



BONEBRUISE BONE MARROW LESIONS BONE MARROW OEDEMA KNOGLEMARVS ØDEM

JENS ERIK JØRGENSEN

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REVIEW

Treatment of bone marrow lesions (bone marrow edema)

Erik F Eriksen

Department of Endocrinology, Morbid Obesity and Preventive Medicine, Oslo University Hospital, Oslo, Norway.

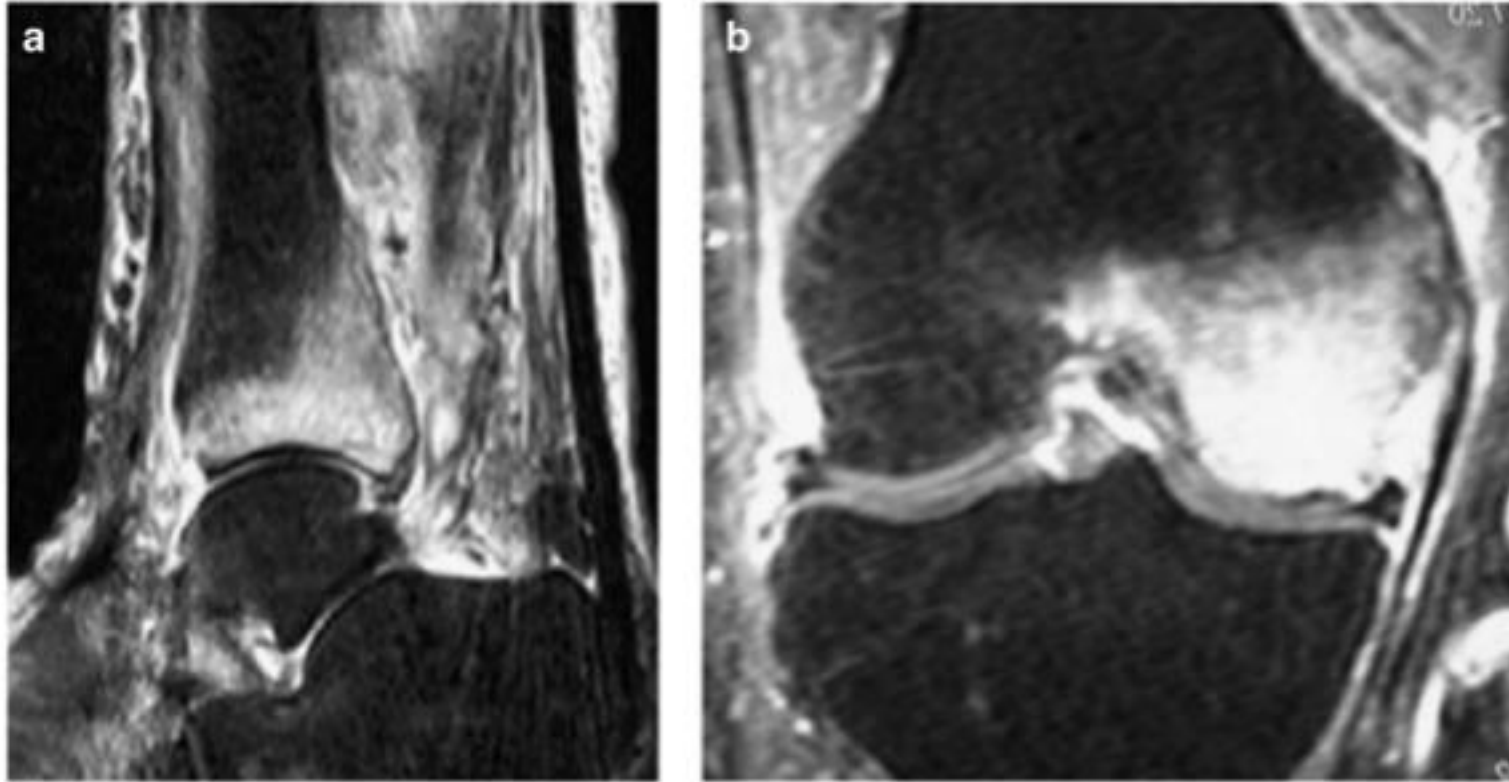


Figure 1 (a) Bone marrow lesion (BML) in lower tibia in 64-year-old women with pain in her ankle and leg over a period of 6 months; (b) Lateral knee tendinitis and BML of lateral condyle in 35-year-old man training for marathon.

- BMLS ARE NOT ONLY CONSIDERED SIGNIFICANT SOURCES OF PAIN BUT ALSO LINKED TO INCREASED DISEASE ACTIVITY IN MANY MUSCULOSKELETAL CONDITIONS (FOR EXAMPLE, OSTEOARTHRITIS, RHEUMATOID ARTHRITIS)

BONE MARROW LESION (BML) AETIOLOGY

(1) TRAUMA

- FRACTURE (ACUTE, OSTEOPOROTIC AND STRESS)
LOCAL TRANSIENT OSTEOPOROSIS
ALTERED STRESS/BIOMECHANICS (PLANTAR FASCIITIS, TENDINITIS/ENTESITIS) BONE BRUISE
OSTEOCHONDRAL INJURIES (OSTEOCHONDRITIS DISSECANS (IS A CONDITION THAT DEVELOPS IN JOINTS, MOST OFTEN IN CHILDREN AND ADOLESCENTS. IT OCCURS WHEN A SMALL SEGMENT OF BONE BEGINS TO SEPARATE FROM ITS SURROUNDING REGION DUE TO A LACK OF BLOOD SUPPLY.))

(2) DEGENERATIVE LESIONS

- OSTEOARTHRITIS (HIP, KNEE, OTHER) MODIC LESIONS (SPINE)

(3) INFLAMMATORY LESIONS

- INFLAMMATORY ARTHROPATHIES AND ENTHESITIS (RHEUMATOID ARTHRITIS (RA), ANKYLOSING SPONDYLITIS, PSORIASIS)
SYSTEMIC CHRONIC INFLAMMATION WITH FIBROSIS

(4) ISCHAEMIC LESIONS

- AVASCULAR NECROSIS (AVN)
COMPLEX REGIONAL PAIN SYNDROME (SUDEKS ATROPHY OF BONE) SICKLE CELL ANAEMIA (SCA)

(5) INFECTIOUS LESIONS

- OSTEOMYELITIS
DIABETIC FOOT, CHARCOT FOOT SEPSIS (BONE INFARCTS)

(6) METABOLIC/ENDOCRINE LESIONS

- HYDROXYAPATITE DEPOSITION DISEASE (HADD) GOUT

(7) IATROGENIC LESIONS

- SURGERY
RADIOTHERAPY
IMMUNOSUPPRESSANTS (GLUCOCORTICOIDS, CYCLOPSORIN) CYTOSTATICS

(8) NEOPLASTIC (AND NEOPLASTIC-LIKE) LESIONS

KNOGLEMARVS ØDEM (BONE BRUISE)

Rheumatol Int

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ORIGINAL ARTICLE

Effectiveness of extracorporeal shock wave therapy in bone marrow edema syndrome of the hip

Cristina d'Agostino · Pietro Romeo · Vito Lavanga ·
Salvatore Pisani · Valerio Sansone

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and Practice

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REVIEW

Treatment of bone marrow lesions
(bone marrow edema)

Erik F Eriksen

Extracorporeal Shock Wave Therapy Is Effective in the Treatment of Bone Marrow Edema of the Medial Compartment of the Knee: A Comparative Study

Valerio Sansone^{a,b} Pietro Romeo^b Vito Lavanga^a

^aDepartment of Orthopedics, Università degli Studi di Milano, and ^bIstituto Ortopedico Galeazzi IRCCS, Milan, Italy

- Symptoms are disabling and impair the quality of life and efficiency of this mainly working-aged, active patient population.
- The natural history indicates that relief from clinical symptoms and normalization of magnetic resonance imaging (MRI) require 3–18 months. **Risk of fracture**
- A gold standard for the treatment of BMES of the knee does not exist to date

Indication for treatment: no change in MR signal after 12 months.

ACL / MCL/ LCL: as soon as 6 weeks after trauma ?

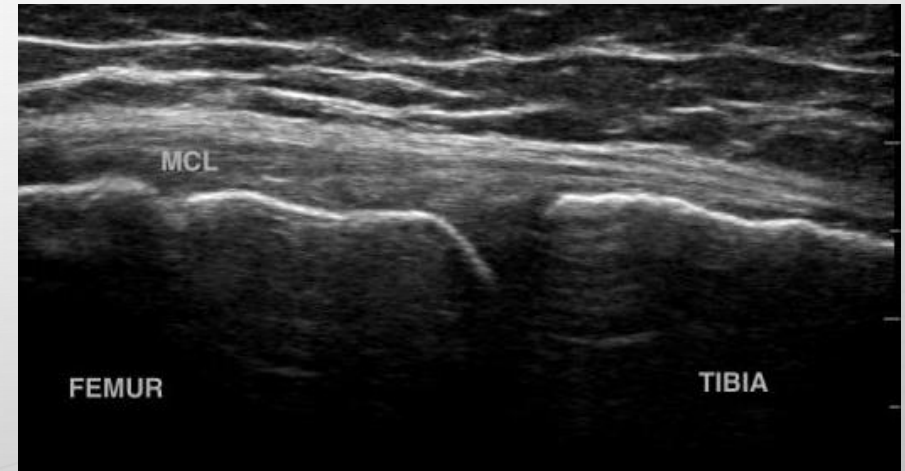
Reasoning: ligg pain subsides within 6 weeks – therefore if major pain still present – bone bruise? (hypothesis)

CASE

- 58 YEAR OLD MALE
- SLOW PAIN DEBUT MARCH 2019
- SEEN FOR THE FIRST TIME JUNE 2019, SICK LEAVE 4 WEEKS AT THIS STAGE
- REFERRED FOR ESWT TREATMENT: BONE BRUISE FEMUR RIGHT CONDYLE
- LOWER EXTREMITY FUNCTIONAL SCALE (LEFS) SCORE: 31 /80
- VAS: AVERAGE LAST WEEK: 2/10, BEST LAST 24 HRS 2/10, WORST LAST 24 HOURS 2/10
- PATIENT SPECIFIC FUNCTIONAL SCALE: 23/30 (UNEVEN TERRAIN, WORK (CLEANING), PERSONAL HYGIENE)

- LEFS: THE MINIMUM DETECTABLE CHANGE (MDC) :9 POINTS. THAT IS, A CHANGE OF MORE THAN 9 POINTS REPRESENTS A TRUE CHANGE IN THE PATIENT'S CONDITION.
- LEFS: THE MINIMUM CLINICALLY IMPORTANT DIFFERENCE (MCID) 9 POINTS. THAT IS, "CLINICIANS CAN BE REASONABLY CONFIDENT THAT A CHANGE OF GREATER THAN 9 POINTS IS... A CLINICALLY MEANINGFUL FUNCTIONAL CHANGE."
- VAS MCD: 2 POINT
- PSFS: TOTAL 2 POINT, SINGLE ACTIVITY 3 POINT
- ELEKTRONISK VERSION: [HTTPS://WWW.ORTHOTOOLKIT.COM/LEFS/](https://www.orthotoolkit.com/LEFS/)

- 1 TREATMENT: 2500 IMPULSES, 3,0 HZ, 0.2-0.25 MJ/MM², 18,34 JOULE
- 2 TREATMENT : 2847 IMPULSES, 3-4HZ , 0.1-0.25 MJ/MM² , 18,24 JOULE
- 3 TREATMENT : 2500 IMPULSES, 5 HZ , 0.2 MJ/MM², 19.73 JOULE



START.

3 TREATMENTS (3 WEEKS)

4 WEEKS AFTER LAST TREATMENT

- LOWER EXTREMITY FUNCTIONAL SCALE (LEFS) SCORE:

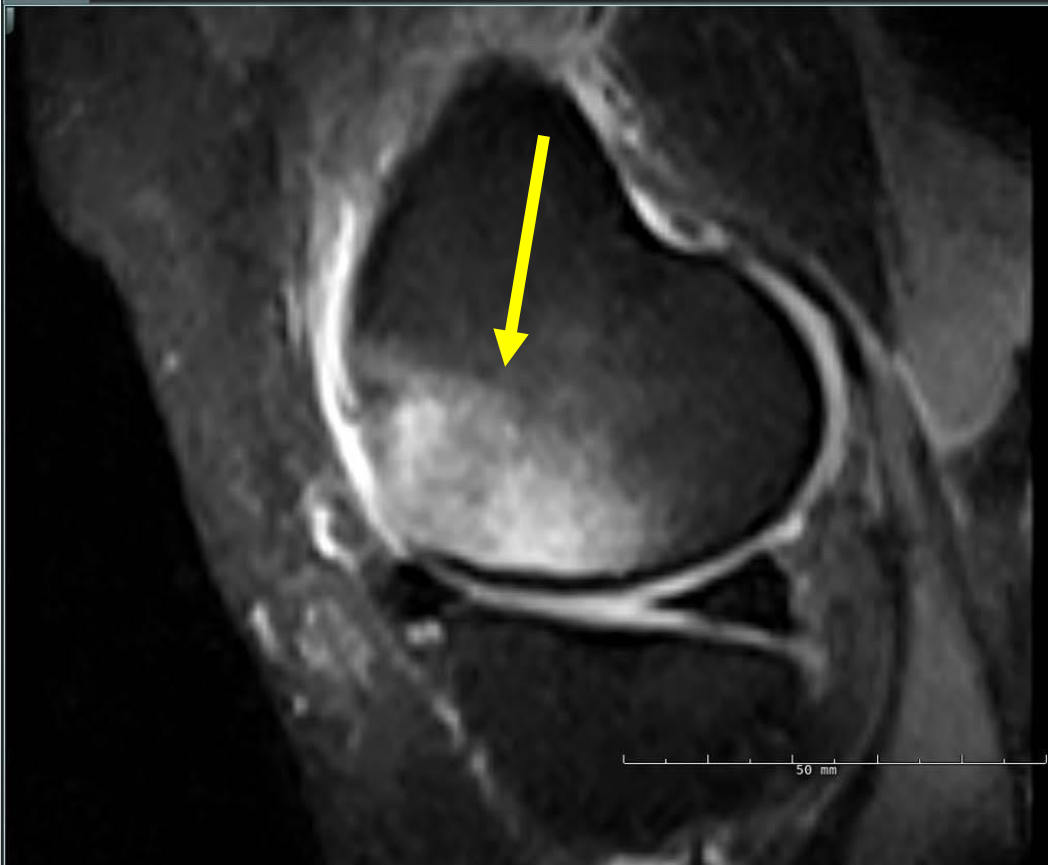
- 31/80 58/80 63/80

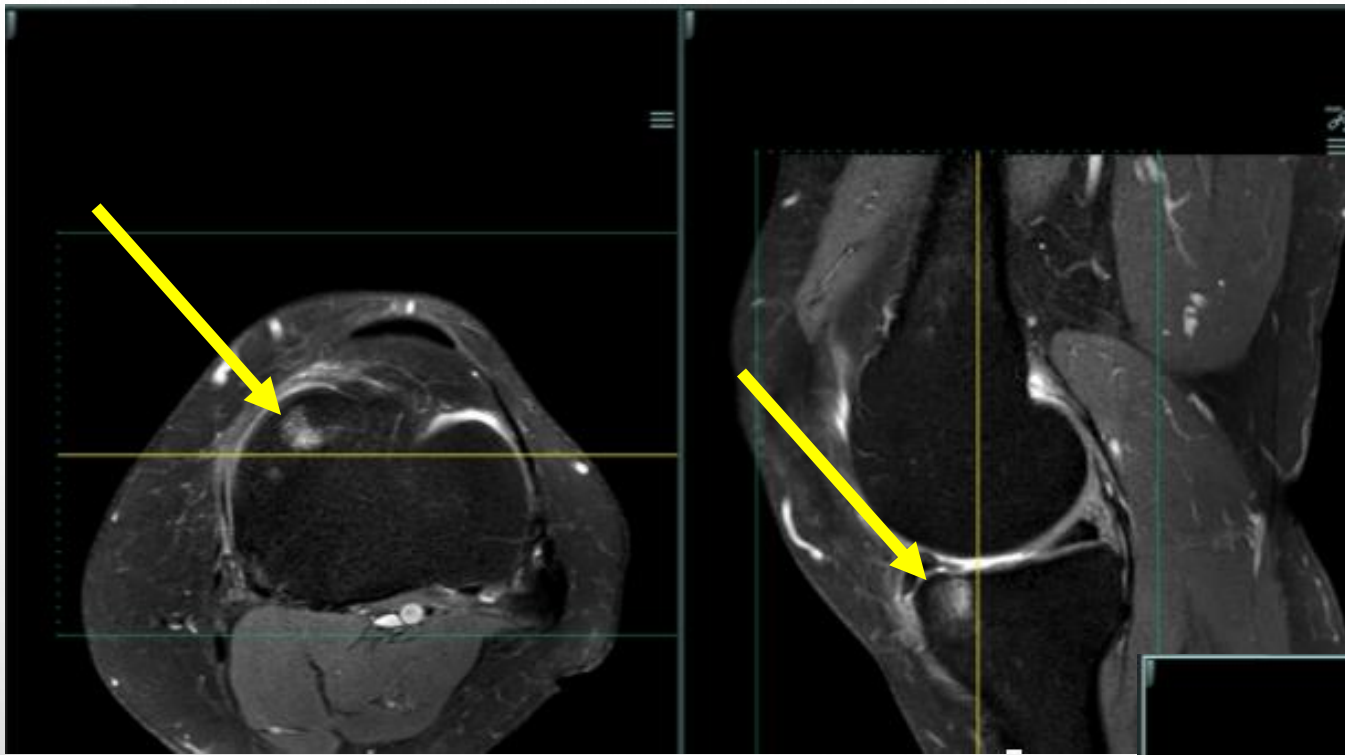
- VAS: AVERAGE

- LAST WEEK: 2/10 0/10 0/10. BEST LAST 24 HRS: 2/10, 0/10 0/10
WORST LAST 24 HOURS: 2/10 0/10 0/10

- PATIENT SPECIFIC FUNCTIONAL SCALE:

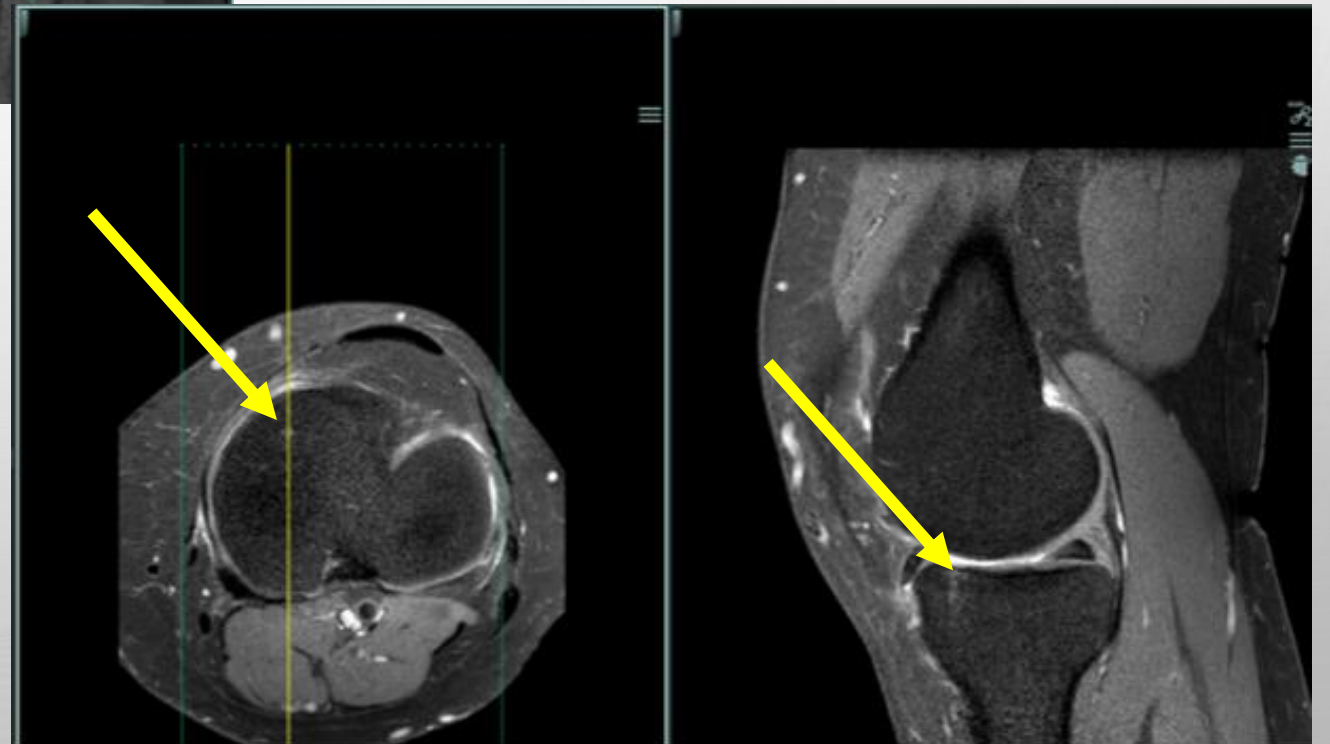
- 2/30 23/30 23/30 (UNEVEN TERRAIN, WORK (CLEANING), PERSONAL HYGIENE)

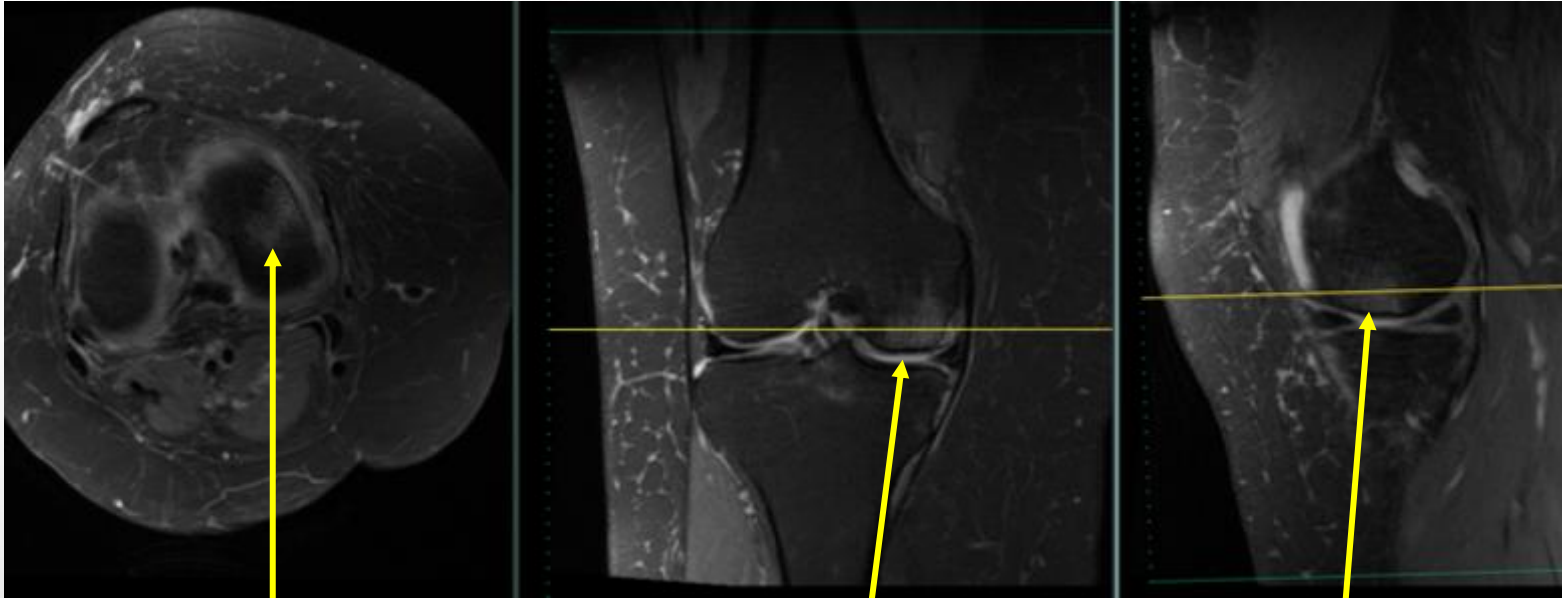




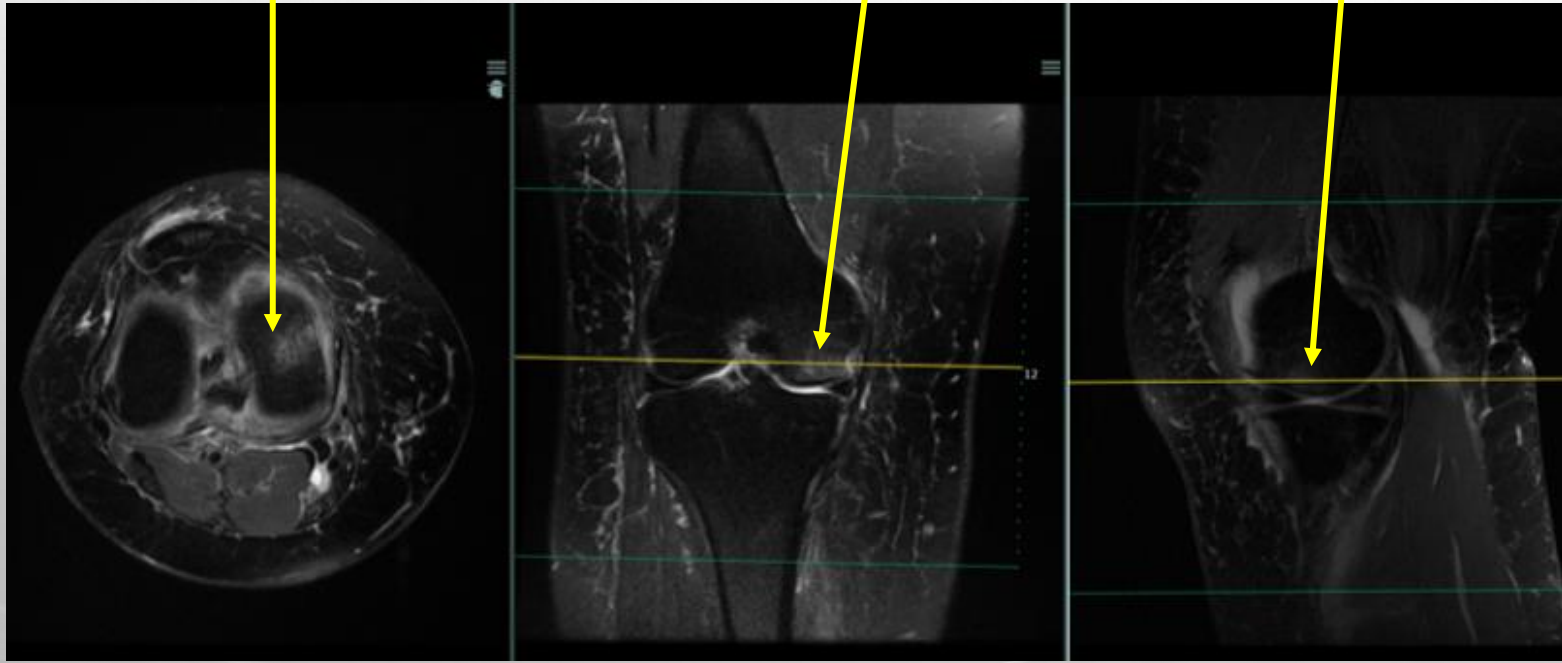
Baseline

4 months later





No difference



(3) *Inflammatory lesions*
Inflammatory arthropathies and enthesitis (rheumatoid arthritis (RA), Ankylosing spondylitis, psoriasis)
Systemic chronic inflammation with fibrosis