Brainstorming Sessions

Η σωστή διάγνωση ως βάση της θεραπείας στις Σπονδυλαρθρίτιδες

Εσκιτζής Αναστάσιος
Ιδιώτης Ρευματολόγος

Introduction

2 patient cases

with some related literature

to illustrate the importance of the correct diagnosis in patients with suspicion of SpA
and the connection to appropriate treatment

Disclosures:
Υποστήριξη από την Hospital Line για τη συμμετοχή στο παρόν συνέδριο.

Why diagnosis matters in SpA

Spondyloarthritis is both:

- Frequently **suspected**
- Frequently **misdiagnosed**

Two fundamental diagnostic risks:

- **Overdiagnosis** → mimics labeled as SpA
- **Underdiagnosis / misdiagnosis** → SpA labeled as something else

Why it matters:

- Treatment is **diagnosis-driven**
- Wrong diagnosis → **wrong therapeutic pathway** (overtreatment, treatment delay, wrong choice of drugs)

Case presentation 1

14 yo female patient

- low back pain, rather right sided, present for at least 1 yr
- mixed (mechanical and inflammatory) features: persisting at night, not improving with movement, good response to NSAIDs

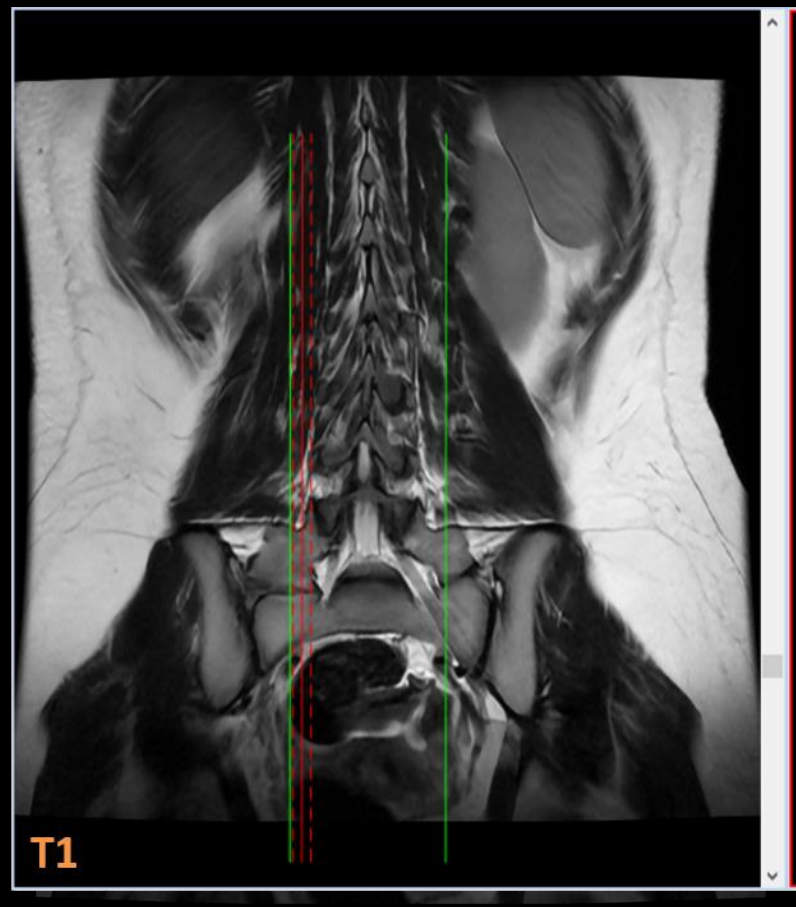
- Family history: mother with psoriasis and psoriatic arthritis on bDMARD

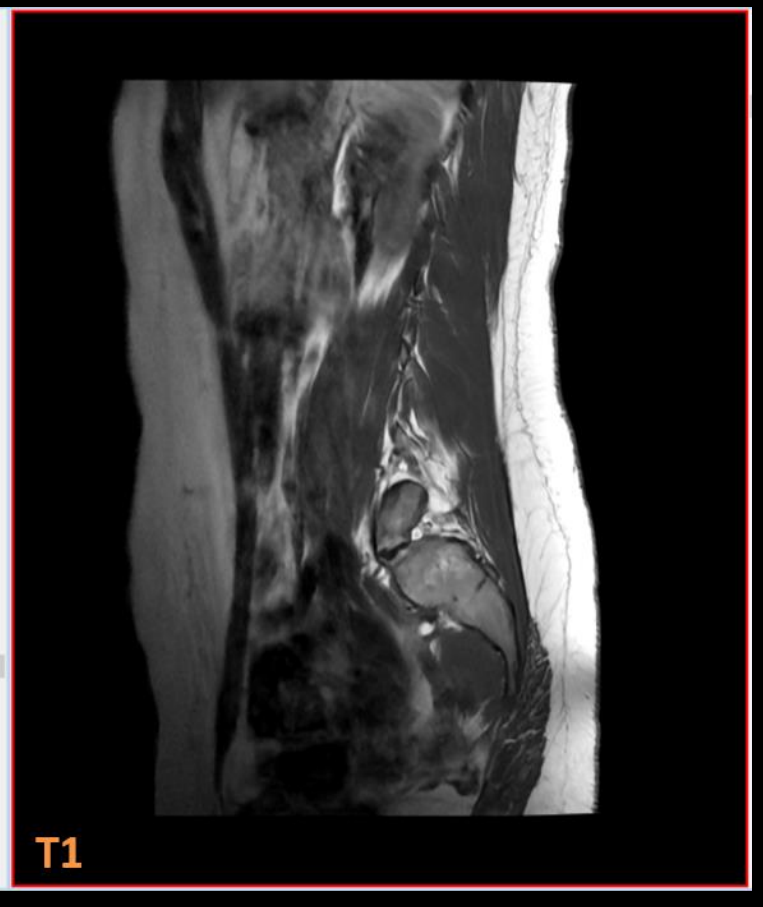
- Labs: CRP (-), ESR 20 mm/h, HLA-B27 (-)
- Mother also HLA-B27 (-).

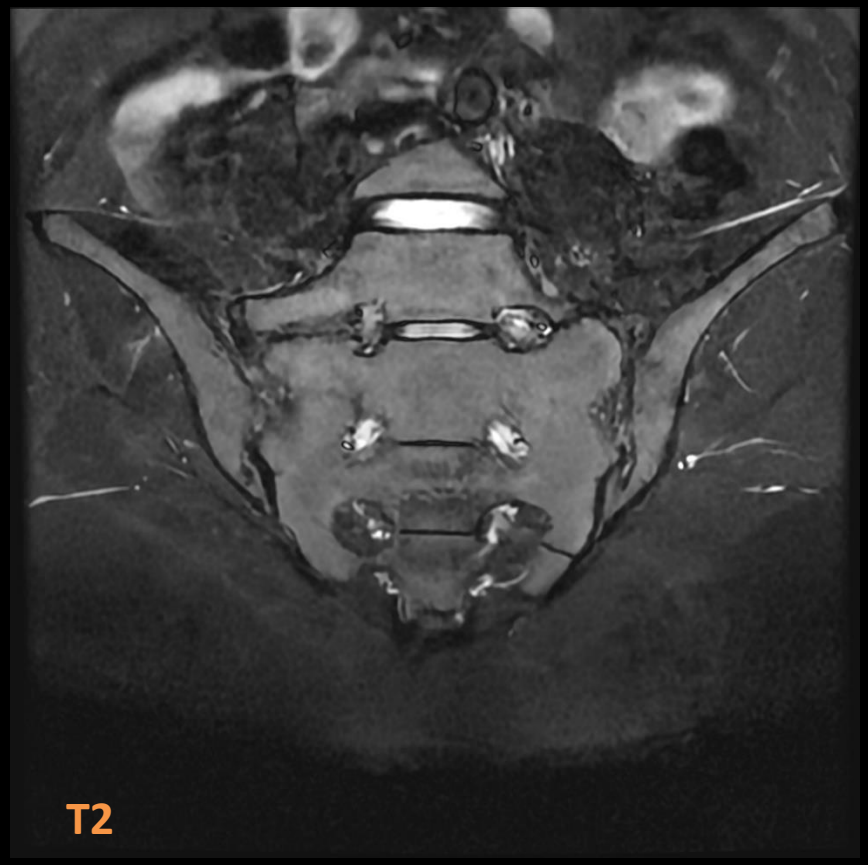
Suspicion for axial SpA

Imaging required

Case presentation 1 - Continued







Lumbosacral transitional vertebra (LSTV) – Bertolotti syndrome

Bertolotti syndrome is a clinical diagnosis of **low back pain** caused by a **lumbosacral transitional vertebra (LSTV).**

LSTV is a common congenital anomaly (**4-25% of the population), where either the lowest lumbar vertebra sacralizes, or the uppermost sacral segment lumbarizes.**

Sacralized L5 exhibit morphologic features ranging from elongated transverse process(es) to complete sacral fusion.

Lumbarized S1 may appear more square-like in the sagittal plane, possess full sized S1–S2 intervertebral disk and/or lumbar-type facet joints, and articulate abnormally to the remainder of the sacrum.

LSTV is associated with low back pain, nerve root symptoms, and sacroiliac dysfunction.

Origin of LBP?: pseudoarticulation?, superior intervertebral disc?

Management algorithm:

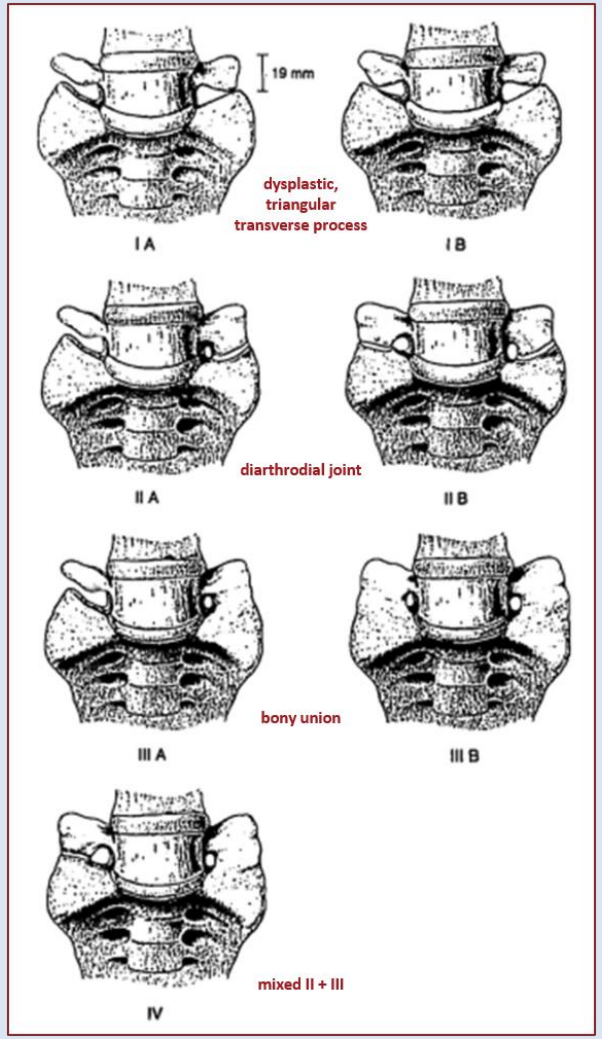
anesthetic block of the pseudoarticulation -> pain relief

-> steroid inj in the pseudoarticulation

-> RF ablation

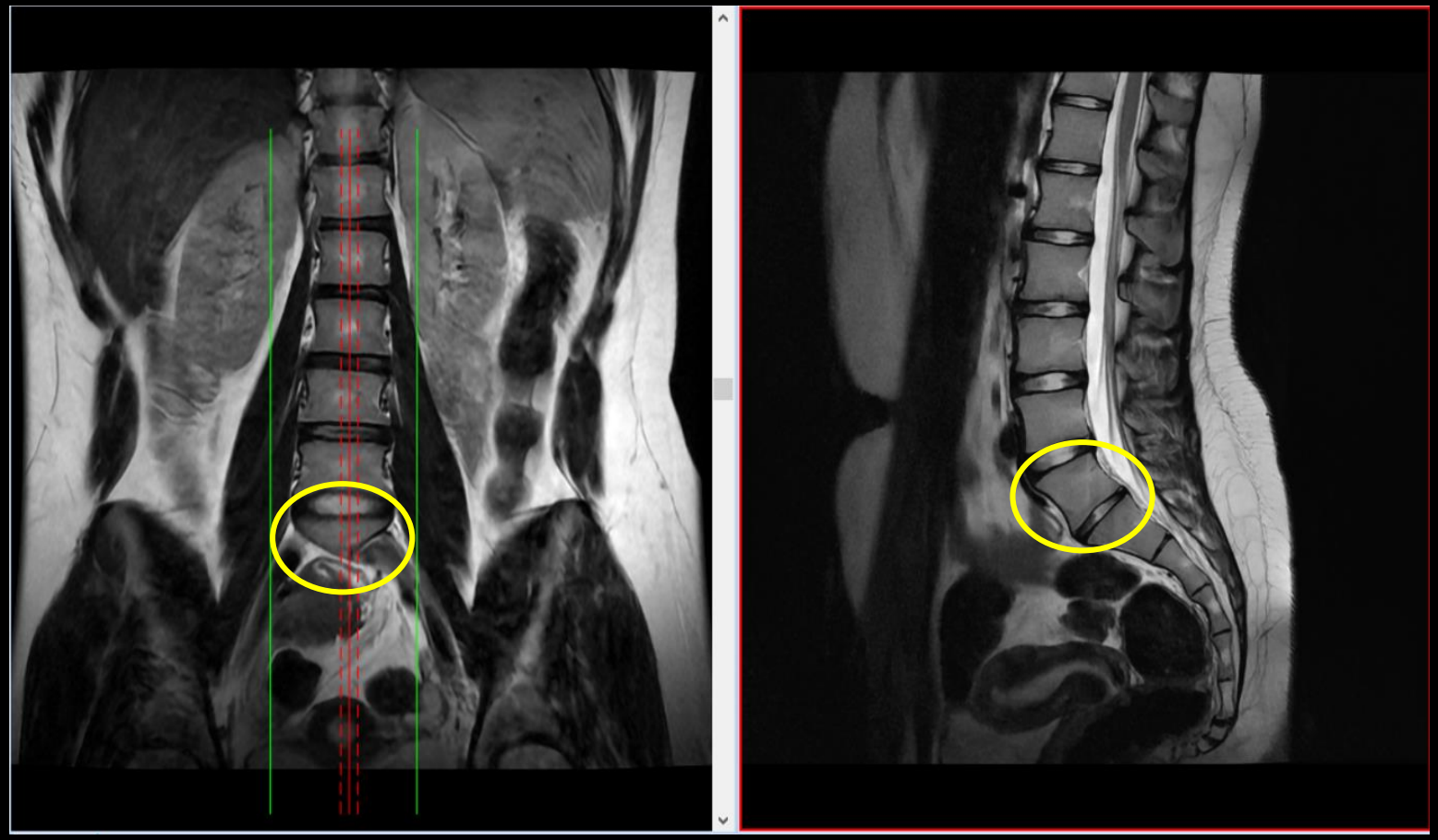
-> surgery

Castellvi classification system



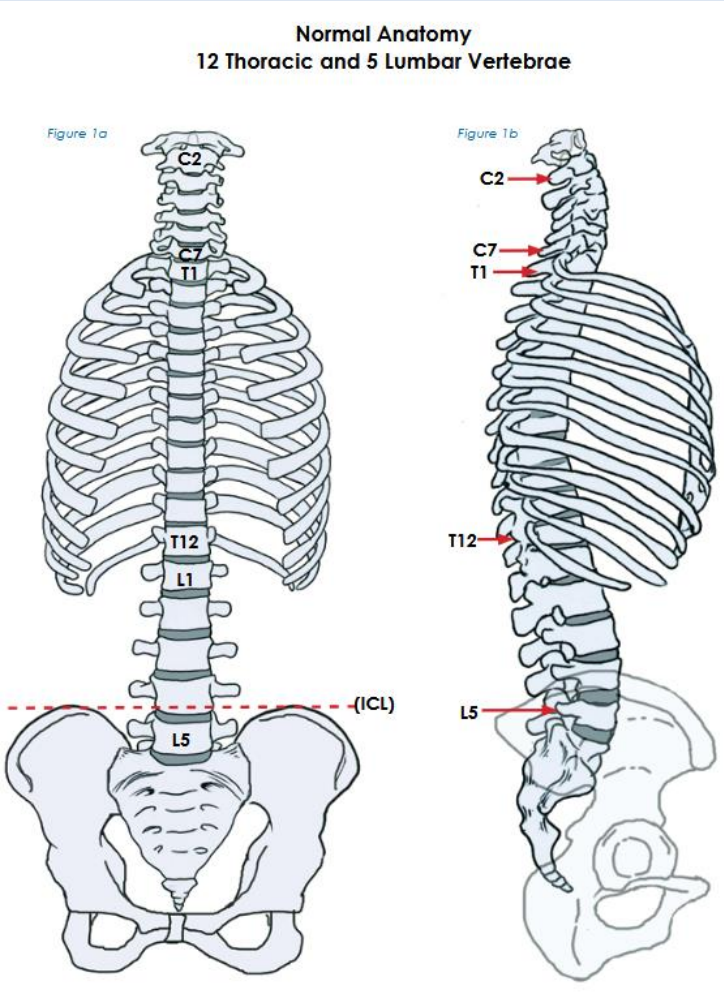
Castellvi, Antonio E., et al. "Lumbosacral Transitional Vertebrae and Their Relationship with Lumbar Extradural Defects." *Spine*, vol. 9, no. 5, Spine (Phila Pa 1976), 1984, pp. 493–95, doi:10.1097/00007632-198407000-00014.
Vinha, André, et al. "Lumbosacral Transitional Vertebrae: Prevalence in a Southern European Population and Its Association with Low Back Pain." *European Spine Journal*, vol. 31, no. 12, Springer Science and Business Media Deutschland GmbH, Dec. 2022, pp. 3647–53, doi:10.1007/S00586-022-07415-4/METRICS.

LSTV – Vertebral numeration



L5 or S1?

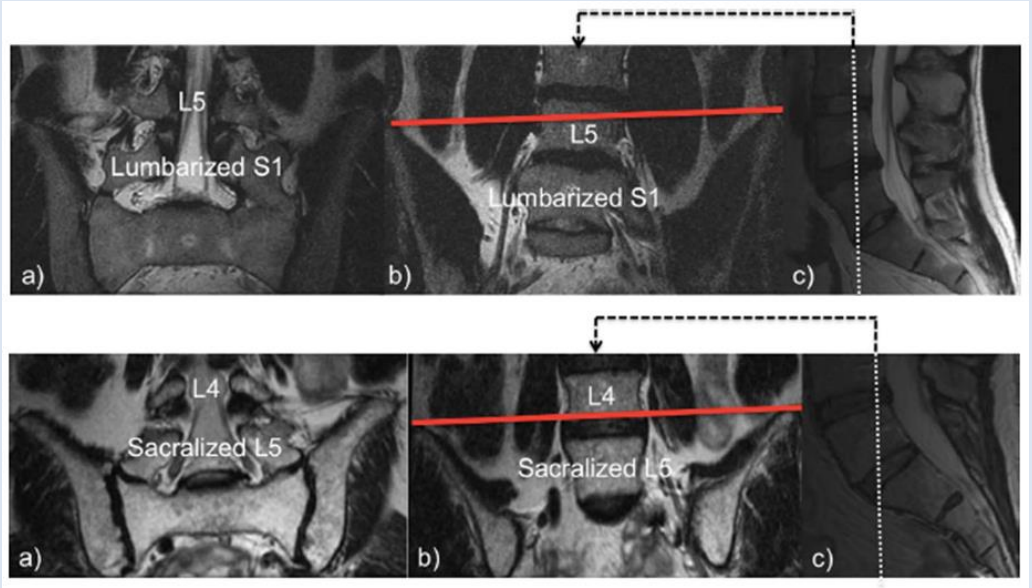
LSTV – Vertebral numeration



T1 is defined as the first vertebra with a pair of associated ribs.

L1 will always be the vertebra immediately below the last thoracic vertebra, that is the last vertebra with an associated pair of ribs.

If 5 lumbar vertebra present, then
the 5th vertebra is named L5 (even if sacralized)
the next vertebra is named S1 (even if lumbarized).



Iliac crest tangent sign

line connecting the superior tip of each iliac crest on coronal lumbar MRI ->

If there are more than 1¼ vertebral bodies visible below the line, then the most caudal vertebra is considered lumbarized S1.

If there are less than 1¼ vertebral bodies visible below the line, then the most caudal vertebra is considered sacralized L5.

O'Brien MF, Kiklo T, Blanke KM, Lenke LG, Spinal Deformity Study Group (SDSG) (Editors in Chief) (2008) Radiographic measurement manual. Medtronic Sofamor Danek USA, Inc., Memphis.

Farshad-Amacker, Nadja A., et al. "Merits of Different Anatomical Landmarks for Correct Numbering of the Lumbar Vertebrae in Lumbosacral Transitional Anomalies." *European Spine Journal : Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society*, vol. 24, no. 3, Eur Spine J, Mar. 2015, pp. 600–08, doi:10.1007/S00586-014-3573-7.

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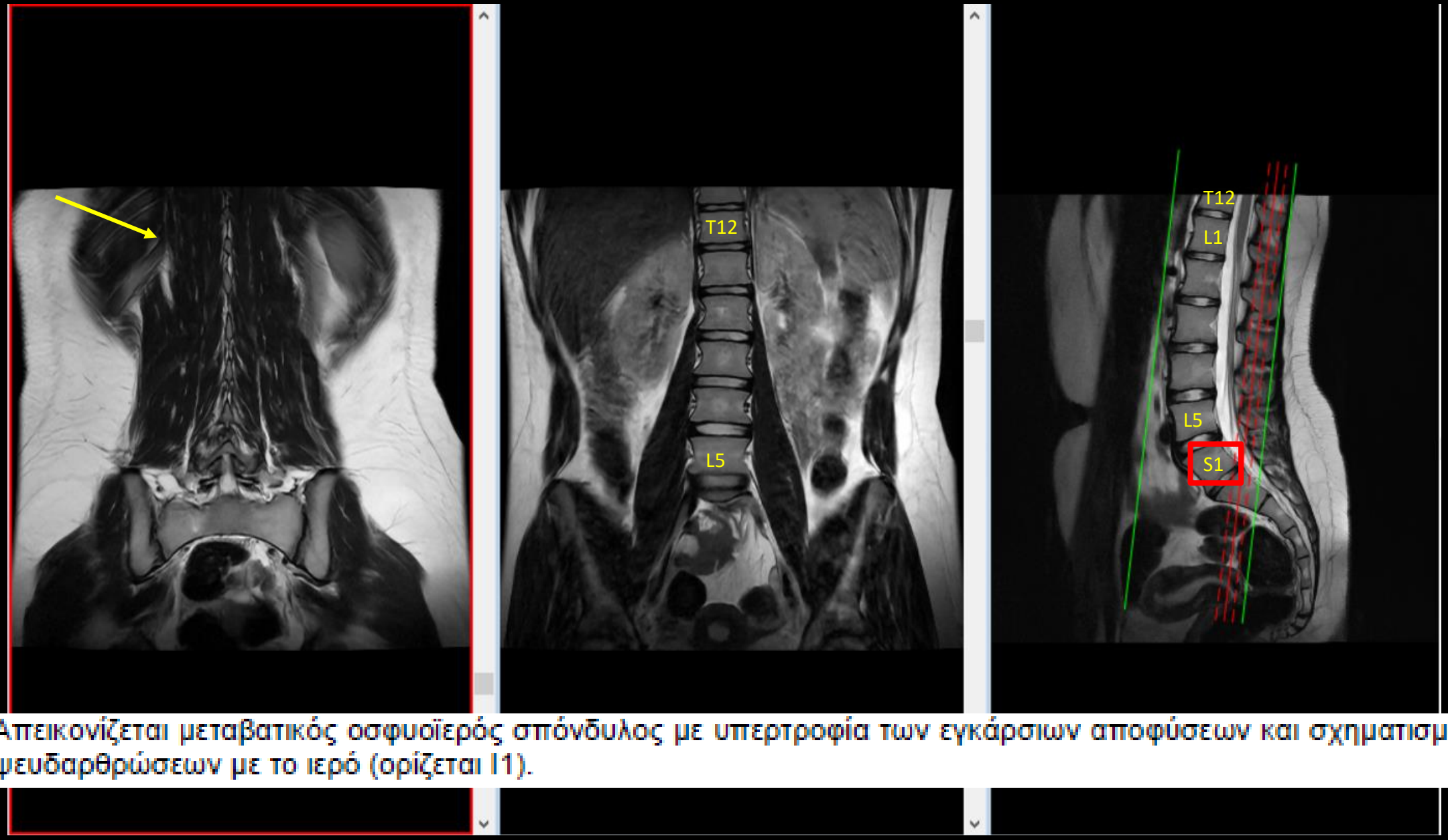
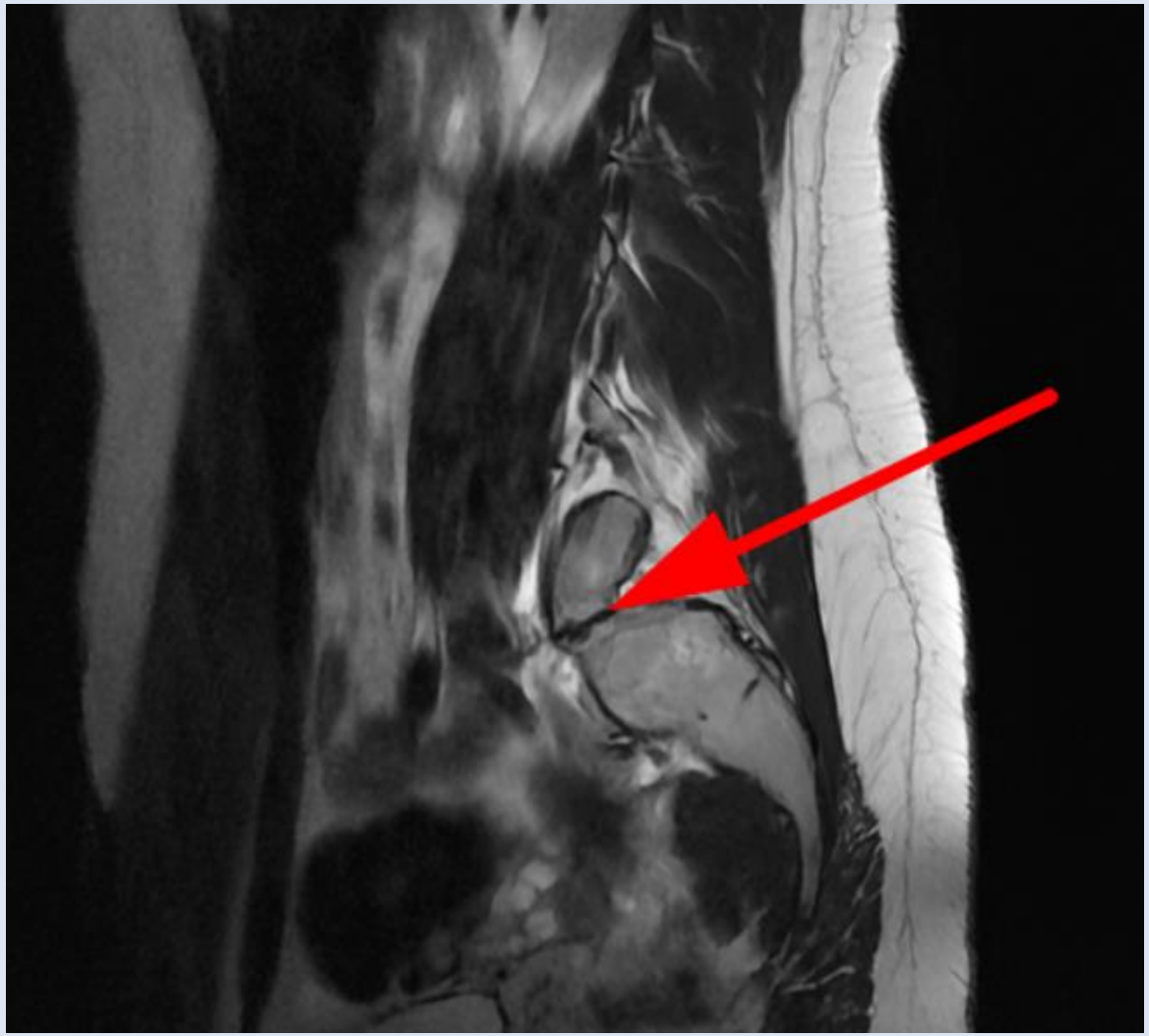


Απεικονίζεται μεταβατικός οσφυοϊερός σπόνδυλος με υπερτροφία των εγκάρσιων αποφύσεων και σχηματισμό ψευδαρθρώσεων με το ιερό (ορίζεται I1).

Case presentation 1 - Continued



CT guided steroid + anesthetic injection

-> prompt and sustained improvement in pain

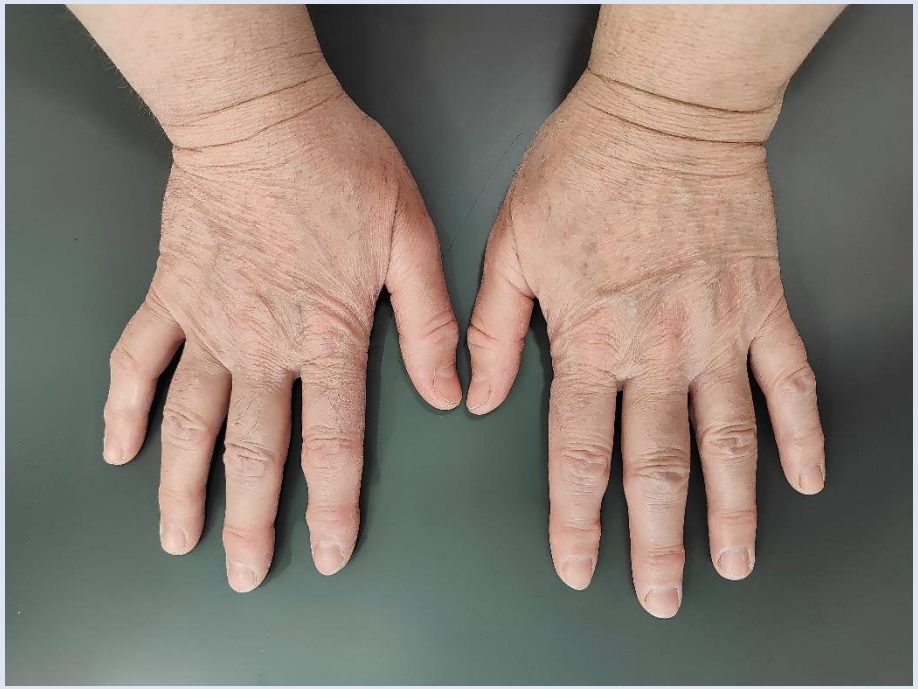
Case presentation 2

51 yo female

Dx of “seronegative RA” from 2022

symmetric inflammatory polyarthritis in finger joints (especially PIPJs), knees, midfoot joints

Main problem: GTPS R



Medication History:

MTX, unclear reason for discontinuation

leflunomide, inadequate response

abatacept, inadequate response

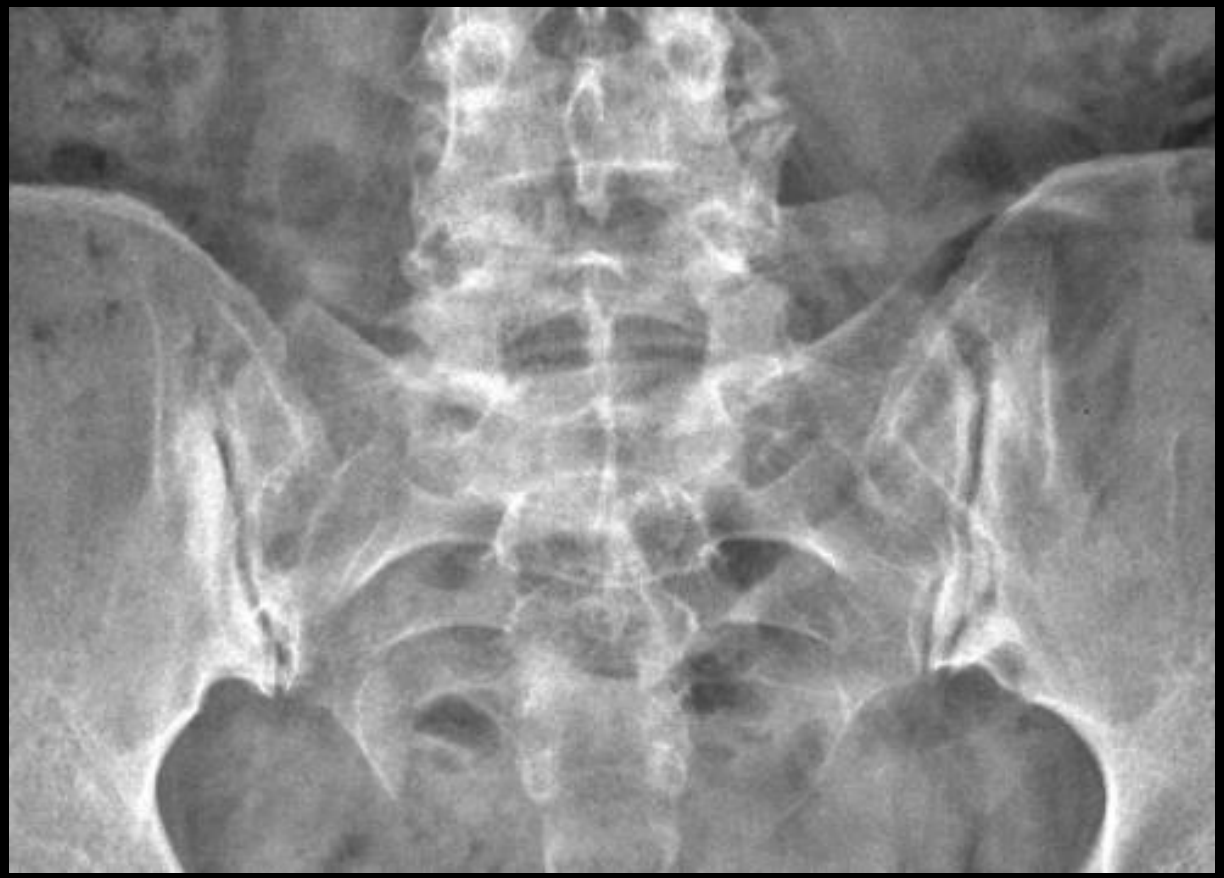
baricitinib, for 3 months, moderate response, then discontinued due to shoulder surgery for tendon tear

Other problems:

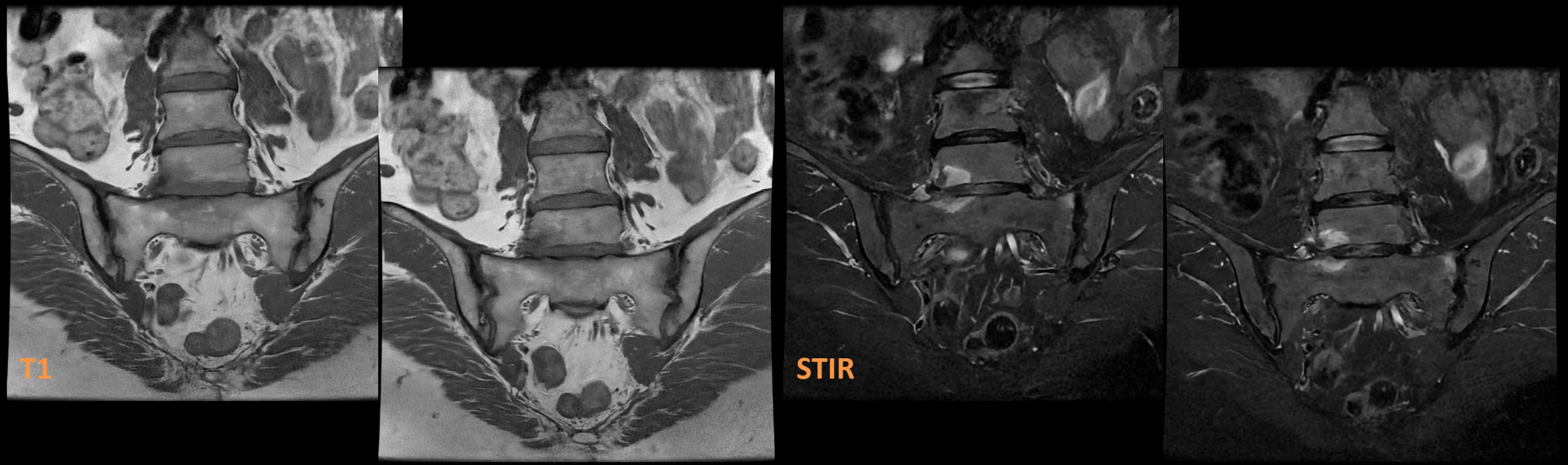
plantar fasciitis

chronic low back pain with inflammatory features

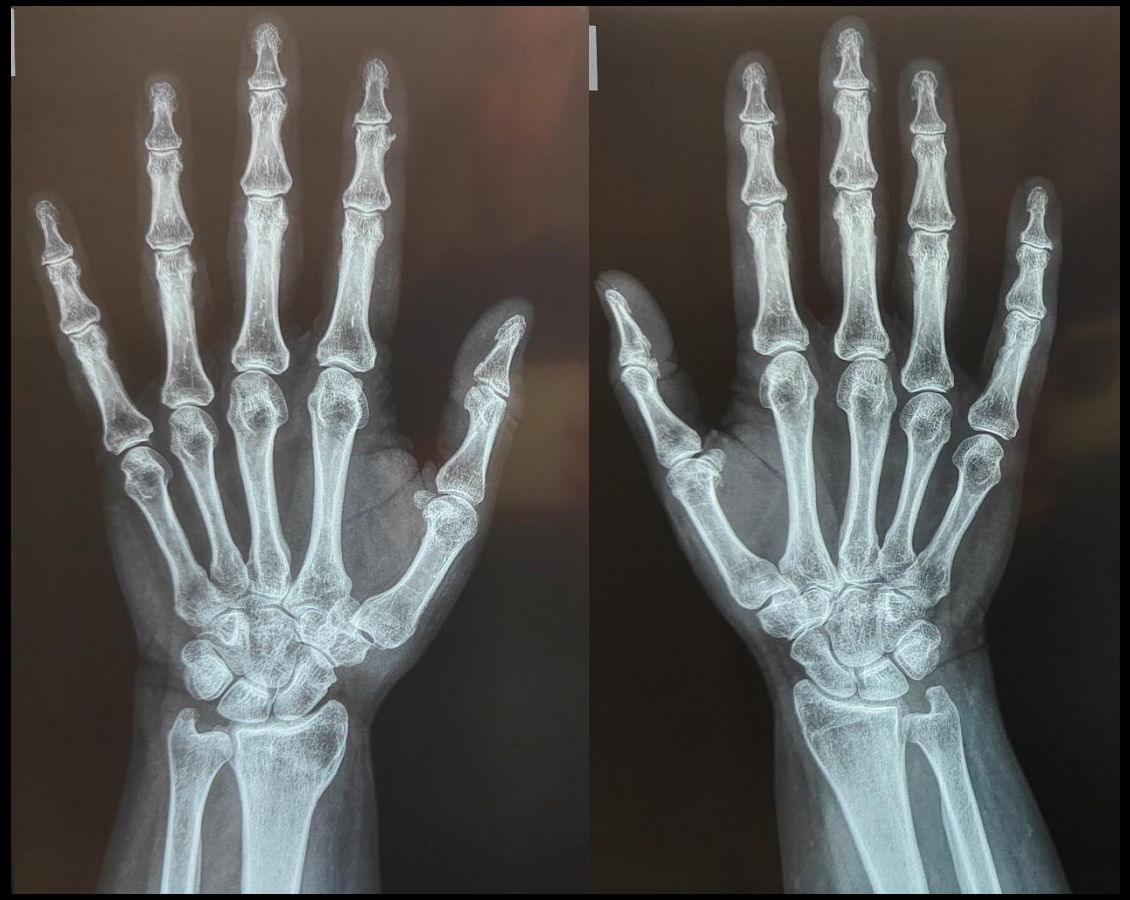
Case presentation 2 - Continued



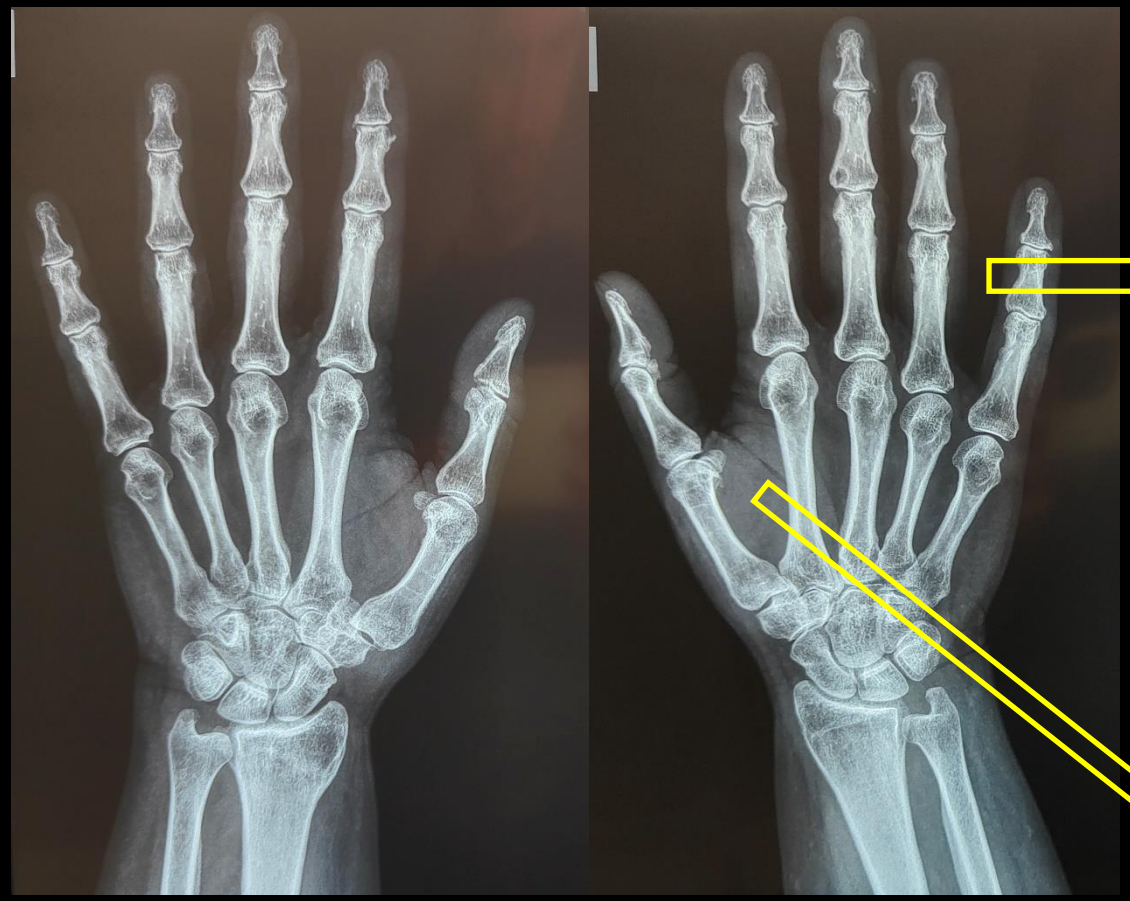
Case presentation 2 - Continued

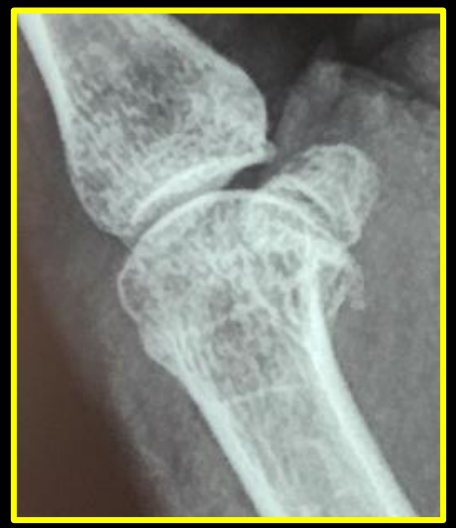


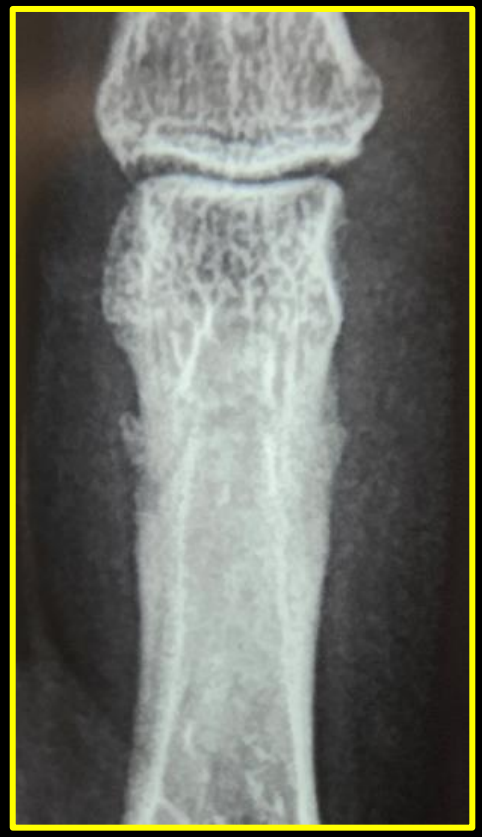
Case presentation 2 - Continued



Case presentation 2 - Continued

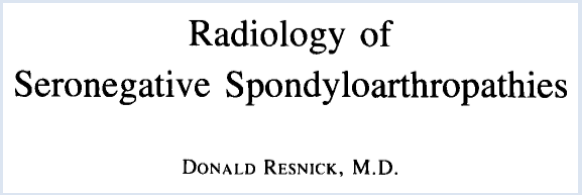






Peripheral joint changes in RA vs SpA

Radiographic appearance


Radiology of
Seronegative Spondyloarthropathies

Donald Resnick, M.D.

RA: **erosive change with little or no new bone.**

SpA: **erosions plus proliferative bone change, preserved bone density.**

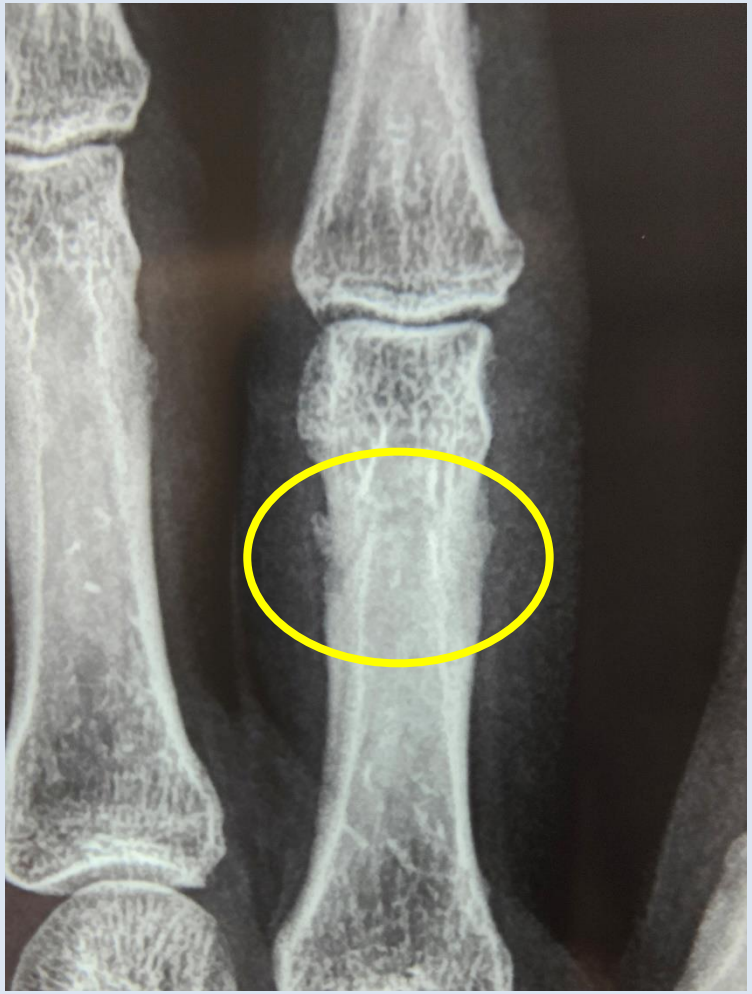
Pathophysiology

RA: synovitis drives **osteoclast-mediated bone resorption** through TNF-α, IL-1, IL-6, and RANKL, while **osteoblast repair is suppressed** by Wnt inhibitors such as DKK1.

SpA: inflammation is centered at the **enthesis/periosteum**, where the **IL-23/IL-17 axis** and downstream **Wnt/BMP/Hedgehog** programs favor **osteogenic differentiation**.

Resnick, D. “Radiology of Seronegative Spondyloarthropathies.” *Clinical Orthopaedics and Related Research*, vol. 143, no. 143, Clin Orthop Relat Res, 1979, pp. 38–45, doi:10.1097/00003086-197909000-00006.
Goldring, Steven R. “Differential Mechanisms of De-Regulated Bone Formation in Rheumatoid Arthritis and Spondyloarthritis.” *Rheumatology (Oxford, England)*, vol. 55, no. suppl 2, Rheumatology (Oxford), 2016, pp. ii56–60, doi:10.1093/RHEUMATOLOGY/KEW345.

Case presentation 2 - Continued



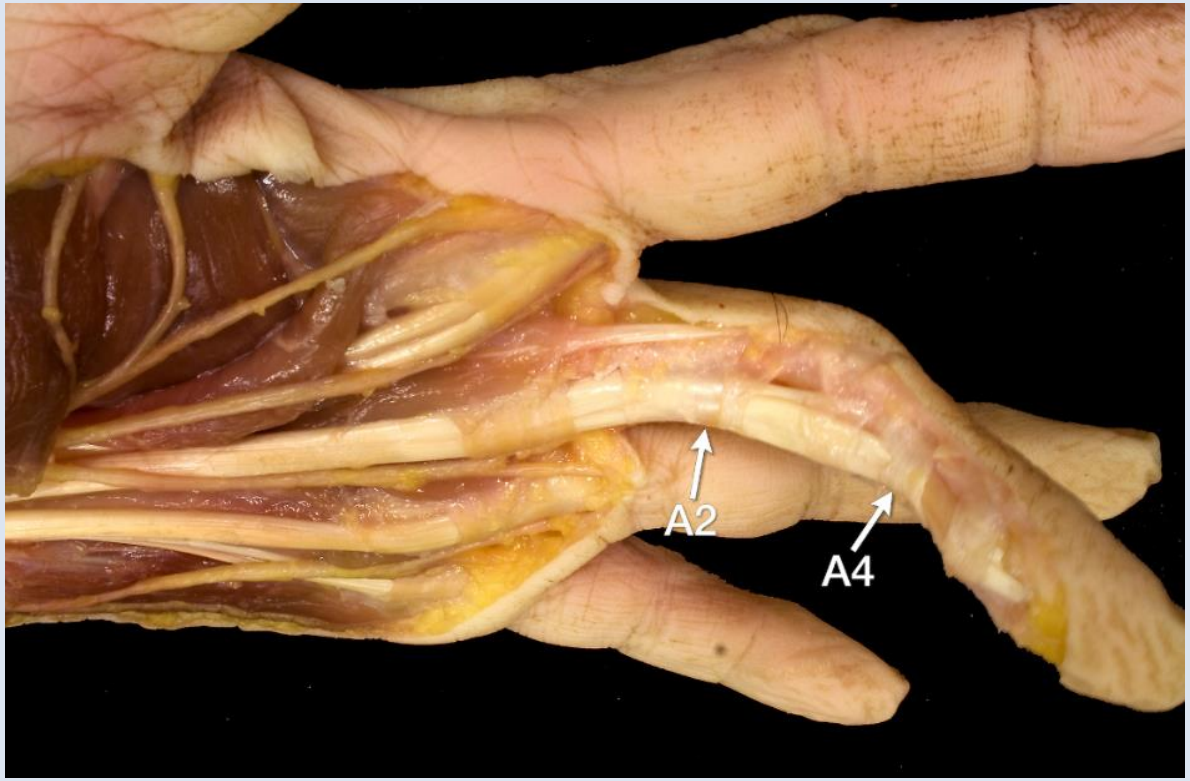
diagnostics

MDPI

Article

Osteo-Proliferative Lesions of the Phalanges on Radiography: Associations with Sex, Age, and Osteoarthritis

Sandra Hermann [1], Iris Eshed [2], Iván Sáenz [3], Niclas Doepner [4], Katharina Ziegeler [4,†] and Kay Geert A. Hermann [4,*,†]



Hermann, Sandra, et al. "Osteo-Proliferative Lesions of the Phalanges on Radiography: Associations with Sex, Age, and Osteoarthritis." *Diagnostics*, vol. 12, no. 3, 2022, pp. 1–9, doi:10.3390/diagnostics12030618.

Misdiagnosis of SpA as RA

RHEUMATOLOGY

Rheumatology 2021;60:2391–2395
doi:10.1093/rheumatology/keaa623
Advance Access publication 11 November 2020

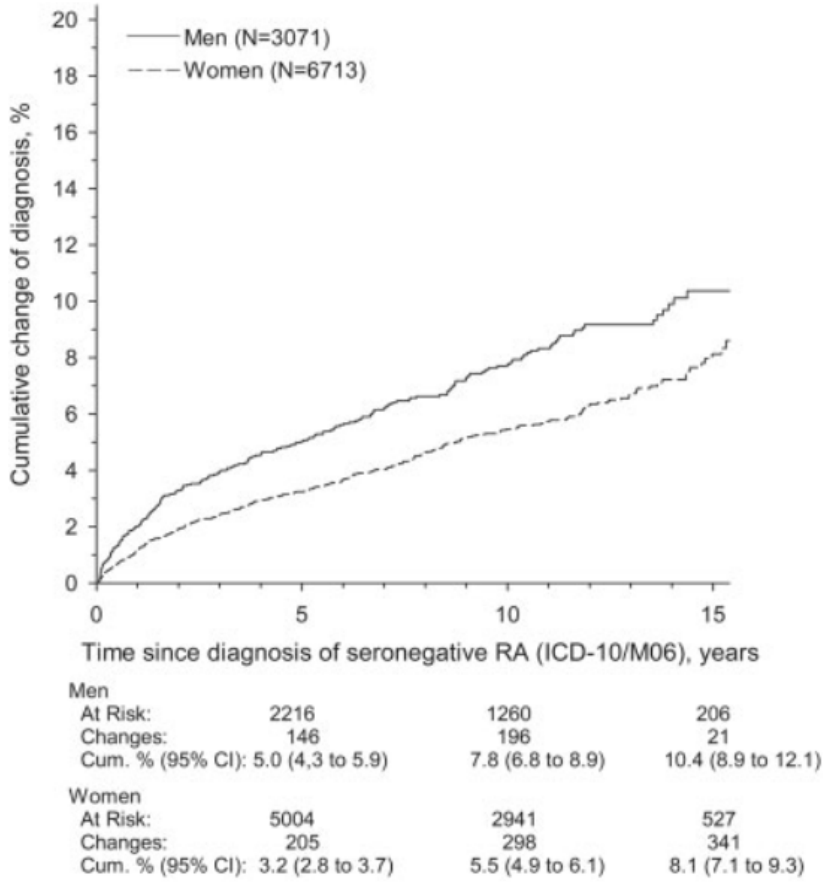
Original article

Is seronegative rheumatoid arthritis true rheumatoid arthritis? A nationwide cohort study

Kirsi Paalanen[1], Kari Puolakka[2], Elena Nikiphorou[3], Pekka Hannonen[1] and Tuulikki Sokka[1,4]

The **15-year cumulative incidence** for **changing diagnosis** from seronegative RA to **SpA** was **8.8%**.

Male patients and younger patients at diagnosis (<50 yrs) were more likely to have a change in their diagnosis to SpA.



The cumulative incidence of new SpA diagnosis (PsA, axial SpA and IBD) between men and women in patients initially diagnosed as seronegative RA during years 2000 and 2014.

Paalanen, Kirsi, et al. "Is Seronegative Rheumatoid Arthritis True Rheumatoid Arthritis? A Nationwide Cohort Study." *Rheumatology (Oxford, England)*, vol. 60, no. 5, Oxford University Press, May 2020, p. 2391, doi:10.1093/RHEUMATOLOGY/KEAA623.

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baricitinib, for 3 months, moderate response, then discontinued due to shoulder surgery for tendon tear

Other problems:

plantar fasciitis

chronic low back pain with inflammatory features

New Dx: axial SpA with peripheral arthritis

Poor response to abatacept and leflunomide (and baricitinib) makes sense.

Tx w infliximab sc + methotrexate po

-> good response

Concluding remarks

- With no pathognomonic features, diagnosis of spondyloarthritis remains a skill that involves the recognition of a pattern of features that taken together provide sufficient evidence to diagnose the disease.

- Other causes of back pain, including mechanical conditions, that may cause symptoms at young age and mimic SpA, such as Bertolotti syndrome, need to be kept in mind.

- “Seronegative RA” is often not the final diagnosis – just a temporary “label”. Look carefully for axial and peripheral Spa features, including osteoproliferation!

- Diagnostic errors need to be avoided, as they usually lead to therapeutic errors.

Ευχαριστώ για την προσοχή σας!