



Fig 1. [^{18}F]Fluoride uptake in the cervical, thoracic and lumbar spine in a clinically active AS patient (A) and in the patella tendon of the right knee in a clinically active PsA patient (B)

Conclusion: [^{18}F]Fluoride PET uptake, reflecting new bone formation, can be visualized at heterogeneously distributed entheses and (peri-)articular sites in AS- and PsA patients. The technique therefore is sensitive to visualize new bone formation and may reflect local disease activity. Additional scans will be collected and analyzed quantitatively, also after anti-TNF or Secukinumab treatment, to further investigate the applicability of [^{18}F]Fluoride PET for monitoring of therapeutic effects on bone formation in SpA.

References :

- [1] Maksymowych WP, Mallon C, Morrow S, Shojania K, Olszynski WP, Wong RL, et al. Development and validation of the Spondyloarthritis Research Consortium of Canada (SPARCC) Enthesitis Index. *Ann Rheum Dis.* 2009;68(6):948-53.
- [2] Rezvani A, Bodur H, Ataman S, Kaya T, Bugdayci DS, Demir SE, et al. Correlations among enthesitis, clinical, radiographic and quality of life parameters in patients with ankylosing spondylitis. *Mod Rheumatol.* 2014;24(4):651-6.
- [3] Rudwaleit M, Khan MA, Sieper J. The challenge of diagnosis and classification in early ankylosing spondylitis: do we need new criteria? *Arthritis Rheum* 2005;52:1000-8.
- [4] Bruijnen ST, Verweij NJF, van Duivenvoorde L, Bravenboer N, Baeten D, van Denderen JC, et al. [^{18}F]Fluoride PET-CT imaging of bone formation in ankylosing spondylitis before and after 12 weeks of anti-TNF treatment. 2017.

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AB1088

NAIL PSORIASIS: THE UNDERESTIMATED DISORDER IN PSORIASIS AND PSORIASIS ARTHRITIS. CAN ULTRASOUND AND CAPILLARY MICROSCOPY IN PATIENTS WITH NAIL PSORIASIS SPEED UP OUR DIAGNOSIS AND THERAPY?

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Background: Nail psoriasis is an extreme diagnostic and therapeutic challenge and represents an enormous physical and psychological burden for affected patients. 50% of patients with psoriasis vulgaris develop nail involvement (NailPso) during the course of their disease. NailPso is the strongest predictor of psoriatic arthritis (PsA). Through the synovio-enthesis concept we have learned that there is an anatomical-pathophysiological relationship between DIP joint, extensor tendon and nail matrix. We have observed in daily practice that hypervascularization (HV) in ultrasound Power Doppler (US-PD) the nail matrix may be a pathognomonic element in its own right. There are no data on this in the literature.

Objectives: Is there a difference in the ultrasound PD examination of the DIP joint and nail area and in the capillary microscopy of the corresponding nail fold in patients with psoriasis vulgaris and nail psoriasis versus patients with psoriasis vulgaris without nail psoriasis.

Methods: Monocentric prospective study of all consecutive patients with psoriasis vulgaris who have come to a rheumatology practice to clarify a PsA. In addition to demographic data, assessments (PASI, DLQI, CASPAR, GEPARD, DAS28, SJ, TJ, FFBH), clinical examination, a standardized ultrasound PD examination and capillary microscopy of the affected fingertips in PsO patients suffering from nail psoriasis was performed as well as corresponding examinations of the 2nd and 3rd finger right in PsO patients without nail involvement.

Results: 79 patients could be included during the study period. Thereof 25 PsO patients without nail involvement and 44 PsO patients with nail involvement. Since the patients were examined consecutively, the difference results. There was no difference in age, BMI and sex in both groups (PsO and NailPso). The Caspar criteria as classification criteria for a PsA were positive in 65% of the NailPso patients and positive in 50% of all PsO patients without nail involvement. Hypervascularization in the US-PD examination in the area of the nail matrix could be seen significantly more frequently in NailPso compared to non-NailPso patients. Such a difference did not exist in the HV of the extensor tendons. Capillary microscopy showed a significant difference in the number of torsions/twist capillaries in NailPso compared to PsO patients without NailPso. Hypervascularization of the nail matrix is seen significantly more frequently in patients with psoriasis of the nail than in patients without psoriasis of the nail. Such a difference does not exist in DIP joint -extensor tendon- enthesitis. At the same time, torsions are significantly more frequently seen in capillary microscopy in NailPso than in patients without NailPso.

Conclusion: The US-PD examination is a simple and non-invasive procedure which can be performed routinely in daily practice. The hypervascularization of the nail matrix should also make one think of nail psoriasis in the early stage of PsO, in order to be able to start early an appropriate therapy for this very stigmatizing and therapeutically extremely difficult manifestation of PsO. It seems to occur independently of extensor tendon synovitis as an independent manifestation phenomenon.

The occurrence of torsions in capillary microscopy >50 % also seems to be groundbreaking for a NailPso, whereby capillary microscopy is a temporal challenge in daily routine.

References: § The present study (7734-BO-S2018 Ethics Commission of the MHH, Medical School Hannover, Germany) contains parts of the PhD thesis of M. Töllner

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AB1089

EVALUATION OF JOINT RHEUMATOLOGY/ RADIOLOGY MDT OUTCOMES & THEIR IMPACT ON RHEUMATOLOGY SERVICE

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Background: Multidisciplinary team (MDT) discussion between rheumatology and radiology is vital in diagnostic and prognostic management of patients' outcome. Nevertheless, discrepancies of the radiology report and clinical history cause unnecessary confusion and distresses to clinicians and patients. This could potentially affect subsequent clinical management.

Objectives: This survey was aimed to evaluate outcomes of rheumatology / radiology MDT discussion and to identify any discrepancies between original reports of the radiology images and amended reports following MDT. We also looked for potential reasons for the discrepancies and their impact on patient and health care resources due to erroneous original reporting.

Methods: We looked at all types of images which were discussed in rheumatology/ radiology MDT of University Hospital Plymouth from October 2016 to

April 2019. A total of 154 images were randomly selected and their reports were analyzed. The original reports were compared with the addendum made after the MDT and on the rheumatology electronic records. Clinical letters were also looked at to identify changes in follow up and treatment plans after the MDT.

Results: The majority of discussed images were X-rays (88). This is followed by 56 MRIs, 8 Ultrasounds and 2 others including CT.

After MDT review 38/88 X-rays (43%), 9/56 MRIs (16%) and 1/ 8 USS (13%) reports were amended. 31/38 amended X-ray (82%) and 5/9 amended MRIs (56%) were externally reported originally. In addition, 4 X-rays and 1 MRI reported by Radiology trainees were also amended.

Following the MDT outcome, the management plan was changed in 18/38 (47%) amended X-ray reports and 6/ 9 (67%) in amended MRI reports.

There were 17 rheumatology referrals by GP that were based on erroneous X-rays reporting and 3 of them were rejected after the MDT. The others were brought to the MDT after the first clinic visit and were discharged subsequently.

Conclusion: Joint rheumatology/ radiology MDT discussion makes significant outcome to patient care by minimizing unnecessary investigations and treatment based on erroneous or unclear reporting. Question is raised about efficacy of outsourcing of radiology reporting and need for intensive training for radiology trainees in reporting musculoskeletal(MSK) images. Since significant numbers of GP referrals were based on erroneous reports, reporting done by MSK radiologists would have reduced unnecessary burden and waste of outpatient rheumatology resources.

The images submitted for MDT were selected largely by consultant rheumatologists based on their review of the images and reliance on the original report. Therefore, clinical impact is underestimated in this survey as there were potentially other images not reviewed in MDT that had ended in unnecessary clinical consultation. This survey emphasizes the need and importance of incorporating formal musculoskeletal radiology training into routine rheumatology training program.

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AB1090

BIOMARKERS TO DIFFERENTIATE EARLY INDISTINGUISHABLE CASES OF OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS.

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Background: Osteoarthritis (OA) and rheumatoid arthritis (RA) are the most frequent inflammatory diseases of the musculoskeletal system, which could not be differentiated in their early stages, and characterized by degradation of articular cartilage and impairment of joint function. Sometimes, criteria and radiography are not insufficient to distinguish early-stages of RA and OA and predict disease course, and therefor biomarkers that help clinicians to early diagnose disease are essential.

Objectives: The aim of this study is to estimate serum level of Matrix metalloproteinase 3 (MMP3) and hydroxyproline (HP) in early RA and OA patients to see if they can be used to differentiate both diseases at their early stages

Methods: The aim of this study is to estimate serum level of Matrix metalloproteinase 3 (MMP3) and hydroxyproline (HP) in early RA and OA patients to see if they can be used to differentiate both diseases at their early stages

Results: We found a highly significant elevation of serum MMP3 in OA patients group compared to RA patients and control groups. We also found a highly significant elevation of MMP3 in RA patients than control group, (P < 0.001). Meanwhile, we found a highly significant elevation of HP in OA patients than in RA patients and control groups, (P < 0.001), whereas there was no significant difference between HP in RA patients and control groups (P > 0.05).

Table 1. Demonstration of serum levels of MMP3 and HP in all groups.

"Enzyme"	OA (n=40)	RA (n=40)	Control (n=40)	p-value
MMP3 pg/mL	559.92±1112.84	153.25±162.05	59.79±63.54	<0.001
HP µg/mL	12.87±18.75	4.81±6.89	4.52±1.55	<0.001
HP µg/mL		4.81±6.89	4.52±1.55	> 0.05

Conclusion: Our results suggest that serum levels of Hydroxyproline (HP) rather than MMP3 could be used as a potential biomarker for early differentiation between osteoarthritis (OA) and rheumatoid arthritis (RA) when diagnostic criteria failed to be fulfilled.

References:

- [1] Benedetti S, Canino C, Tonti G, Medda V, Calcaterra P, Nappi G, Salaffi F, Canestrari F. (2010): Biomarkers of oxidation, inflammation and cartilage

degradation in osteoarthritis patients undergoing sulfur-based spatherapies. *ClinBiochem.*; 43: 973-8.

- [2] Fenton, S. A. M., Veldhuijzen van Zanten, J. J. C. S., Duda, J. L., Metsios, G. S., and Kitas, G. D. (2018). Sedentary behaviour in rheumatoid arthritis: definition, measurement and implications for health. *Rheumatology. (Oxford)* 57(2), 213-226.
- [3] Murphy, G., and Nagase, H. (2008). Progress in matrix metalloproteinase research. *Mol. Aspects Med.* 29(5), 290-308.
- [4] Bonnans, C., Chou, J., and Werb, Z. (2014). Remodelling the extracellular matrix in development and disease. *Nat. Rev. Mol. Cell Biol.* 15(12), 786-801.
- [5] Hofman, K., Hall, B., Cleaver, H., & Marshall, S. (2011): High-throughput quantification of hydroxyproline for determination of collagen. *Analytical biochemistry*, 417(2), 289-291.
- [6] Barranco, C. (2015): Osteoarthritis: activate autophagy to prevent cartilage degeneration? *Nat. Rev. Rheumatol.* 11, 127.
- [7] M.S. Radha and Dr. M.R. Gangadhar (2015), Serum enzyme of matrix metalloproteinase-3 in patients with knee osteoarthritis, *International Journal of Recent Scientific Research Vol. 6, Issue, 6, pp.4457-4460, June, 2015.*
- [8] Bassiouni, H. M., El-Deeb, M., Kenawy, N., Abdul-Azim, E., & Khairy, M. (2011). Phonoarthrography, musculoskeletal ultrasonography, and biochemical biomarkers for the evaluation of knee cartilage in osteoarthritis. *Modern rheumatology*, 21(5), 500-508.
- [9] Ahmed, U., Anwar, A., Savage, R. S., Costa, M. L., Mackay, N., Filer, A., Raza, K., Watts, R. A., Winyard, P. G., Tarr, J., Haigh, R. C., Thornalley, P. J., and Rabbani, N. (2015). Biomarkers of early stage osteoarthritis, rheumatoid arthritis and musculoskeletal health. *Sci. Rep.* 5, 9259.

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AB1091

FREQUENCY OF ULTRASOUND ENTHESITIS AND SYNOVITIS IN DIFFERENT ANATOMICAL SITES OF UPPER AND LOWER EXTREMITIES IN PATIENTS WITH PSORIATIC ARTHRITIS: CROSS-SECTIONAL STUDY

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Background: Psoriatic arthritis (PsA) is characterized by asymptomatic enthesitis and synovitis¹. The location of pathological lesions is not clear. Furthermore, ultrasound (US) enthesitis indices assess limited number of entheses.

Objectives: To detect the most frequent sites of US enthesitis and synovitis in PsA.

Methods: 57 PsA patients were enrolled to the study. US examination included bilateral large 14 joints; entheses of tendons and ligaments in the projection of examined joints (total number - 54). Totally, 798 joints, 3078 entheses were examined. The study was conducted by US rheumatologist. Data collection: demographical, clinical, US (total synovitis count by grey scale, enthesitis counted as the sum of structural and acute components (US enthesal findings assessed by the definition and scoring for enthesitis in PsA (OMERACT US)². Chi-square test used to calculate difference of articular and enthesal frequency between upper and lower extremities.

Results: In all 57 patients: male - 25 (43.9%), mean age 43.4±10.3(SD) years (y), PsA duration was 7 (3;10) y, Disease Activity in PsA score 18.1 (10.2;26.1).

Table. Frequency of articular and enthesal involvement of different anatomical sites in PsA

Upper extremities / Joints / Entheses	Frequency	Lower extremities / Joints / Entheses	Frequency
Acromioclavicular	29/456 (6.4%)	Hip	19/342 (5.6%)
Shoulder	3/456 (0.7%)	Knee	28/342 (8.2%)
Elbow	10/456 (2.2%)	Ankle	23/342 (6.7%)
Wrist	27/456 (5.9%)	Trochanter major:	31/2166 (1.4%)
		-gluteus minimum	36/2166 (1.7%)
		-gluteus medium	
Short head of the biceps brachii	11/912 (1.2%)	Spina iliaca anterior superior	13/2166 (0.6%)
		-inferior	8/2166 (0.4%)
Coracoacromial ligament	5/912 (0.5%)	Ischiadicus tuberositas	36/2166 (1.7%)
Infrascapularis	19/912 (2.1%)	Medial collateral ligament	44/2166 (2%)
		-Proximal	25/2280 (1.2%)
		-Distal	
Supraspinatus	18/912 (1.9%)	Lateral collateral ligament	23/2166 (1.1%)
		-Proximal	9/2166 (0.4%)
		-Distal	