clinical and US assessments, and the table shows the kappa values for the agreements. PTI in at least one MCPj was found in 19/27 patients (70%) with a total of 41/216 locations (19%) in GS. For IAS, there was GS in at least one MCPj in 23/27 patients (85%) with a total of 63/216 locations (29%). 28 of 41 (68.3%) joints had both PTI and IAS.

Table 1. US findings versus Clinical joint swelling

	Agreement n (%)	Kappa
Any US lesion (vs. clinical swelling)	167/216 (77.3%)	0.471
Any grey scale lesion (vs. clinical swelling)	166/216 (76.8%)	0.426
Any power Doppler lesion (vs. clinical swelling)	169/216 (78.2%)	0.550
Grey scale IAS (vs. clinical swelling)	166/216 (76.8%)	0.426
Power Doppler IAS (vs. clinical swelling)	177/216 (81.9%)	0.499
Grey scale PTI (vs. clinical swelling)	175/216 (81.0%)	0.474
Power Doppler PTI (vs. clinical swelling)	176/216 (81.5%)	0.478



Conclusions: Our study identifies two different US lesions (IAS and PTI) causing clinical joint swelling. PTI is near as frequent as IAS as a cause of MCPj swelling, and future studies are necessary to explore the added value of assessing PTI for prognosis or treatment.

Disclosure of Interest: None declared
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SAT0627 MUSCLE BIOPSY: MASTER ROLE IN DIFFERENTIAL DIAGNOSIS IN PATIENTS WITH SUSPECTED MYOPATHY

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Background: The muscle biopsy may be a fundamental technique in the suspicion of myopathy, with high specificity to distinguish between normal or abnormal muscle tissue. In association with clinical and laboratory findings, the muscle biopsy has an important role to a more accurate diagnosis.
Objectives: To evaluate the usefulness and safety of muscle biopsies performed in a Rheumatology Unit in patients with suspected myopathy.
Methods: Retrospective analysis of the clinical charts of patients submitted to muscle biopsy between January 2010 and December 2016 at our Rheumatology Unit. Demographic, clinical, laboratory, electromyographic and histological data were collected. The histological study was performed in a Neuropathology Specialized Unit.
Results: A total of 46 patients, 19 men and 27 women, with a mean age of 53.3±17.1 years, were evaluated. Clinical manifestations included muscle weakness, myalgia and decreased muscle strength. Most patients also had increased muscle enzymes, particularly creatine kinase, but in a patient with generalized muscle atrophy, muscle enzymes were overall diminished. Of the 46 biopsies, 12 (26.1%) did not show alterations, 8 (17.4%) showed nonspecific alterations and only 1 biopsy was not conclusive because the sample was inadequate. In 4 patients, the histological features did not present specific characteristics of a myopathy, but revealed a preferential atrophy of type 2 fibbers, usually associated with prolonged corticosteroid therapy. Among the others, 9 (19.6%) were compatible with inflammatory myopathies, namely polymyositis (6), dermatomyositis (1), inclusion body myopathy (1), and localized nodular myositis (1). In the latter case, the patient had a different clinical presentation, with intermittent episodes of pain, oedema and flushing of different muscle groups. In addition, 5 metabolic myopathies (2 McArdle's diseases and 3 non-specific metabolic disorders), 2 muscular dystrophies (1 Becker's muscular dystrophy and 1 dystrophinopathy), 1 suspected case of myotonic dystrophy and 1 myopathy associated with statins use were diagnosed. In a patient with muscle weakness and prior diagnosis of systemic vasculitis, the histology showed a chronic inflammatory process with no specific alterations. In the patient with overall decrease in muscle enzymes, the biopsy revealed neurogenic atrophy, without inflammatory infiltrates. Overall, the results of electromyography (EMG) did not correlate with the histological findings, because EMG identified alterations both in cases with histologically compatible inflammatory myopathy and in cases without histological pathology. On the other hand, EMG did not reveal any changes in some of the metabolic myopathies. Muscle biopsies were performed mainly in the deltoid muscle. There were no relevant immediate or late complications with this technique.
Conclusions: Although muscle biopsy is an invasive technique, it is a safe technique and allows the differential diagnosis between the various myopathies, which is fundamental to an appropriate treatment.

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SAT0628 INCREASE OF CORTICAL MICRO-CHANNELS (COMICS) AS A NEW FEATURE OF STRUCTURAL DAMAGE IN PAIENTS WITH RHEUMATOID ARTHRITIS

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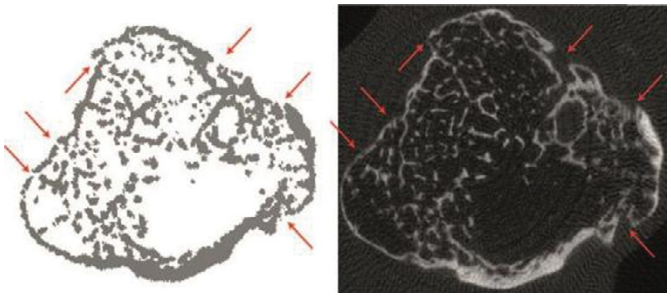
Background: Bone damage in rheumatoid arthritis (RA) typically emerges at certain anatomical hotspots corresponding to the so-called "bare area", an intra-articular region between the cartilage and the insertion site of the joint capsule (1,2). We hypothesized that this region exhibits certain micro-anatomical properties, which facilitates the emergence of bone erosions.

Objectives: To find the micro-structural correlate of the origin of bone erosions in the bare area of the human joint
Methods: Bare areas of human joints were analyzed for early microstructural changes by in-vivo high-resolution peripheral computed tomography (HR-pQCT). First, bare areas were exactly defined by scanning 6 cadaveric hands for localization of the bare area in the human metacarpal head. Bone lesions found in the cadaveric hand by HR-pQCT were additionally by super-resolution ex vivo micro-CT (μCT40). Then, number and distribution of the type of bare area bone lesion found in cadaveric study were analyzed in a cohort of 105 healthy individuals and 107 anti-citrullinated peptide (ACPA) positive RA patients with similar sex and age distribution.
Results: HR-pQCT combined with adaptive thresholding allowed the definition of a new type of bone lesions in the bare areas of the human joint termed "COMIC" standing for "cortical micro-channel". Their existence in the bare area was additionally validated by microCT (Figure 1). RA patients showed significantly ($p<0.001$) more CoMiCs (112.9±54.7/joint) than healthy individuals (75.2±41.9/joint) with 20–49 years old RA patients exhibiting similar CoMiC numbers as observed in over 65 year old healthy individuals. Importantly, CoMiCs were found in RA patients already very early in their disease course with enrichment in the erosion-prone radial side of the joint.



Conclusions: CoMiCs represent a new structural feature of the joint, which is characteristic for the bone of the bare area. COMICS at low level are also found in young healthy individuals but they significantly increase with age and particularly with RA. COMICs develop much earlier and much more pronounced in RA patients than in healthy individuals and therefore represent an interesting new early indicator for erosion development in ACPA positive RA patients.
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SAT0629 ELECTRODIAGNOSTIC VS ULTRASONOGRAPHY: WHICH ONE IS BETTER TO CONFIRM DIAGNOSIS OF ULNAR NEUROPATHY AT ELBOW?

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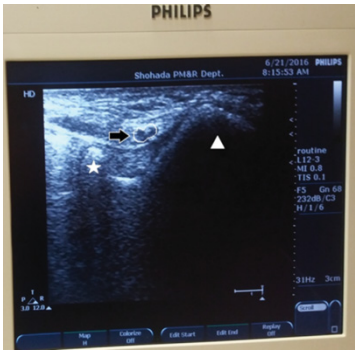
Background: Ulnar neuropathy at the elbow is the second most common compression neuropathy preceded by carpal tunnel syndrome. Although this diagnosis has been traditionally confirmed by electrodiagnosis (EDX), ultrasonography (US) is a re-emerging alternative method which can also evaluate the cubital zone anatomy. This study determines the maximum amount of US sensitivity and specificity by assessing different sonographic parameters and evaluates consistency and diagnostic value of the best US method in compare with EDX.
Methods: We included 66 participants (32 elbows of patient and 34 normal elbows) and performed physical exam, US and EDX for both groups. Patients were classified into four severity grades using EDX criteria. The parameters of US were cross sectional area (CSA) of ulnar nerve at three levels: medial epicondyle (CSA med), 2cm distal (CSA dist) and 2cm proximal (CSA prox) to medial epicondyle. Then we would be able to evaluate consistency between two tests using area under receiver operating curve (AU-ROC) method and also to determine the optimum CSA cut-off point to better diagnosis of ulnar neuropathy by US.
Results: Our findings showed that CSA med and CSA dist had significantly larger size in patients compared to normal participants (P-value =0.01 and 0.05, respectively). This increase in nerve size was more prominent among those who had axonal lesion rather than patients with demyelinated lesion (p-value <0.01). Moreover those who had longer duration of symptoms had significantly higher CSA med. and CSA dist. (p-value=0.015 and 0.001 respectively). The other promising findings were two important points; First a strong correlation between CSA med. and severity grade (p-value=0.034) and the second correlation was between CSA med and CSA dist. with a cross-elbow nerve conduction velocity (NCV) (p-value=0.01 and 0.02, respectively). Finally we assessed US diagnostic value as it showed AU-ROC =0.871, that means a very good coverage for an alternative diagnostic method. Also our results showed specificity of 80% and sensitivity of 84% for US in the CSA med cut-off point =9mm^2 for diagnosis of ulnar nerve entrapment at elbow.



Conclusions: Based on these results we can conclude that US is a highly sensitive and specific method to diagnose ulnar neuropathy at elbow and can be used as an alternative and complementary method in diagnosis of ulnar neuropathy at elbow in particular when EDX is not available. However it could not be still a definitive and substitute mutually exclusive method to EDX in diagnosis of ulnar neuropathy
Acknowledgements:
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SAT0630 EXTRA-ARTICULAR MUSCULOSKELETAL INVOLVEMENT IN JUVENILE IDIOPATHIC ARTHRITIS: CLINICAL AND ULTRASONOGRAFIC FINDINGS

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Background: in Juvenile Idiopathic arthritis (JIA), musculoskeletal ultrasound (MSUS) has been proven to be more sensitive than clinical evaluation in detecting articular synovitis. Nevertheless, many studies report a variable percentage of clinically active joints, that are judged normal by ultrasound examination. In absence of a feasible and reliable gold standard for pediatric synovitis (histology or MRI), this point may weaken the confidence in ultrasound, that is nevertheless perceived as an interesting tool, in the management of JIA.
Objectives: This preliminary study investigates the possibility that sometimes the clinically detected synovitis could be missed by ultrasound, because of its extra-articular localization.
Methods: 43 consecutive children affected by JIA underwent separated clinical and ultrasound assessments, blindly, in the same day. Patients were followed up in a pediatric Rheumatology Unit. The following clinical data were collected: age, sex, disease duration, subset of JIA, ongoing therapy, previous therapy, disease activity. By MSUS, the synovitis was investigated bilaterally, both in gray scale and power Doppler, in the MCP and subtalar joints, wrists, knees, ankles, in the flexor and extensor tendons of the wrist and hand, in the anterior, medial and lateral tendons of the ankle, in the synovial bursae of knee and ankle. The possible involvement of the entheses was also investigated. The definition of ultrasonographic synovitis was based on the preliminary OMERACT definitions of synovitis in children. The inter and intra observer reproducibility of the MSUS examination was tested, independently, both between two operators and through a second assessment of the stored images.
Results: 43 children affected by JIA were recruited, in the outpatient clinic of the Regina Margherita Pediatric Hospital of Torino, Italy. They were 9 boys and 34 girls, median age 7,7 (IQR 5,5–10,1), 27 oligoarticular, 11 poliarticular, 4 psoriatic arthritis, 1 undifferentiated arthritis. The median disease duration was 44 months (IQR: 20,5–61,5), 20 patients in remission, 23 with active disease. 774 joints, 1548 synovial sheaths, 430 entheses and 258 synovial bursae were assessed. The physical examination detected inflammation in 54 joints, 33 tendons, 0 entheses,