



# Psoriatic Arthritis

# Psoriatic arthritis (PsA)

- Inflammatory arthropathy associated with psoriasis, usually seronegative and without rheumatoid nodules.
- chronic inflammatory arthropathy accompanied by clinical changes, including arthralgia, hyperemia, swelling, often with prolonged morning stiffness and characteristic radiological manifestations, occurring in patients with psoriasis or may be precursor to psoriasis.

# PsA

- The association between arthritis and psoriasis was observed in XIX-th century.
- In the 1960s, based on epidemiological and clinical studies, it became clear that unlike RA, arthritis associated with psoriasis is usually seronegative, often involving distal interphalangeal joints of the fingers, vertebrae and sacroiliac, has distinctive radiological features and considerable family aggregation.
- In the 1970s..., PsA was included in the ***Seronegative spondylarthritides*** (SNSA) category due to the similar events with those of AS and ARe.

# Epidemiology

- The prevalence of PsA is estimated to be 5-30% among patients with psoriasis.
- In Caucasians psoriasis has a prevalence of approx. 1-3%.
- Psoriasis and PsA are less common in other ethnic groups.
- First-degree relatives of patients with PsA have an increased risk of disease (up to 30%) for both PsA and other forms of SpA.
- In monozygotic twins, the concordance for psoriasis varies from 35 to 72%, and for APs 10-30%.

# PsA

- The prevalence of psoriasis in the general population: 0.1-2.8%.
- The prevalence of psoriasis in arthritis patients: 2.6-7.0%.
- The prevalence of arthritis in the general population : 2-3%.
- The prevalence of arthritis in patients with psoriasis : 6-42%.

# PsA

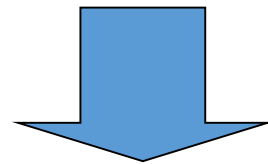
- It evolves with erosive and destructive articular modifications in  $\approx$  40-60% pts.
- The male-female ratio 1:1
- Psoriatic arthritis develops mainly in people aged 35-55.
- In juvenile form, the age of onset is 9-11 years.

# PsA. Etiopathogeny

- Genetic
- Trigger factor
- Immunological abnormalities

## Trigger factors

- Mechanical trauma
- Infection  
(Streptococci..., HIV etc.)
- Stress



**Psoriatic Arthritis**

# Psoriatic arthritis.

## Etiological factors of psoriasis



### Genetic

- HLA-C
- IL-12B
- *TRAF3/IP2*
- *FBXL10*
- IL-23R



### Immunologic

- T cells
- Monocytes
- Osteoclasts
- Cytokines
- Growth factors
- Keratinocyte proliferation



### Environmental

- Infection
- Trauma



### Vascular

- Tissue pathology
- VEGF
- Ang 1, ang 2
- MMP-9
- E-selectin



# Genetic factors

- ◎ Evidence: family aggregation and human genome scanning - 1p, 4q, 6p, 17q
- ◎ Chromosome 6p:
  - HLA B13, B17, B39, C\*0602: Ps & PsA
  - HLA B27: male, axial involvement
  - HLA DR4: erosive, polyarticular form
  - HLA B27, B39, B57, DQ3: progressive
  - HLA Cw6: psoriasis, juvenile onset
  - MICA-002: PsA
  - polymorphism promoter TNF- $\alpha$
- Other:
  - Polymorphism of the HCP5 locus related to HLA-B27 locus, and IL-23R, IL-12B (chromosome 5q31)

# Immunological abnormalities

- Angiogenesis (VEGF, Angiopoietin)
- Inflammatory Infiltration
- Cytokines
- Cartilage and bone degradation ( $\uparrow$  RANKL-RANK,  $\downarrow$  OPG, BMP)
- Fibrosis and ankylosis (PDGF, TGF $\beta$ )

**VEGF** Vascular endothelial growth factor

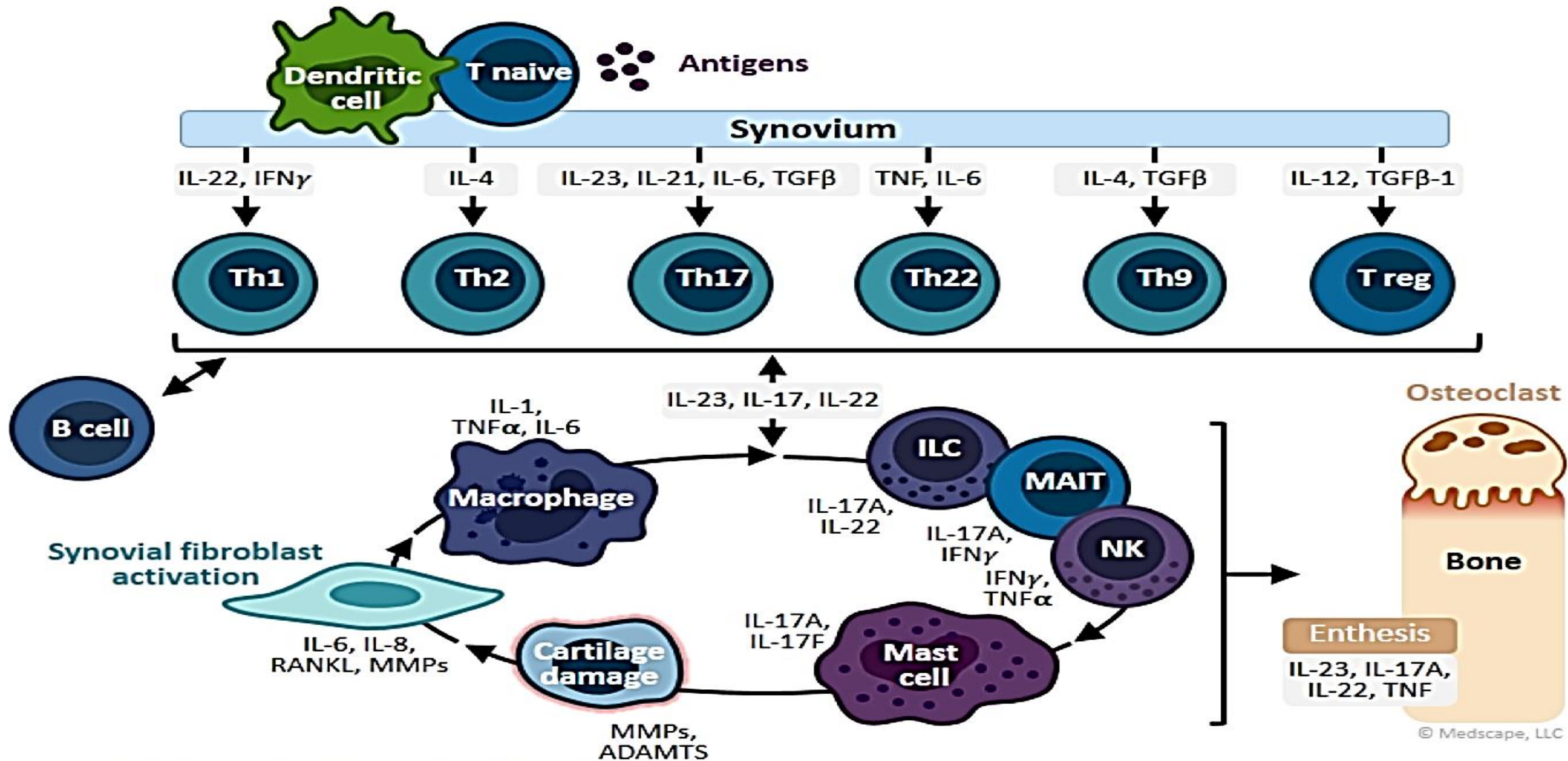
**PTGF** Platelet-derived growth factor

**TGF** Transforming growth factor

**BMP** Bone morphogenetic proteins

**OPG** Osteoprotegerin

# Cells and pathways in PsA

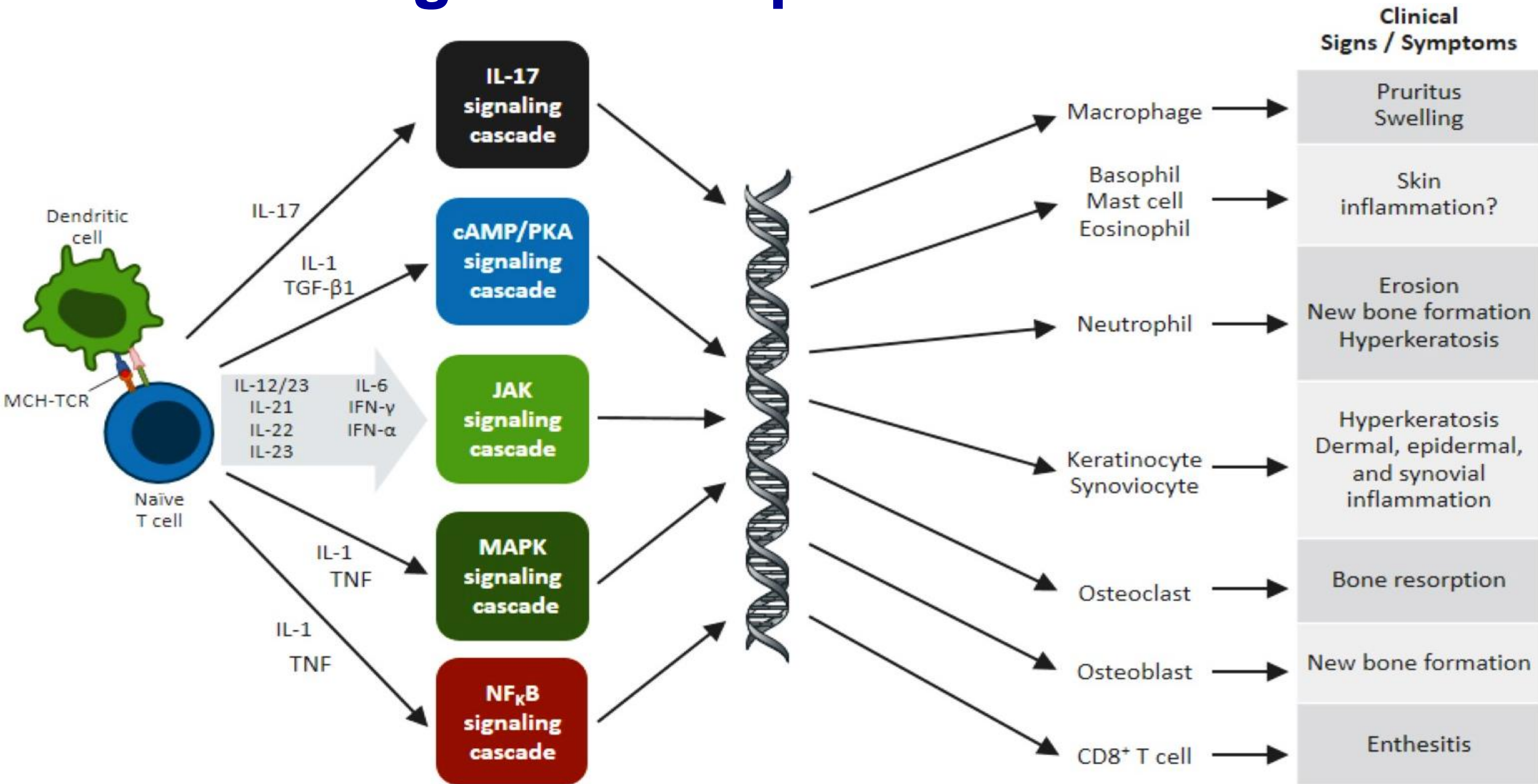


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# Pathogenesis

- PsA is an immune-mediated disease sharing pathogenetic mechanisms with psoriasis
- The PsA synovium presents with infiltration of T cells, B cells, macrophages and cells expressing NK receptors.
- Expansion of CD8+ LT clones is common in PsA.
- Plasmacytoid dendritic cells probably play a key role in psoriasis, as well as PsA.
- Synovia is abundantly infiltrated by pro-inflammatory cytokines. IL-2, IFN- $\gamma$ , TNF- $\alpha$ , IL-1 $\beta$ , IL-6, IL-8, IL-10, IL-12, IL-13, and IL-15 are found in synovial fluid of patients with PsA.
- Cytokines derived from LTh17 are important in PsA, with genetic association with IL-12 / IL-23 axis genes.
- Osteoclast precursor is increased in peripheral blood of patients with PsA, as well as increased RANKL activity in synovia.

# Pathogenesis of psoriatic arthritis

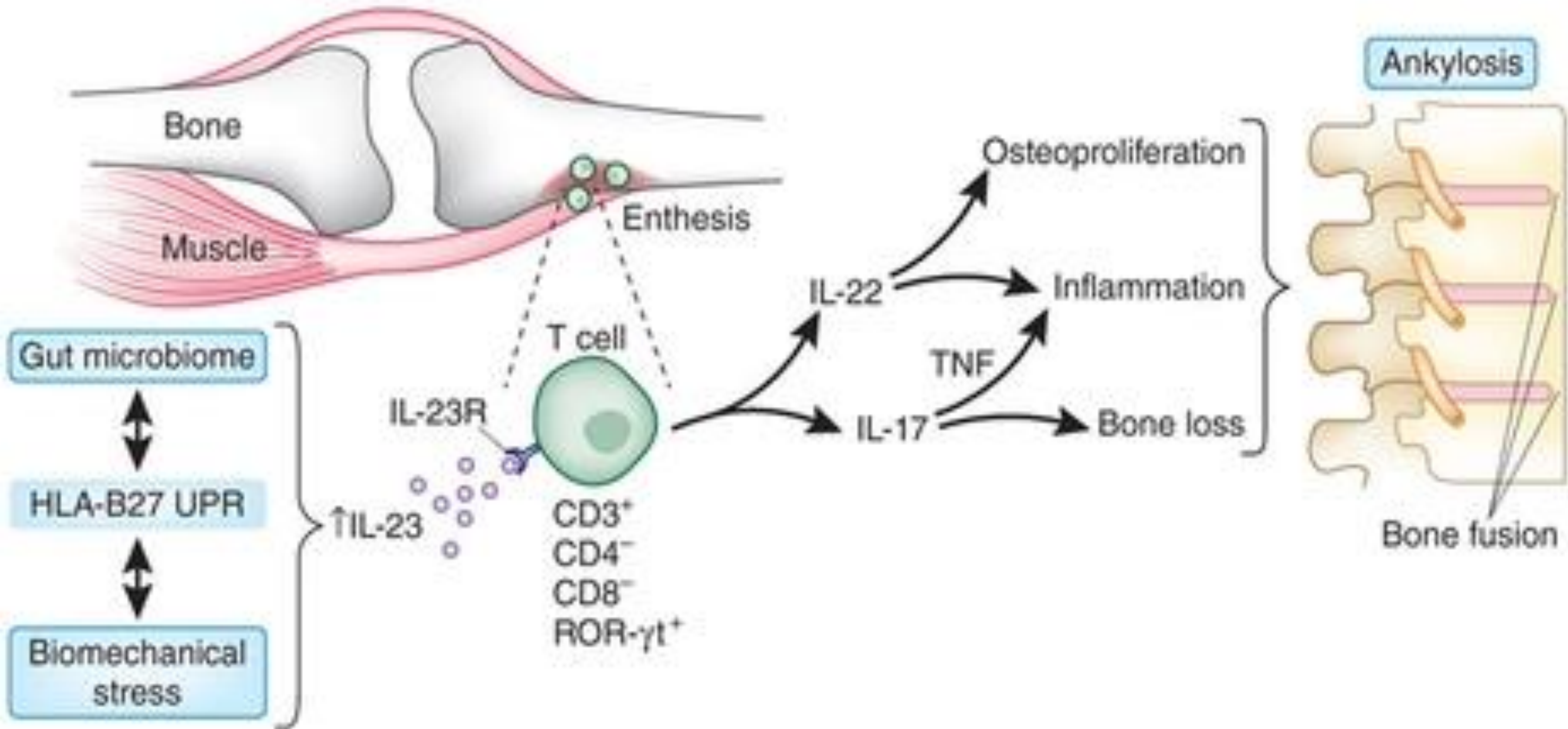


# HLA-B27 misfolding and IL-23 / IL-17 axis.

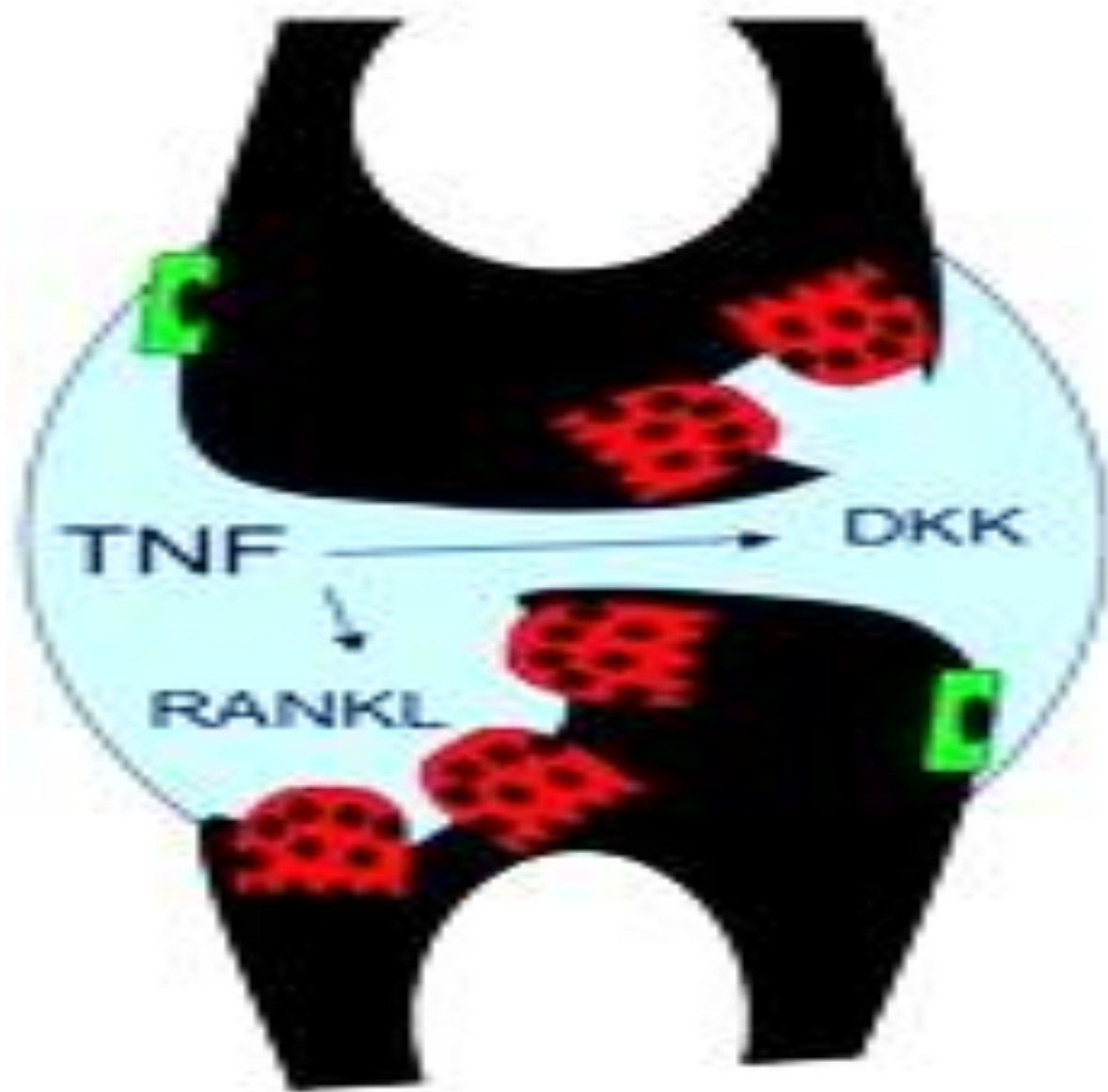
## Possible consequences of HLA-B27 misfolding



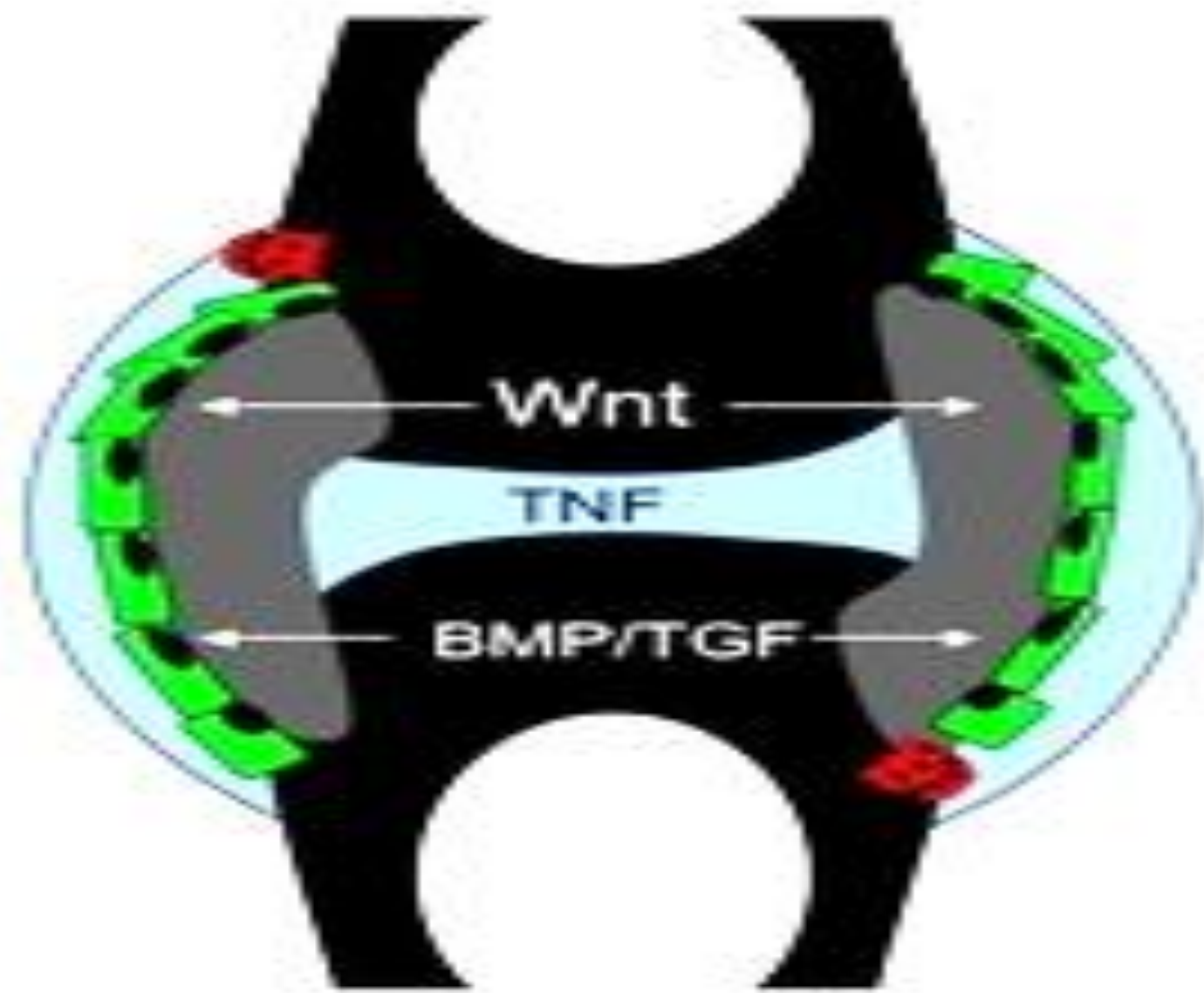
# IL-23 and enteseal LT promote enthesitis and bone proliferation



# Inflammation and new-bone formation: differences between rheumatoid arthritis and SNSA



„RA-like“



„SpA-like“



# Clinical classification of PsA

- Distal predominant (distal interphalangeal joint affected).
- Oligoarticular (<5 joints) more often with asymmetric distribution.
- Polyarticular (>5 joints) (pseudo-rheumatoid).
- Axial.
- „Arthritis Mutilans”.

Joints affected by psoriatic arthritis



# Clinical types of PsA

## Clinical Subsets of Psoriatic Arthritis (PsA)

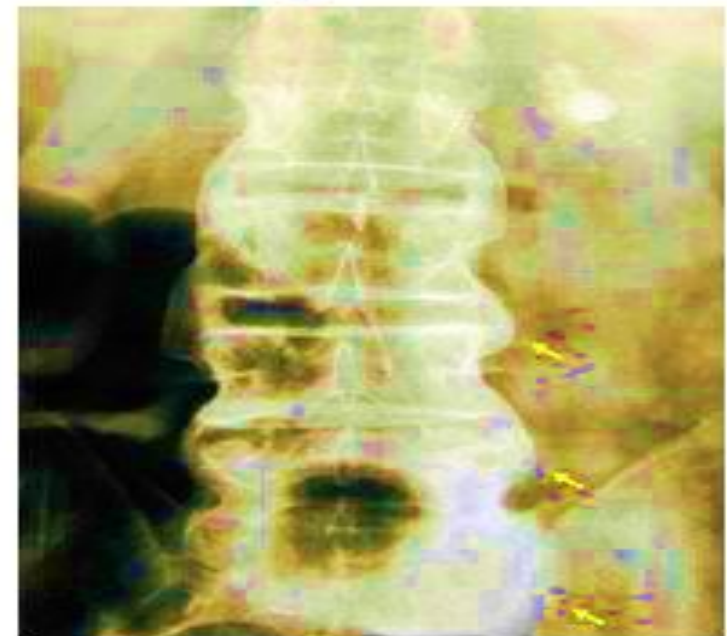


**1959**  
**Verna Wright<sup>1</sup>**

DIP and nail disease  
Arthritis mutilans  
Polyarthrititis (RF-)

**1973**  
**John Moll and Verna Wright<sup>2</sup>**

DIP predominant arthritis  
Arthritis mutilans  
Symmetrical polyarthrititis  
Asymmetrical oligoarticular arthritis  
Predominant spondylitis



1. Wright V. Psoriasis and arthritis. Ann Physical Med 1959  
2. Moll, Wright. Psoriatic Arthritis. Semin Arthritis Rheum 1973

## PsA, clinical picture

- In 60–70% of cases, psoriasis precedes joint damage.
- In 15–20% both manifestations occur in an interval of 1 year from each other.
- In approx. 15–20% arthritis precedes the onset of psoriasis, which is a diagnostic problem.
- M:F ratio 1:1.
- The onset of the typical disease is in the young adult with the average age of 37 years.
- The disease can also start in childhood.

## PsA, clinical picture

- ◉ Psoriatic arthritis manifests with arthralgia, hyperemia and swelling of the joints, disturbance of their function, often with morning stiffness.

### ***Distinctive features of PsA, (and SpA):***

- ◉ enthesopathies (inflammation of the areas of insertion of the tendon, ligament and joint capsule);
- ◉ dactylitis (swelling of fingers, fingers „in sausages”);
- ◉ asymmetric joint damage, sometimes oligoarticular involvement;
- ◉ Iritis/uveitis.

# Distal interphalangeal arthritis

A rarer form of PsA (8-16%)

- It is usually associated with nail psoriasis (*it may be the only localization of the pathological process*).
- Distal interphalangeal joint injury is considered a classic and unique feature for psoriatic arthritis, it appears primarily in men.

# Nail affection

- ◎ Pitting (pitting edema),
- ◎ Horizontal strips,
- ◎ Onycholysis,
- ◎ Yellowish discoloration of the edges of the nails,
- ◎ Dystrophic hyperkeratosis,
- ◎ Combinations of disorders.



# Distal interphalangeal arthritis



# Asymmetric oligoarthritis

- ◎ The most common form of APs (about 50%).
- ◎ It is manifested by the asymmetric inflammation of distal and proximal interphalangeal joints of the hands and plants, and metacarpophalangeal joints.
- ◎ The association of tenosynovitis of the flexors achieves the appearance of the finger „*in sausages*”, concomitantly being affected less than 5 joints.



# Asymmetric oligoarthritis



# Symmetrical polyarthrititis

- It is the clinical variant that mimics appearance of RA.
- It evolves with sacroiliitis (a particular feature of this form).
- About 25-40% of PsA patients have symmetrical polyarthrititis.
- Affected joints – radio-carpal, radio-ulnar, proximal and distal interphalangeal, with a tendency towards ankylosis.
- It is less extensive and less deforming than seropositive RA.

# Symmetrical polyarthrititis



# Polyarticular pattern



# Arthritis mutilans

- It is characterized by osteolytic lesions of the phalanges and metacarpal joints, which are often associated with sacroiliitis and extensive skin lesions.
- Usually fingers, toes, hands, and feet are affected. Fingers or toes that shorten and bunch together, which is called telescoping.
- Apr. 5% of PsA patients.
- Sometimes with ankylosis and contractures in other fingers.
- Unlike RA, many patients have temporary remissions.
- Erosive disorders with progressive evolution towards deformation, osteolysis and disability, induce a significant increase in mortality, compared with the rest of the population.

# Arthritis mutilans



# Arthritis mutilans

# „Telescoped” fingers



# Axial form

- Involvement in the process of the spine and/or sacroiliac joints.
- Sacroiliitis (often unilateral).
- May dominate the clinical picture.
- Clinical picture similar to AS, but associated with a serious evolution of psoriasis.
- Clinical signs of spondylitis and/or sacroiliitis may be associated with other clinical forms of psoriatic arthritis.



# Axial form

- Spondylitis may manifest without radiological signs of sacroiliitis or with radiological signs, but without morning stiffness.
- There is no correlation between the clinical and radiological signs of sacroiliitis.
- The vertebrae are affected asymmetrically with the possible involvement of the atlantoaxial joint with odontoid erosion and subluxation.
- Radiologically, asymmetrical nonmarginal syndesmophytes, paravertebral ossification and, vertebral ankylosis with calcification of the disc can be detected.
- Axial arthropathy without peripheral involvement - in 5% of patients with PsA.

# Psoriatic spondyloarthritis



# Juvenile psoriatic arthritis

- ⊙ Approx. 8-20% of all arthritis in children.
- ⊙ Usually, monoarticular at onset (girls 9-10 years).
- ⊙ The disease develops slowly, sometimes can be severe, with high activity, progressing to adulthood.
- ⊙ In more than 50% of patients, arthritis is monoarticular.
- ⊙ 35-40% - affecting distal interphalangeal joints.
- ⊙ 30% - tenosinovitis
- ⊙ 63-71% - nail damage - „pitting” (point erosion),
- ⊙ In 39-47% pts there are bone growth disorders and, as a result, the shortening of the bones due to the affect of the epiphysis of the bone by inflammatory process.
- ⊙ Sacroiliitis occurs in 28% pts and is associated with HLA-B27.
- ⊙ The presence of HLA-B8 may serve as a marker of disease severity.

# Enthesitis and enthesopathy

Enthesitis, an important feature of PsA, represents inflammation at the place of bone insertion of the tendons, ligaments and capsules of the joints.



# Dactylitis, tendinitis and tenosynovitis

- In the etymological sense, the term dactylitis (*gr. Dactylos- finger, itis- inflammation*) defines the inflammation localized at the level of the fingers of the hands or feet.
- Dactylitis in PsA is common (22%).
- Specificity 82.4%, sensitivity 84.9.
- Item in the CASPAR (*Classification Criteria for Psoriatic Arthritis*) criteria for the diagnosis of PsA.

# Systemic manifestations of PsA

- Lymphadenopathy,
- Heart disease (most commonly aortic regurgitation, aortitis),
- Renal impairment (proteinuria, hematuria, cylindruria),
- Ocular impairment (conjunctivitis, iritis),
- Neuromuscular impairment,
- Vascular affection (Raynaud's Syndrome) etc.
- 10-15% of patients with APs have **ocular damage** through anterior uveitis, iritis, iridocyclitis, sometimes relapsing.

# Impairment of the cardiovascular system

- Possible in 18-22% of cases of PsA.
- Clinically manifested by dyspnoea, heart palpitations, pain in the heart region of different intensity, caused by the development of aortitis, myocarditis, pericarditis or myocardiodystrophy.
- Different rhythm and cardiac block disorders.
- Cases of severe pericarditis with progressive heart failure, complete atrioventricular block are described.
- Aortic valve regurgitation may develop (7% of cases).

# Pulmonary involvement

- It manifests as a result of limiting the respiratory excursion of the thoracic box with the development of pulmonary emphysema as a consequence of kyphosis and affecting the costovertebral joints in the axial variant of PsA.
- As in ankylosing spondylitis, apical pneumofibrosis is characteristic, which is extremely rare (1-2%) and which must be differentiated from specific lung conditions.



# Renal impairment

- ◎ The **kidneys** are most often involved in the systemic pathological process in APs (approx. 27-36%).
- ◎ According to some authors, this is caused by hypergammaglobulinemia and, in particular, by the increased level of IgA with the development of IgA-nephropathy.
- ◎ At the same time, edema, renal hypertension, secondary anemic syndrome and renal failure develop in the final stages of the disease.
- ◎ Secondary renal amyloidosis(14-17%).
- ◎ Often, the cause of renal impairment may be prolonged administration of NSAIDs, manifested by urinary syndrome with proteinuria and microhematuria.

# Affection of the peripheral nervous system

- Caused by root damage in the cervicothoracic and lumbosacral segments of the spine.
- Caused by joint damage in the cervicothoracic and lumbosacral segments of the spine.
- At minimal trauma, in the presence of disorganization of the transverse ligament of the atlanta, the atlantoaxial subluxation may develop (2-3%).
- Far rarer - „cauda equina” syndrome from chronic epiduritis, accompanied by impotence and urinary incontinence.

# Laboratory diagnosis

**Tests to determine the activity of the disease and to monitor the evolution:**

- ◎ CBC
- ◎ ESR
- ◎ C-reactive protein
- ◎ Fibrinogen
- ◎ <10% of patients positive with RF, ANA and anti-CCP.
- ◎ In patients with extensive psoriasis - hyperuricemia

**For differential diagnosis**

- ◎ Rheumatoid factor
- ◎ HLA-B27
- ◎ Urine analysis
- ◎ Biochemistry (ALT, AST, bilirubin, alkaline phosphatase, urea, creatinine, proteins)
- ◎ Joint aspiration (in case of synovitis) with bacteriological examination (molecular-biological by polymerization chain reaction to the DNA of the provocative agent) and clinical of the synovial fluid

# Radiological joint examination

- The hallmark of PsA is the combination of erosive change with bone proliferation, in a predominantly distal distribution (e.g. interphalangeal more than MCP joints).
- Terminal narrowing of phalanges with acroosteolysis and cup deformation of proximal portions („*pencil in cup*”).
- Arthritis mutilans: marked bony resorption and the consequent collapse of soft tissue; when this affects the hands, it can cause a phenomenon sometimes referred to as „telescoping fingers”.
- Unlike RA, PsA also affects DIP joints, sacroiliac joints and spine in an asymmetrical manner.
- Psoriatic arthritis associates enthesopathy, as a characteristic feature, absent in rheumatoid arthritis.

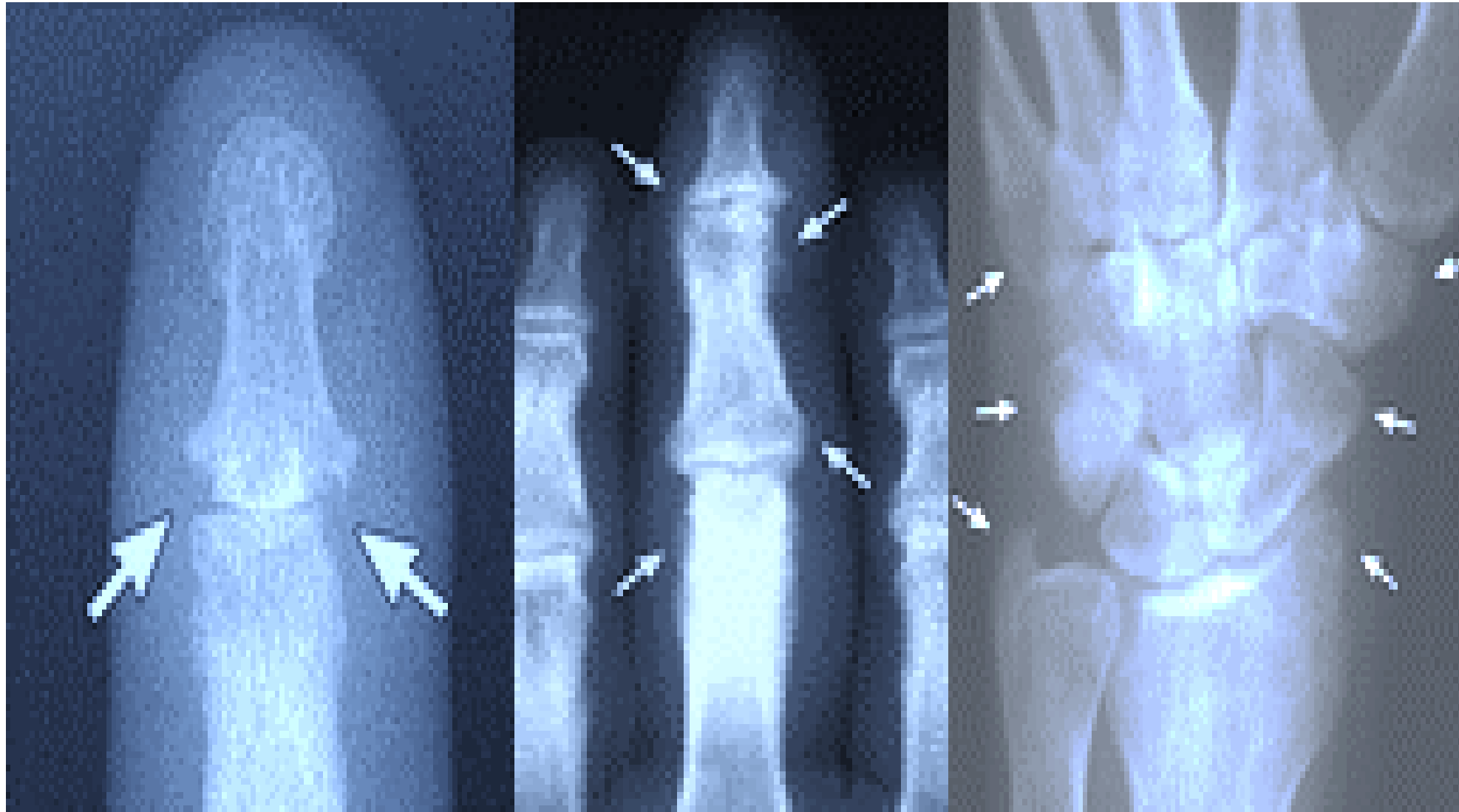
# *„Pencil in cup”*



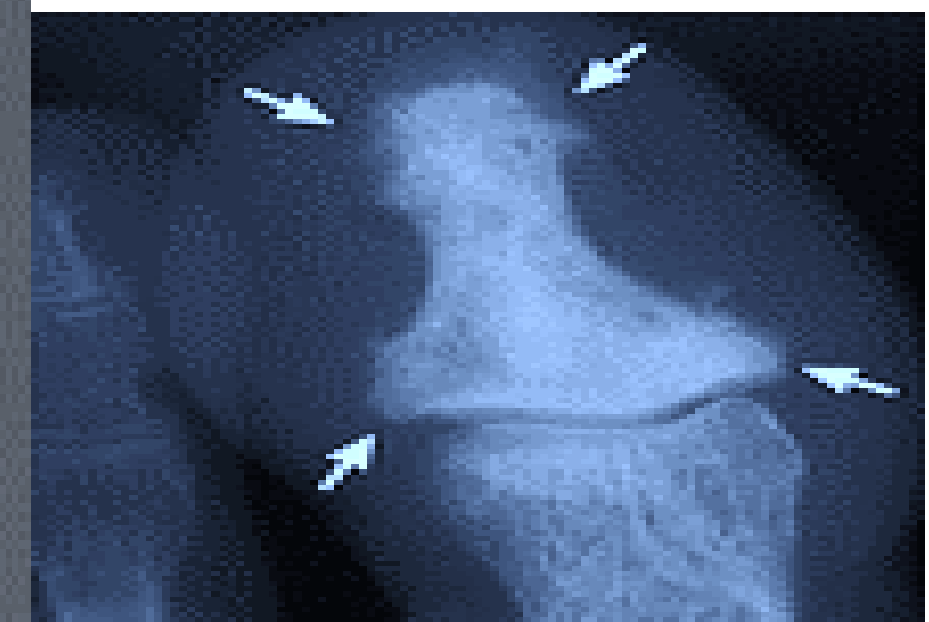
# X-ray examination

inflammatory and destructive changes in metatarsal-phalangeal and interphalangeal

Marginal bone erosions with adjacent bone proliferation



increased bone density and proliferation of the distal phalanx („ivory phalanx”)



# PsA acro-osteolizis



## Dactylitis



## „Licked candy stick appearance”



L



R



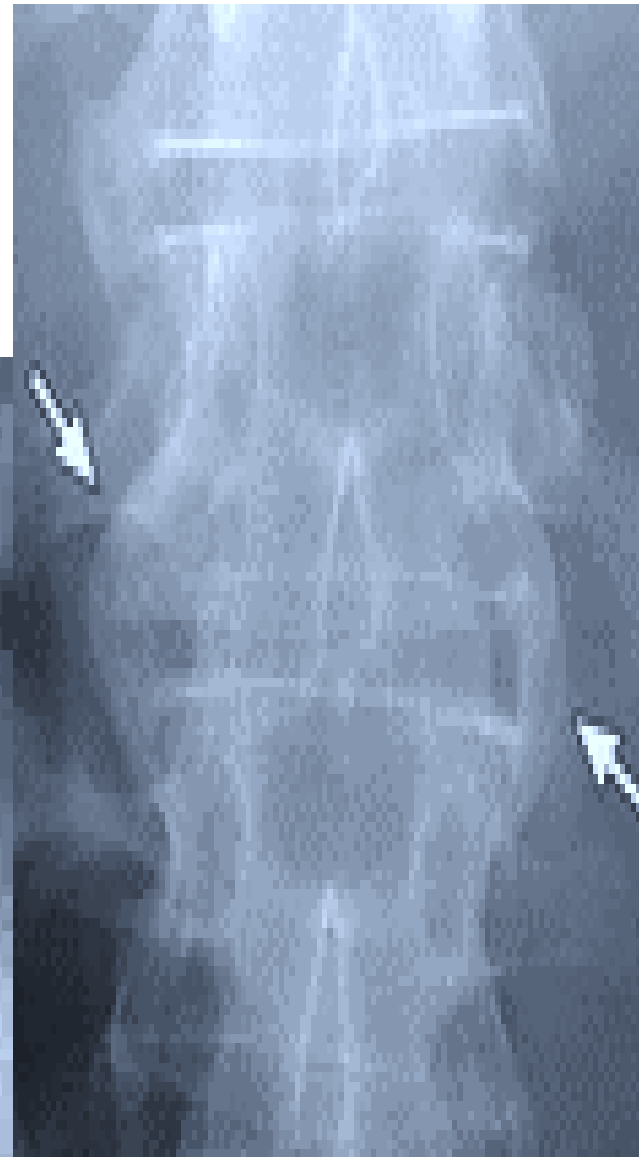
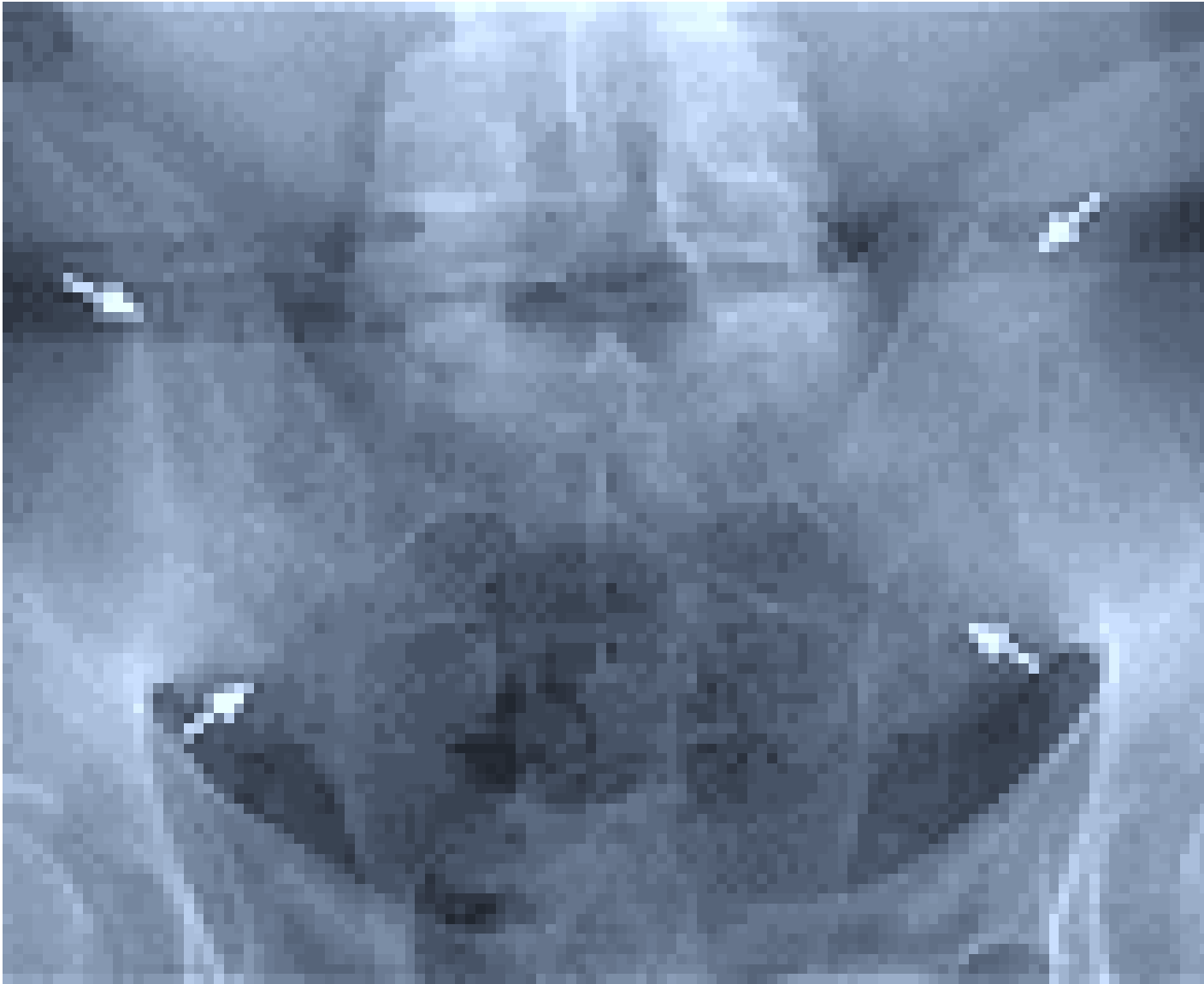




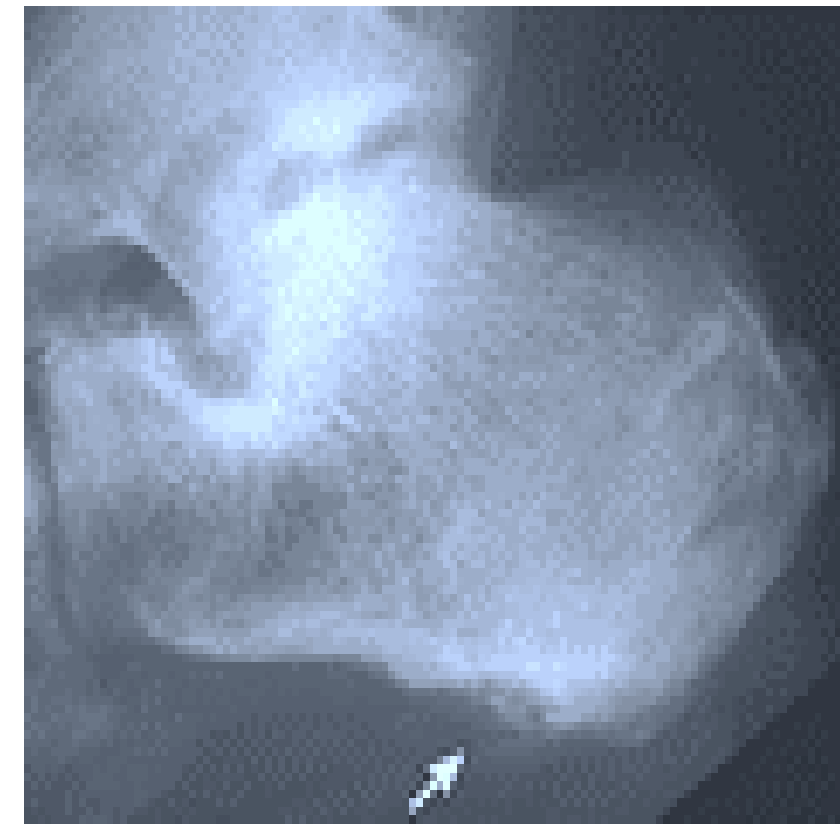
# X-ray exam

Paravertebral ossifications in comma form

Anteroposterior sacral X-ray: bone erosion and narrowing art. sacroiliac with partial fusion.



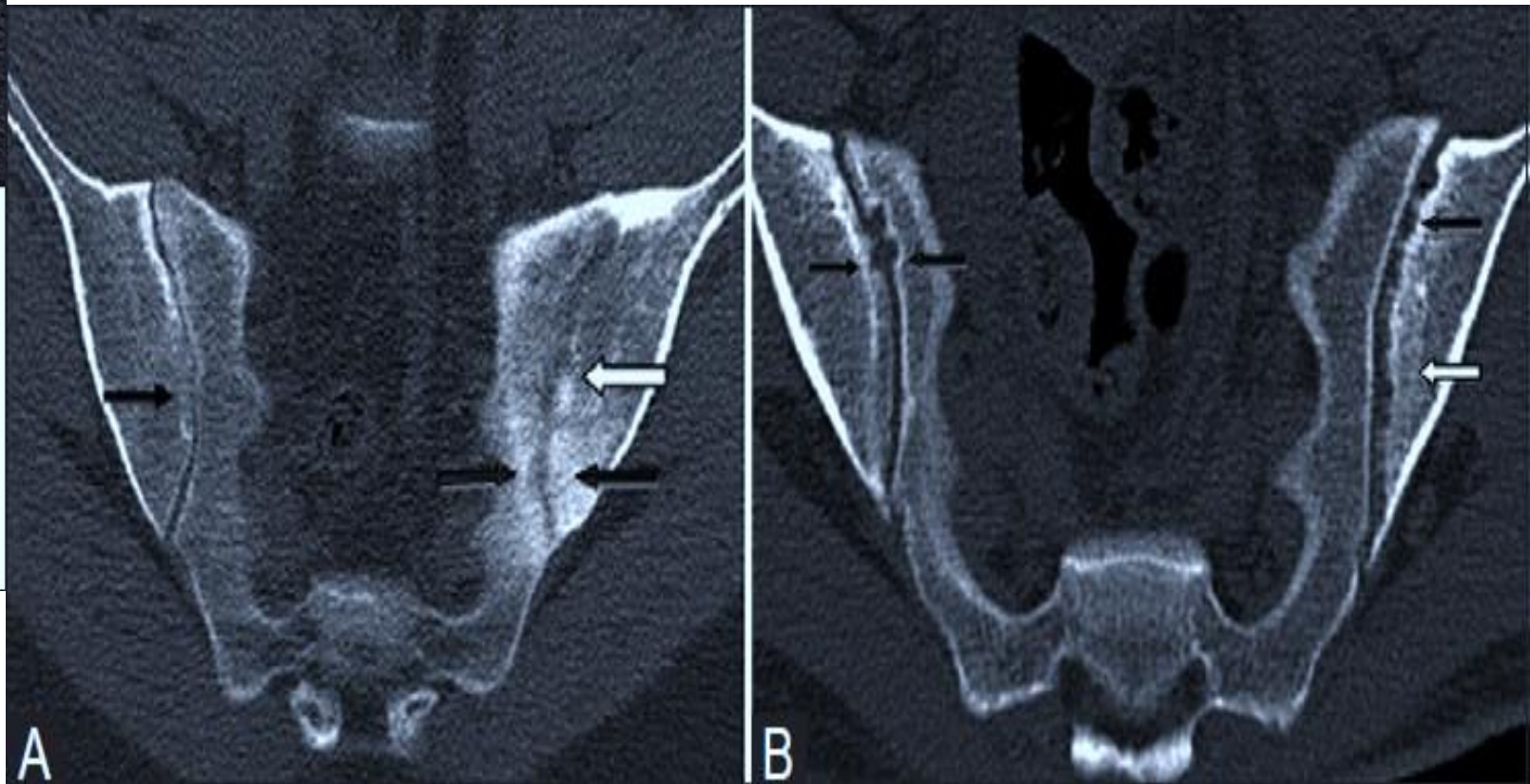
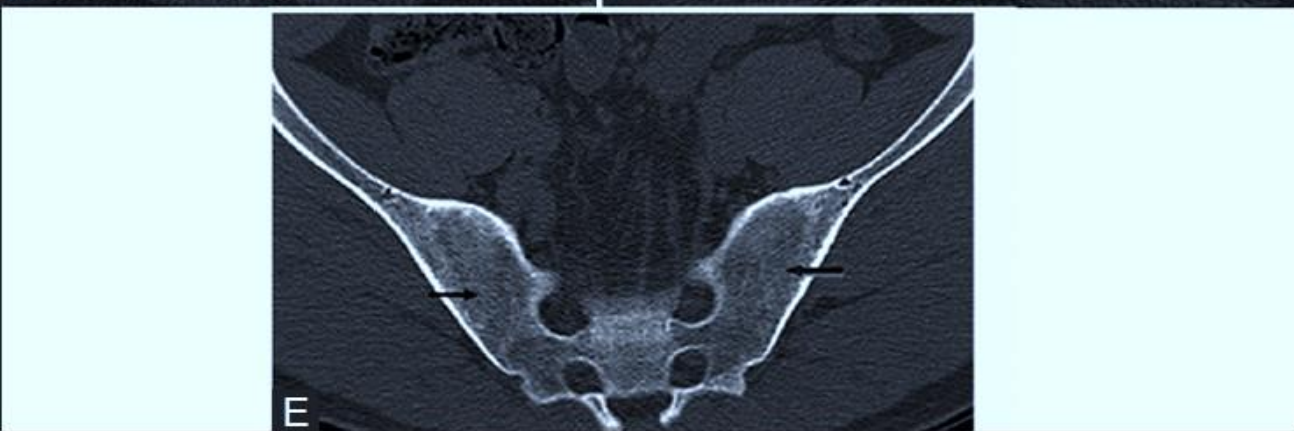
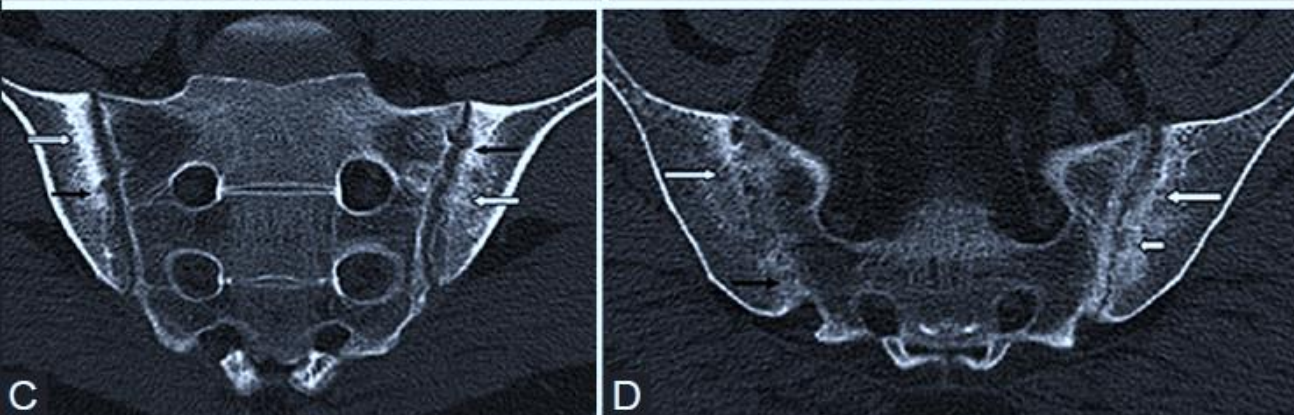
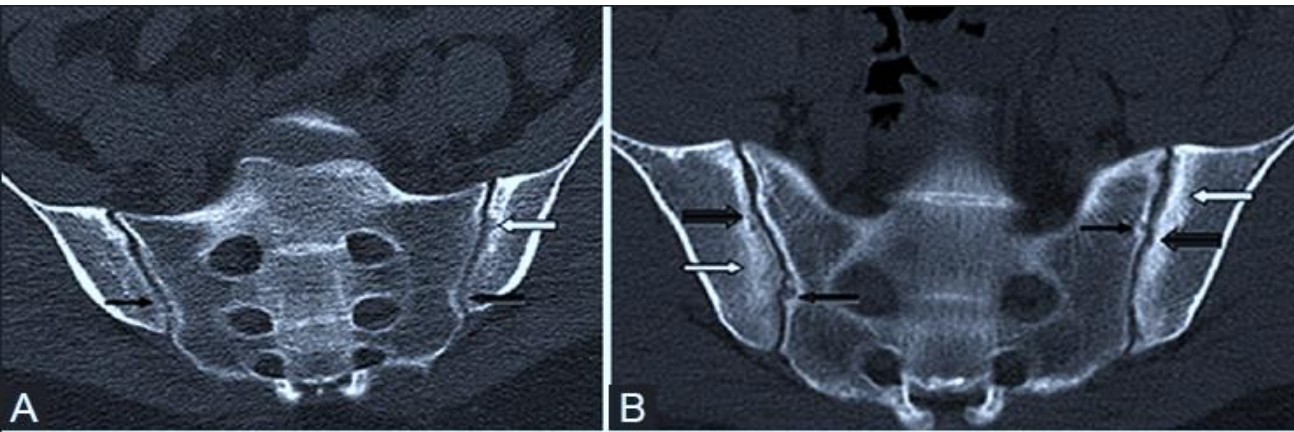
Bone sclerosis and inflammatory enthesopathy



# APs



# CT of sacroiliac joints

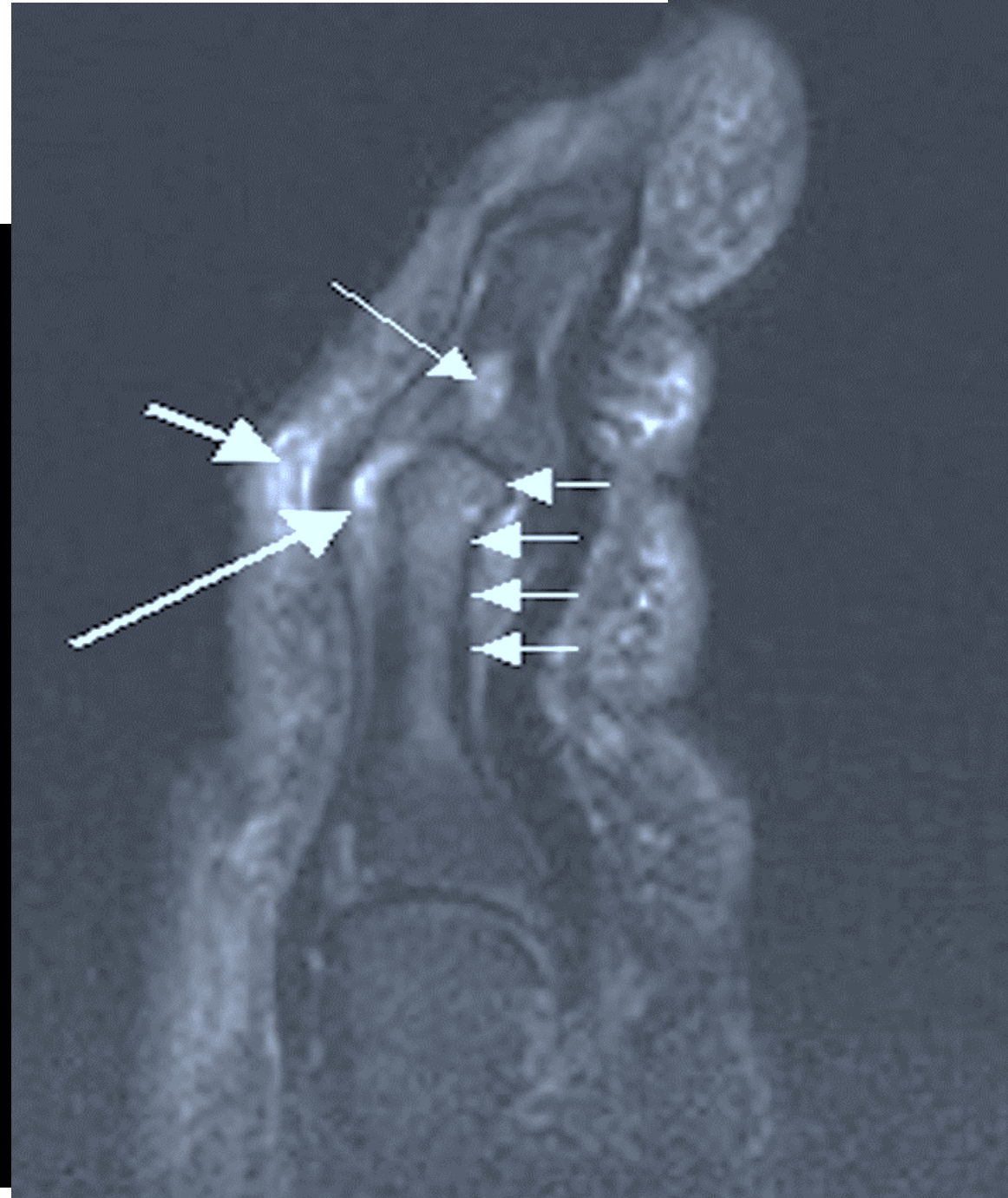


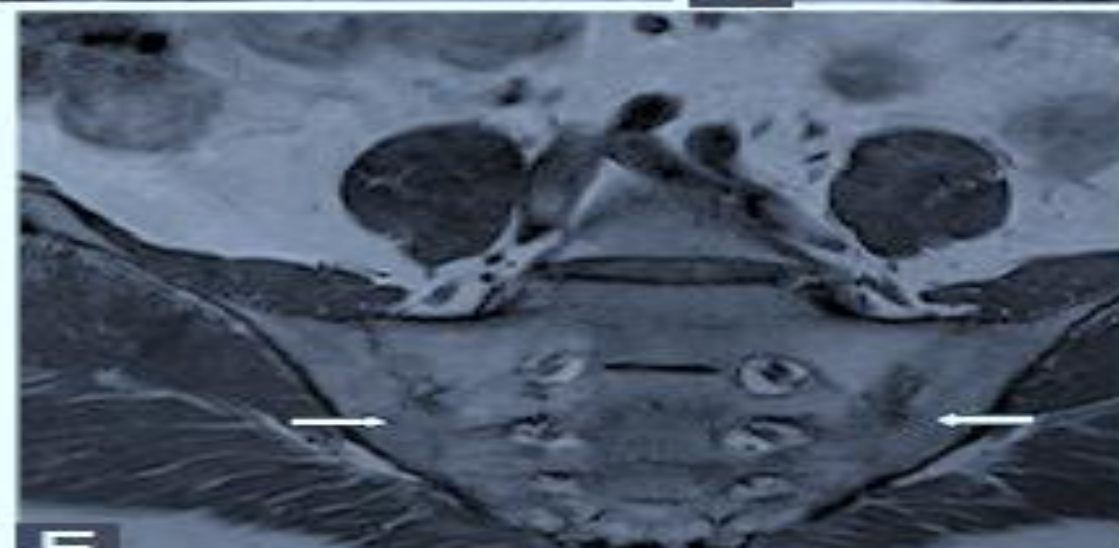
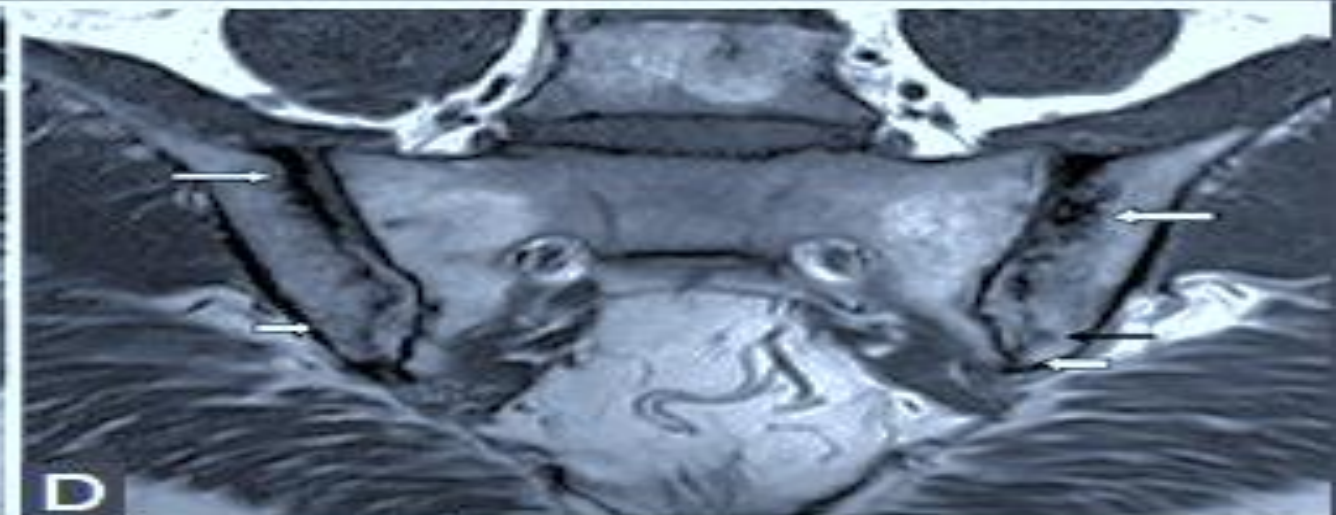
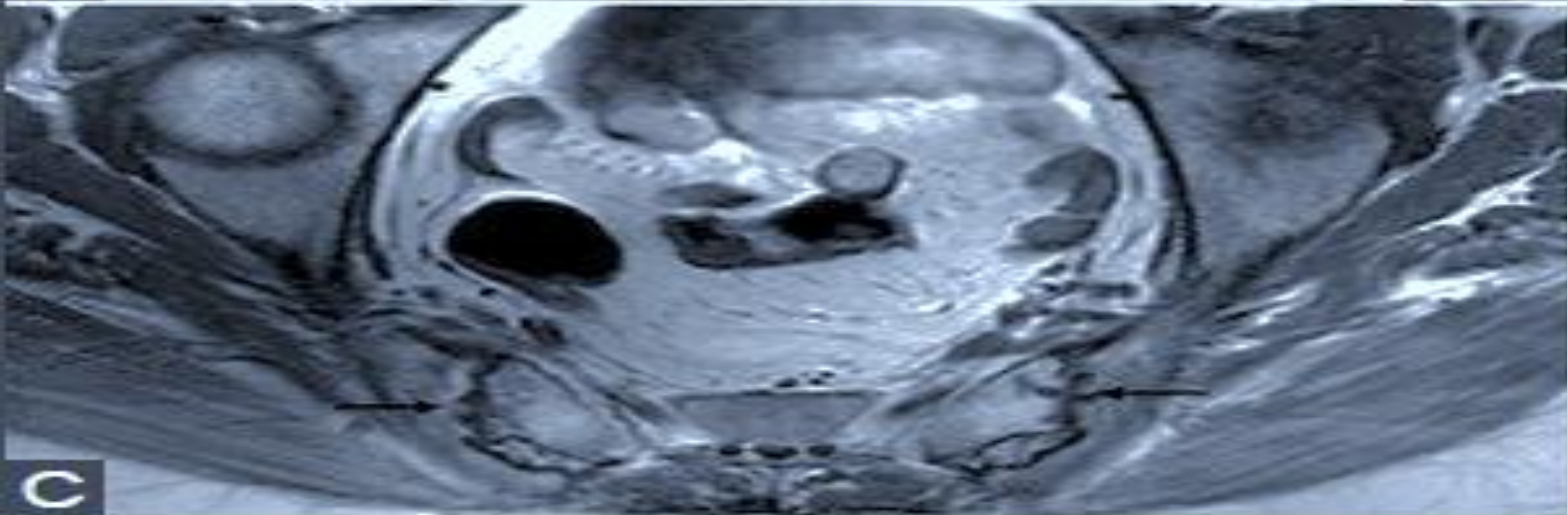
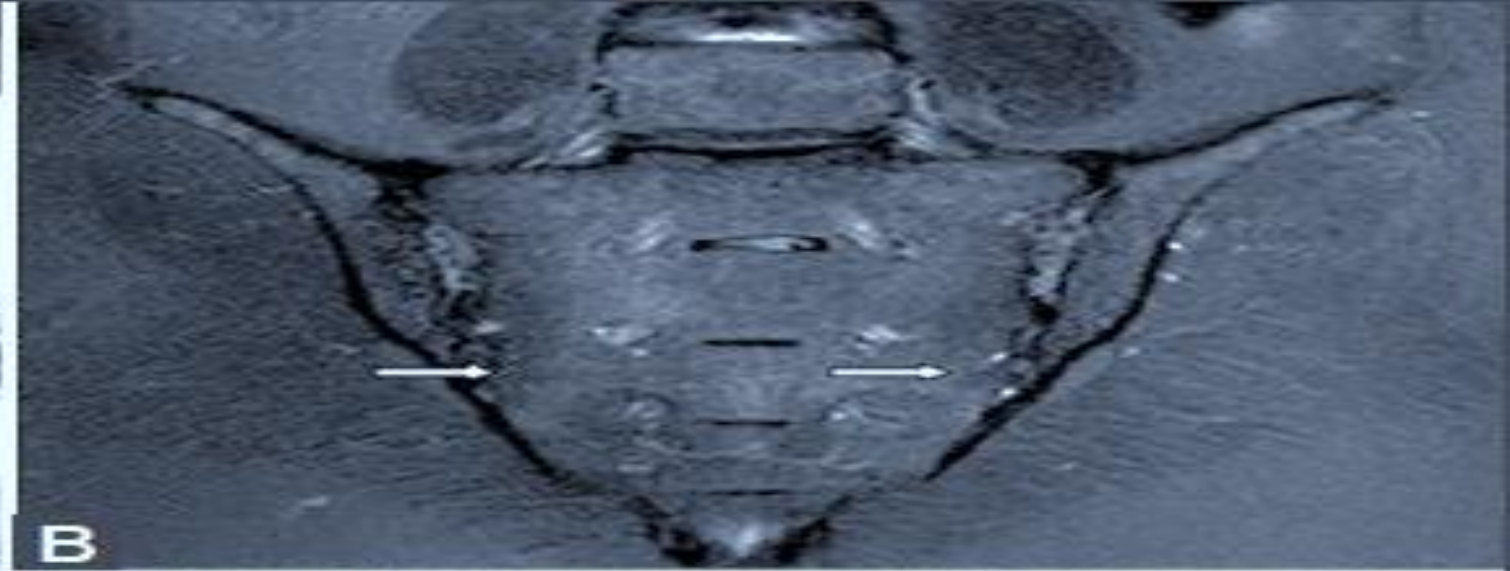
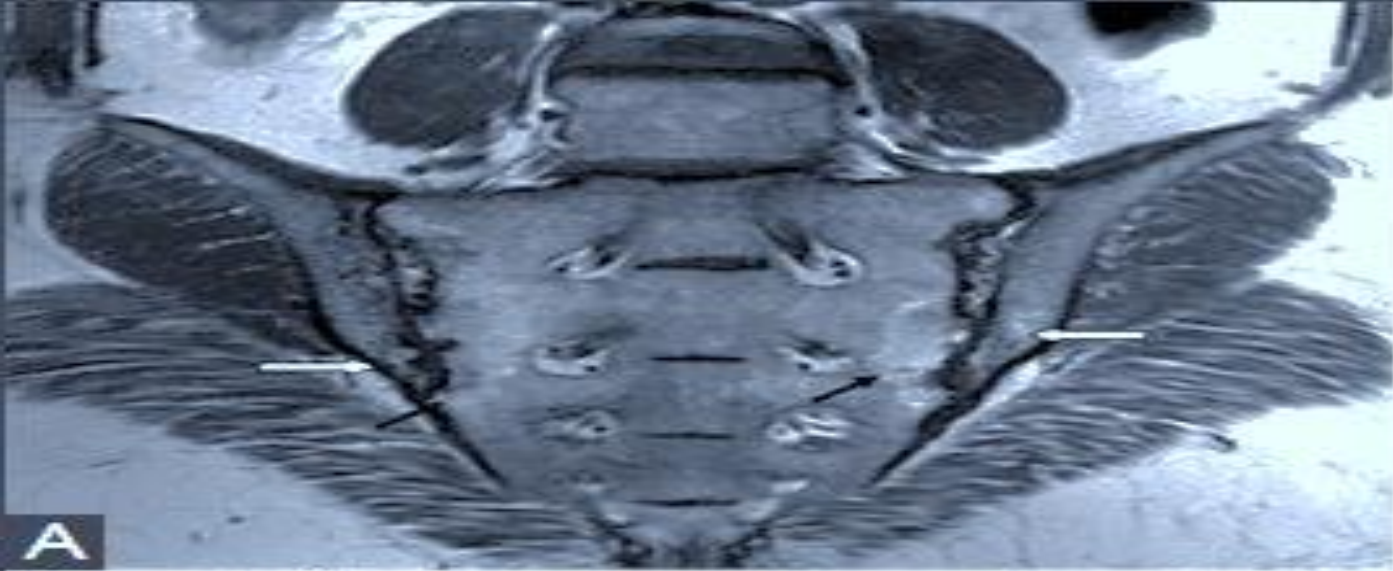
# PsA: MRI

Erosion at the base of the middle phalanx

(a) Until the contrast is introduced

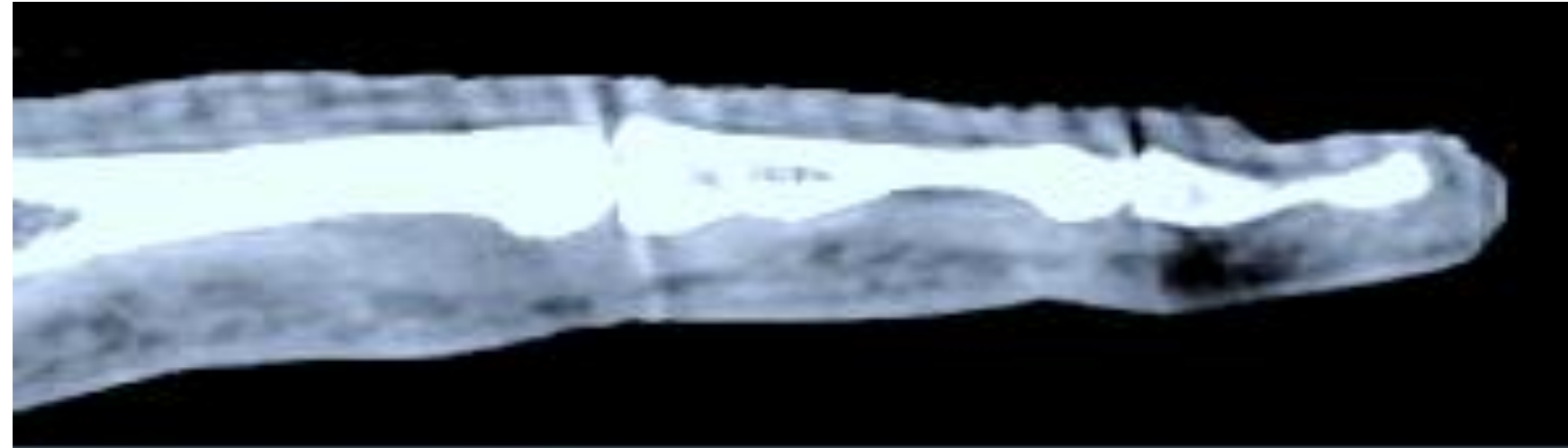
(b) After contrast



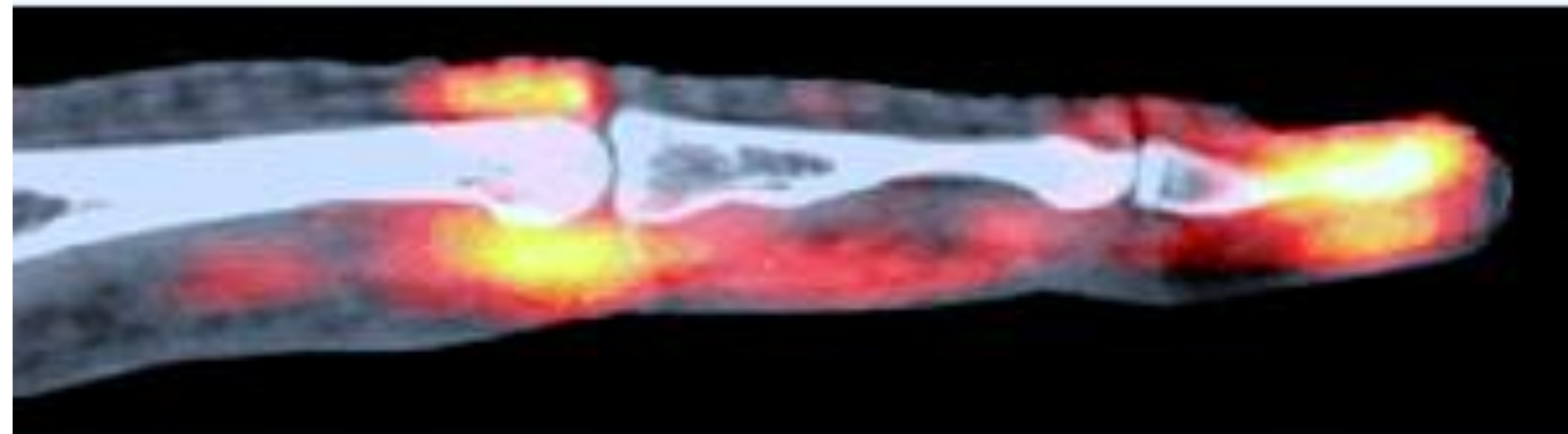


**MRI: sacroiliac joints**

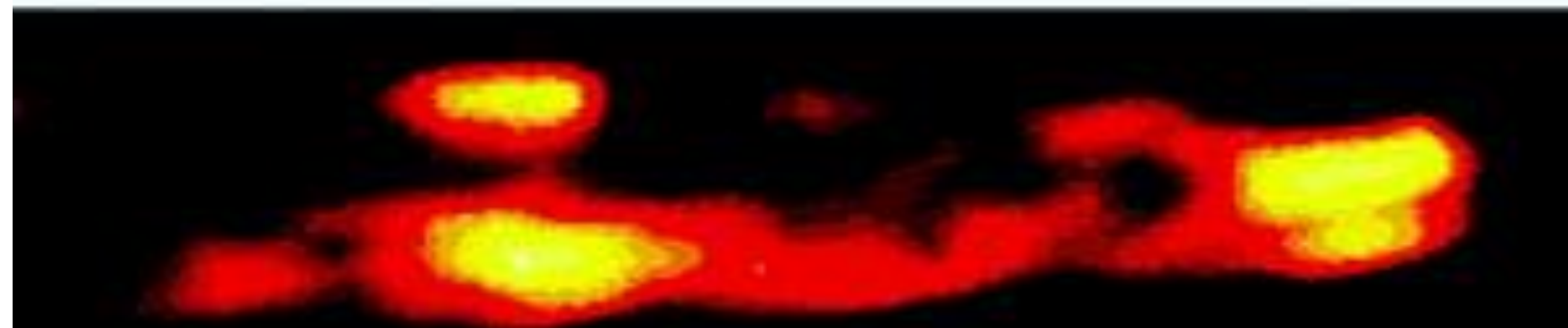
# PET/CT in PsA diagnosis



CT image



Combined PET/CT image



PET image

# PsA diagnosis

To establish the diagnosis of PsA it is necessary to go through 2 stages :

- Establishing the diagnosis of seronegative spondyloarthropathy (Criteria for spinal inflammatory pain, ESSG criteria, Amor, ASAS)
- Classification of SNSA established as psoriatic arthritis (CASPAR criteria)



# Criteria set for inflammatory back (spinal) pain (IBP)

<b>Calin Criteria for IBP</b> (1997)	<b>Berlin Criteria for IBP</b> (2005)	<b>ASAS criteria for IBP,</b> <b>(mnemonic „iPAIN”)</b> (2009)
<ul style="list-style-type: none"> <li>•Age at onset &lt;40 yrs.</li> <li>•Back pain duration &gt;3 months</li> <li>•Insidious onset</li> <li>•Morning stiffness</li> <li>•Improvement with exercise</li> </ul>	<ul style="list-style-type: none"> <li>•Morning stiffness &gt;30 min</li> <li>•Improvement with exercise, not with rest</li> <li>•Awaking at the second part of night because of pain</li> <li>•Alternating buttock pain</li> </ul>	<ul style="list-style-type: none"> <li>•Insidious onset</li> <li>•Pain at night (with improvement after getting up)</li> <li>•Age at onset &lt;40 yrs.</li> <li>•Improvement with exercise</li> <li>•No improvement with rest</li> </ul>
<p><i>IBP if 4/5 are present</i></p>	<p><i>Sensibility - 70%</i> <i>Specificity - 81% if 2/4 are present</i></p>	<p><i>Sensibility - 77.0%</i> <i>Specificity - 91.7% if 4/5 are present</i></p>

# Criteria for classification of spondyloarthropathies (European Spondylarthropathy Study Group (ESSG), 1991)

Inflammatory  
spinal pain

Synovitis

Asymmetric predominant lower limb

Plus one more of the following:

- Alternate buttock pain
- Sacroiliitis
- Positive family history
- Psoriasis
- Inflammatory bowel disease
- Urethritis or cervicitis or acute diarrhea occurring within 1 month before the onset of arthritis

# Amor classification criteria for SpA (1990)

## A. Clinical Symptoms/History

- |   | Score |
|---|-------|
| 1. Pain at night (spine) or morning stiffness                     | 1     |
| 2. Asymmetrical oligoarthritis                                    | 2     |
| 3. Gluteal (buttock) pain (any)                                   | 1     |
| or  |       |
| alternating gluteal pain  | 2     |
| 4. Sausage like digit or toe (dactylitis)                         | 2     |
| 5. Enthesitis (heel)  | 2     |
| 6. Uveitis  | 2     |
| 7. Urethritis/Cervicitis within 1 month before onset of arthritis | 1     |
| 8. Diarrhea within 1 month before onset of arthritis              | 1     |
| 9. Psoriasis, balanitis or inflammatory bowel disease             | 2     |

## B. X-rays

- |   |   |
|---|---|
| 10. Sacroiliitis (grade 2 bilaterally or grad 3 unilaterally) | 3 |
|---|---|

## C. Genetical background

- |   |   |
|---|---|
| 11. HLA-B27 positive or positive family history for AS, ReA, uveitis, psoriasis or inflammatory bowel disease | 2 |
|---|---|

## D. Good response to NSAIDs

- |   |   |
|---|---|
| 12. NSAIDs show a good response within 48 hours, or relapse within 48 hours after NSAID are stopped | 2 |
|---|---|

# **CASPAR Criteria (CLASsification criteria for Psoriatic ARthritis)**

**Inflammatory articular disease (joint, spine, or enthesis) AND at least 3 points from the following categories:**

1. Current psoriasis (2 points), a personal history of psoriasis (1 point), or a family history of psoriasis (1 point)
2. Typical psoriatic nail dystrophy (1 point)
3. Negative rheumatoid factor test (1 point)
4. Dactylitis: current or previous episode noted by a rheumatologist (1 point)
5. Juxta-articular new bone formation on hand or foot radiographs (1 point)

# Differential diagnosis

- Skin lesions - seborrheic dermatitis
- Nail injuries - fungal infections
- Articular impairment: polyosteoarthritis (Heberden, Bouchard nodules), rheumatoid arthritis, septic arthritis, gout, seronegative spondyloarthritis (AS, ReA, arthritis in inflammatory bowel disease, chronic juvenile arthritis)

# Differential diagnosis of PsA

Manifestation	PsA	AS	RA	ReA
M:F	1:1	3:1	2:1	8:1
RF	<10%	negative	80%	negative
DIP involvement	30-50%		Noncharacteristic	
Peripheral arthritis	90-95% Asymmetric, Large & small joints	40% Asymmetric, Small joints	100% Symmetric, Large joints	90% Asymmetric
Sacroiliac/axial joints	35%, any level	100%	Cervical spine at late stages	20% Lumbar predominance
Others	Enthesitis Dactylitis Periarticular erythema	Enthesitis	Muscular atrophy	Enthesitis Keratoderma Balanitis circinata
Extraarticular features	Skin eruptions Nail dystrophy	Uveitis Cardiac	Nodules Sjögren syndrome Vasculitis	Uveitis
HLA-B27	10-25%	90%	Negative	40%
X-ray	Bone erosions, DIP Periostitis / proliferation Syndesmophytes	Syndesmophytes, osteitis, bone erosions, Sacroiliitis	Periarticular osteopenia Erosions	Periostitis / osteopenia Asymmetric sacroiliitis

# Tools for evaluation and monitoring of PsA

- **GRAPPA** (Group for Research and Assessment of Psoriasis and Psoriatic Arthritis)
- **OMERACT** (Outcome Measures in Rheumatology)

# Fields of evaluation OMERACT 8.

## Rheumatological

- Peripheral joints
- Dactylitis
- Enthesitis
- Axial involvement

## Dermatological

- Skin
- Nails

## Functional

- Life quality
- Fatigability

## Radiological

- Modified Sharp score
- Erosions score
- Joint space narrowing



- Tender and swollen joint count,
- The area of skin involvement (Psoriasis Area and Severity Index (PASI),
- Nail affection: (Nail Psoriasis Severity Index (NAPSI) or Modified Nail Psoriasis Severity Index (mNAPSI),
- Enthesitis: Mander/Newcastle Enthesitis Index (MEI), Leeds Enthesitis Index (LEI), Spondyloarthritis Research Consortium of Canada (SPARCC), Maastricht Ankylosing Spondylitis Enthesis Score (MASES),
- Dactylitis: Leeds Dactylitis Index (LDI),
- Patient Global for Psoriatic Arthritis,
- Dermatology Life Quality Index (DLQI),
- Psoriatic Arthritis Quality of Life (PsAQOL),
- Functional Assessment of Chronic Illness Therapy – Fatigue (FACIT-F),
- Psoriatic Arthritis Response Criteria (PsARC),
- Psoriatic Arthritis Joint Activity Index (PsAJAI),
- Disease Activity in Psoriatic Arthritis (DAPSA),
- Composite Psoriatic Disease Activity Index (CPDAI)

# Rheumatological evaluation

- Peripheral joint involvement
- Axial involvement
- Enthesitis
- Dactylitis

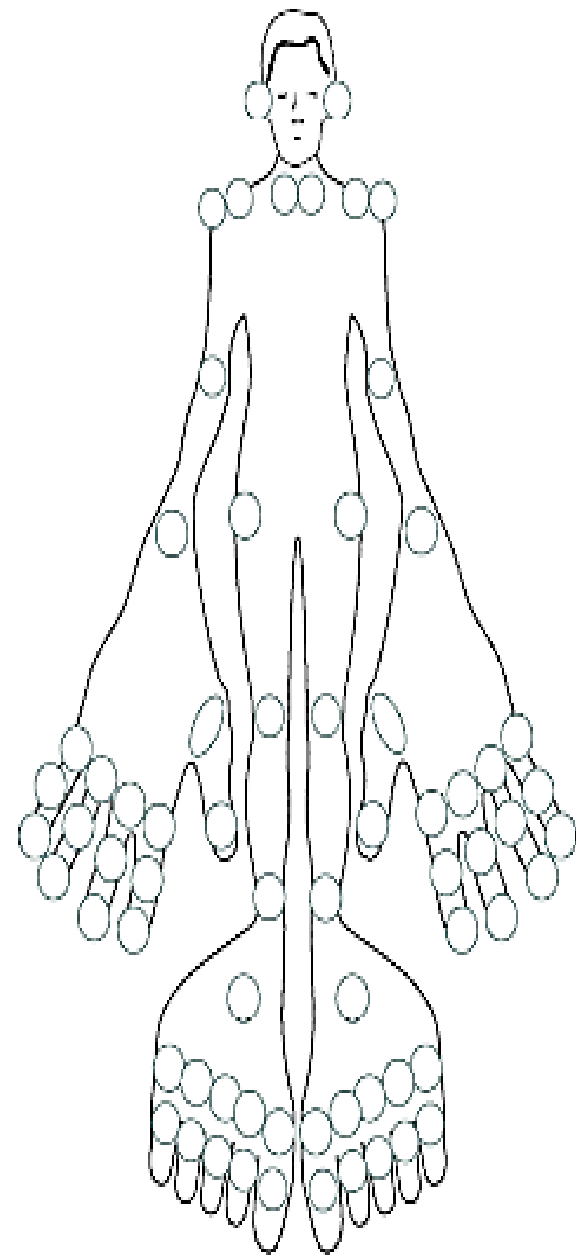
# Minimal disease activity score (MDA)

The patient is considered to have achieved MDA if he meets 5 of the following 7 criteria :

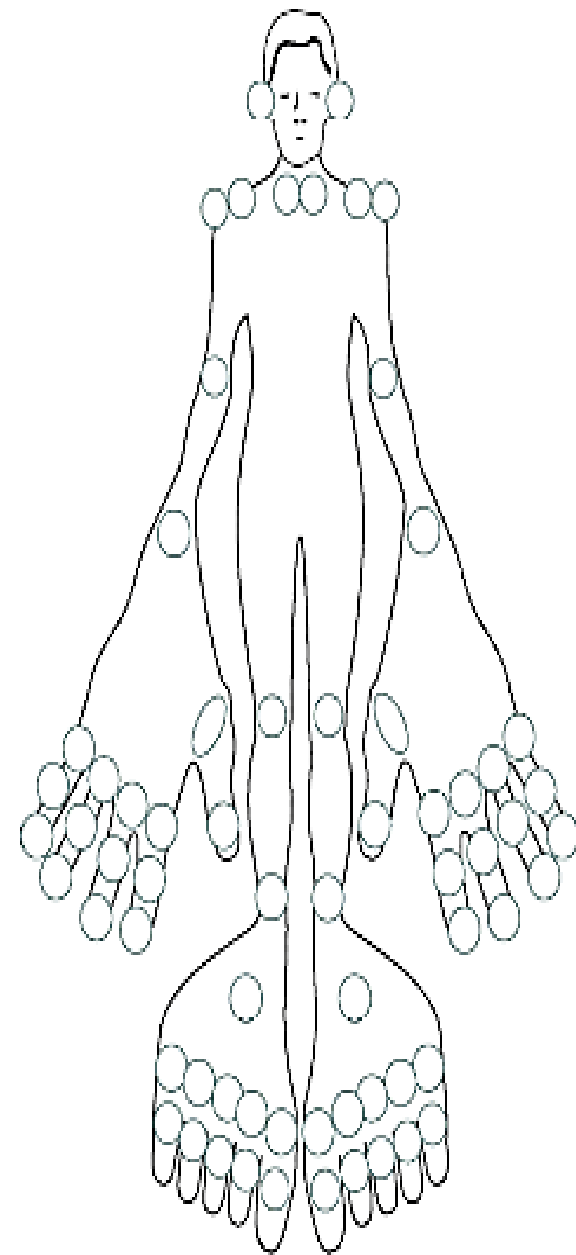
- Number of tender joints  $\leq 1$
- Number of swollen joints  $\leq 1$
- PASI (Psoriasis Activity and Severity Index)  $\leq 1$  or the affected body surface  $\leq 3\%$
- Patient pain VAS  $\leq 15$  mm
- Global patient activity - VAS  $\leq 20$  mm
- HAQ (Health Assessment Questionnaire)  $\leq 0.5$
- Painful entheses sites  $\leq 1$

# Tender/swollen joints

- British Society for Rheumatology (BSR) recommends count of 66 swollen and 68 tender joints.



Tender Joints: Number \_\_\_/68



Swollen Joints: Number \_\_\_/66

# Global disease activity assessment: patient / physician

Visual analog scale (VAS) (10 cm/100 mm)

Neactivă

Foarte activă

Numeric rating scale (NRS)



Neactivă

Foarte activă

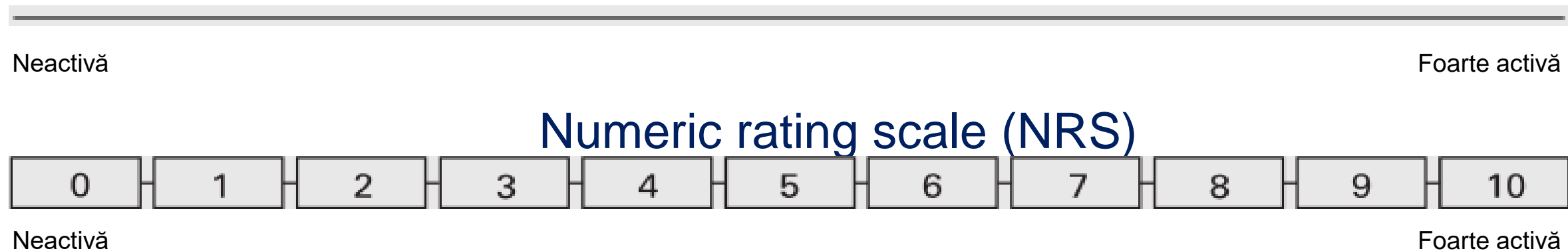
The patient is asked to place a line perpendicular to the VAS line at the point that represents his disease activity at the given time.

Low activity is considered  $<2.0$  cm / 20 mm.

The Likert scale can be used.

# Patient pain score

Visual analog scale (VAS) (10 cm/100 mm)



The respondent is asked to place a line perpendicular to the VAS line at the point that represents their pain intensity for the last 24 hours

# Dermatology Quality Life Index (DLQI)

DLQI is a measure of quality of life (QoL) taking into account skin disease and aspects of psoriasis and PASI.

- The DLQI contains 10 simple questions related to how the skin disease affects the patient's life. The quality of life for the last week is evaluated. It is completed by the patient and lasts approx. 2 minutes.

DLQI is calculated by summing the scores for each question  
Maximum score - 30;  
Minimum score - 0.  
Higher scores indicate greater impairment of quality of life.

## **DLQI Score**

0-1 = without effects on the patient's life  
2-5 = small effects on quality of life  
6-10 = moderate effects on quality of life  
If DLQI >10, the quality of life is affected, for which intervention is required.  
11-20 = quality of life greatly affected  
21-30 = the quality of life extremely affected

# Health Assessment Questionnaire (HAQ)

Two-pages questionnaire contains :

- HAQ Disability Index (HAQ-DI) – assesses the patient's functional ability
- HAQ VAS pain score – assesses the presence or absence of joint pain and its severity
- HAQ VAS patient global score – assesses the quality of life in general



# Health Assessment Questionnaire (HAQ)

HAQ DI Category

Devices used for help

Dressing & Grooming

Dress yourself, including shoelaces and buttons?  
Shampoo your hair?

Arising

Stand up from a straight chair? Get in & out of bed?

Eating

Cut your own meat? Lift a full cup or glass to your mouth? Open a new milk carton?

Walking

Walk outdoors on flat ground? Climb up five steps?

Hygiene

Wash and dry your body? Take a tub bath? Get on and off the toilet?

Reach

Reach and get down a 5 pound object (such as a bag of sugar) from above your head? Bend down to pick up clothing from the floor?

Grip

Open car doors? Open previously opened jars? Turn faucets on and off?

Please check any AIDS OR DEVICES that you usually use for any of the above activities:

Raised toilet seat

Bathtub bar

Long-handled appliances for reach

Bathtub seat

Long-handled appliances in bathroom

Jar opener (for jars previously opened)

# Assessment of PsA patient with axial involvement

Domain	Tools
Patient global assessment	VAS for the last week
Back pain	The average value of VAS for the last week: 1) Pain caused from SpA 2) Night pain
Spinal stiffness	VAS morning stiffness
Spinal mobility	Chest expansion Modified Schöber test Occiput – wall distance Cervical rotation Lateral spinal flexion or BASMI
Physical ability	BASFI or Dougados Functional Index
Peripheral joints and entheses	Swollen joint count (count of 44 joints). Enthesitis scores MASES, San Francisco, Berlin
Fatigability	The fatigue question from BASDAI
Acute phase indicators	ESR or CRP
Imagistics	Lateral lumbar, cervical vertebral and sacral X-ray (sacroiliac & coxofemoral)

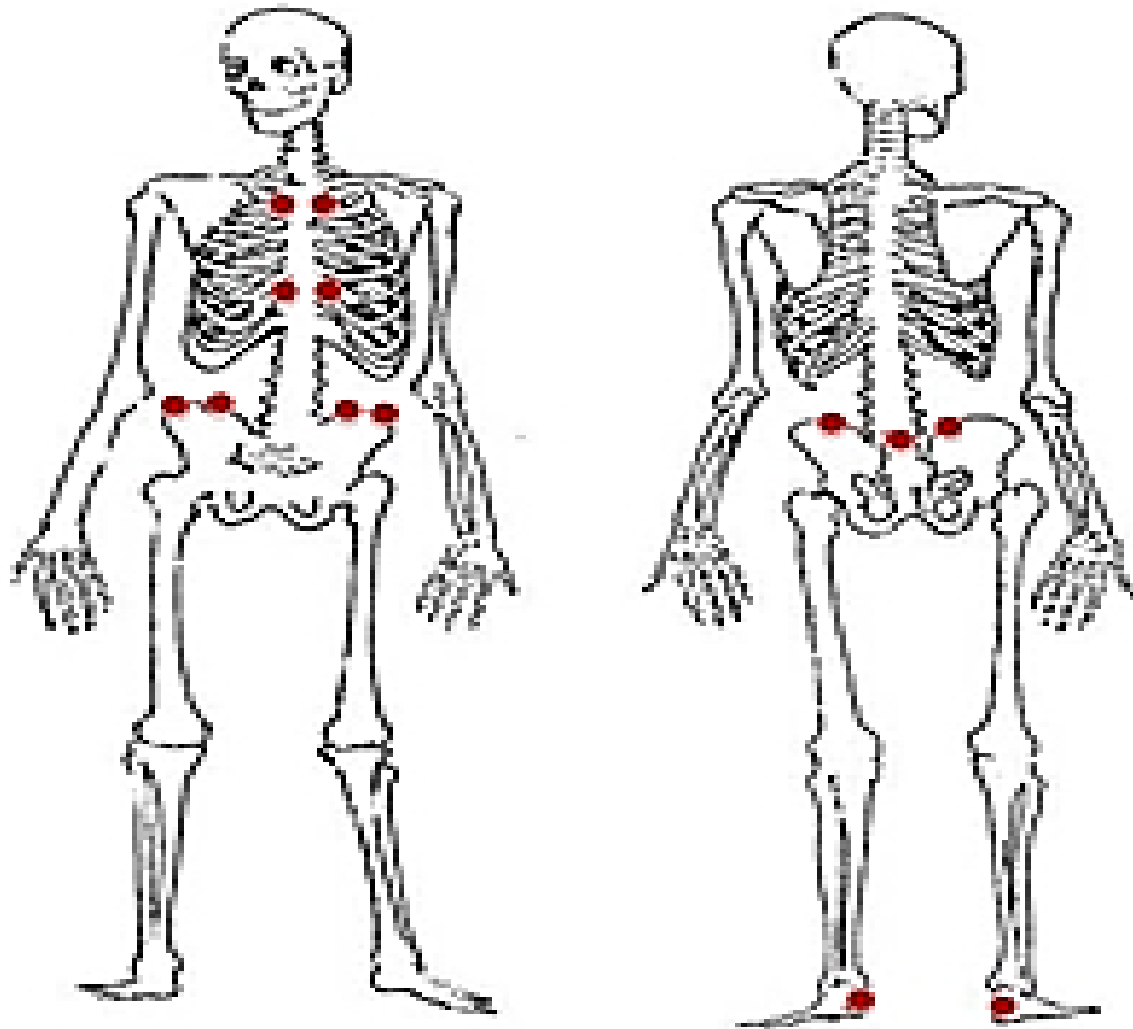
# Dactylitis

- ◎ „sausage finger” = flexors tenosynovitis + interphalangeal synovitis
- ◎ Acute (swelling + redness + pain) / chronic
- ◎ Dactylitis = 1 swollen joint!
- ◎ Quantification: 0 = absent / 1 = present  
LDI (Leeds Dactylitis Instrument)

# Enthesitis

- ◎ **Newcastle Enthesitis Index (NEI)** – 66 pct
- ◎ **Maunder Entheses Index (MEI)** – 66 pct; 0–3 p. – palpatory pain
- ◎ **Maastricht Ankylosing Spondylitis Entheses Score (MASES)**  
- 13 pct
- ◎ **Spondyloarthritis Research Consortium of Canada (SPARCC)** – 8 pct
- ◎ **Leeds Enthesitis Index (LEI)** – 6 pct:
  - lateral epicondyle - 2
  - medial epicondyle - 2
  - Achilles tendon insertion - 2

# MASES: Maastricht Ankylosing Spondylitis Enthesitis Score



- 13 sites
- Easy to locate
- No grading
- Score from 0 to 13

Costochondral 1 ri/le

Costochondral 7 ri/le

Spina iliaca anterior superior ri/le

Crista iliaca ri/le

Spina iliaca posterior ri/le

Proc. spin L5

Achilles tendon prox. insertion ri/le

# Evaluation of response to treatment

● PsARC

● ACR

# Psoriatic Arthritis Response Criteria (PsARC)

Clegg 1996

## Criteria

TJC

SJC

Patient global assessment

Physician global assessment

## PsARC response

Improvement of at least two of the following 4 criteria (one of which must be TJC/SJC) without worsening any criterion:

- 20% or more improvement in the overall assessment of the disease activity by the physician
- 20% or more improvement in the overall assessment of the disease activity by the patient
- 30% or more TJC improvement
- 30% or more SJC improvement

# ACR response criteria

## Parameters

TJC

SJC

Pain (VAS 0-10 cm)

Global patient assessment

Global physician assessment

ESR

CRP

HAQ

## ACR response

20%; 50%; 70% improvement in TJC, SJC

20%; 50%; 70% improvement in 3 from 5



# Treatment of PsA

- The purpose of APs treatment is to relieve pain, reduce inflammation, maintain joint flexibility and normal posture, reduce functional limitations, prevent ankylosis;
- Patient education: exercises, kinetotherapy, physiotherapy, balneotherapy

# Treatment of PsA

## Medication:

- NSAIDs;
- analgesics;
- glucocorticoids;
- **Remissive treatment** with DMARDs (Methotrexate, Leflunomid, Sulfasalazine) – low efficacy, multiple adverse reactions.
- **Biologic remissive treatment** (anti-TNF $\alpha$  etc.).

**Surgical treatment (orthopedic)** – if necessary;

**Rehabilitation treatment.**

# NSAIDs

NSAIDs are useful and effective in most patients with PsA. They reduce pain and signs of joint inflammation, the main mechanism of action being the inhibition of prostaglandin synthesis :

- reduce pain and inflammation;
- does not change the progression of joint erosions;
- does not influence the occurrence of extra-articular manifestations;
- they have a purely symptomatic effect and manifest only during the treatment.

# Posology

A. Non-selective inhibitors COX-1, COX-2.

● **Diclofenac** - 150 mg/day (75 mg b.i.d.)

● **Ibuprofen** - 400 mg q.t.d.

B. Selective inhibitors COX-2.

● **Meloxicam** - 15-7,5 mg/day, q.d.

● **Nimesulide** - 100 mg b.i.d.

C. Ultra-selective inhibitors COX-2 (Coxibs).

● **Celecoxib** - 100 -200 mg/day 1 q.d.

● **Etoricoxib** – 30-120 mg/day 1-2 time/day

# Glucocorticoids

- ⦿ Caution (exacerbations of skin manifestations upon discontinuation of therapy).
- ⦿ **Indications:**
- ⦿ Active forms that do not respond to NSAID administration.
  - **Prednison** 10-20 mg/day with gradual dose tapering.
- ⦿ Local corticosteroids (mono-, oligoarthritis) - intra-articular or intra-tendon (in a single joint no more than 3-4 infiltrations per year).
- ⦿ Cortisone preparations may be indicated locally and as an ointment, active on skin manifestations.

## Remissive treatment

- **Methotrexate** is effective in the treatment of skin and joint manifestations.
- 7,5-25 mg/week.
- Methotrexate is indicated in mild to severe forms of PsA, which do not respond to NSAIDs treatment, being preferred to corticosteroids
- *Mtx effectiveness - level C of recommendations.*

# Remissive treatment

- **Sulfasalazine** initially in doses of 500 mg/day, then increasing the weekly dose by 500 mg, extending to 3-4 g/day, which is continued for a long time.
- The therapeutic effect occurs over 4-6 weeks.
- In clinical trials SZA has not shown high efficacy in the treatment of PsA. It can be used as an alternative medicine in the peripheral forms of PsA.

# Leflunomide

- It inhibits dihydro-orotate-dehydrogenase (DHODH), a mitochondrial enzyme required for de novo synthesis of pyrimidine nucleotides. Thus, the proliferation of lymphocytes is blocked.
- ***It is given in a dose of 20 mg/day.*** It can be used in both early and late forms of the disease. The therapeutic response is rapidly established, being maximal after 4 weeks (initial dose of 100 mg/day for first 3 days).
- The efficacy is maintained after 2 years of treatment.
- LF slows the radiological progression of the disease in all its stages, more than placebo, MTX or SZA.
- LF is recommended in the treatment of peripheral forms of PsA (*recommendation level A*)



# Cytostatics

- Cyclosporine A,
- Cyclophosphamide,
- Azathioprine,
- D-penicillamine

*are not recommended for wide administration in the treatment of APs!*

# Biologic therapy

- Biological agents are substances that interact with the specific components of inflammation, the following groups of biological agents being highlighted :
- Monoclonal antibodies (MAB).
- Receptor antagonists.
- Soluble receptors.

# Biologic therapy

- **Infliximab (Remicade<sup>®</sup>):** 5 mg/kg/, i.v., week 0, 2, 6 and then every 8th week. It is effective in patients with moderate to severe active disease.
- **Adalimumab (Humira<sup>®</sup>)\*:** s.c., 40 mg every second week. Effective in high activity forms.
- **Etanercept (Enbrel<sup>®</sup>)\*:** s.c., 25 mg x 2/week or 50mg 1/week.
- **Infliximab, Adalimumab, Etanercept** have similar efficacy and adverse reaction profile in PsA and are recommended in the treatment of active disease in patients with failure or intolerance in the treatment with at least 2 DMARDs.

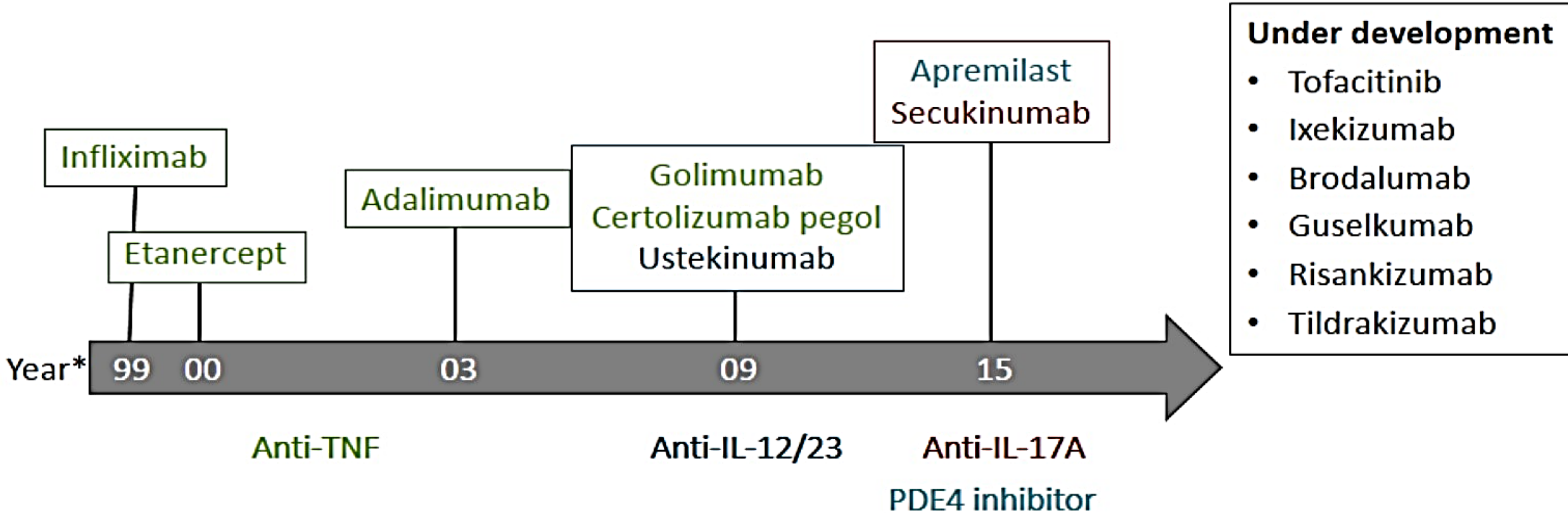
**Note:** Before initiation of treatment it is mandatory: screening for tuberculosis: PPD / quantiferon test and chest x-ray; viral infection screening: AgHBs, anti-HCV, HIV; exclusion of neoplasia, demyelinating diseases.

# Biologic therapy

- **Golimumab (Simponi<sup>®</sup>)** 50 mg s.c. - monthly
- **Certolizumab pegol (Cimzia<sup>®</sup>)** 200 mg s.c. weeks 0, 2 & 4, then 200 mg every 2 weeks or 400 mg monthly.
- **Ustekinumab (Stelara<sup>®</sup>)** (anti-IL-12 & anti-IL-23 antibodies) 45 mg for pts with body weight <100 kg and 90 mg to them >100 kg administered in weeks 0 & 4 and then every 12 weeks. For severe psoriasis.

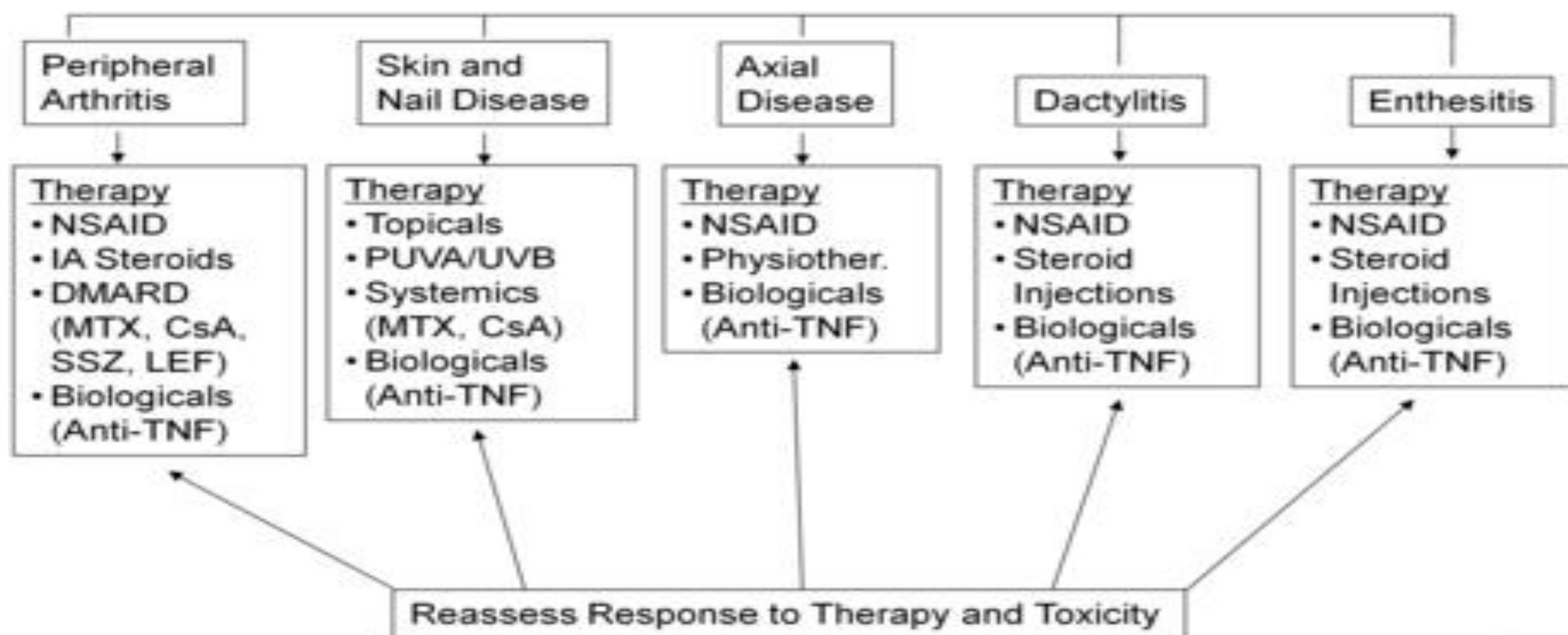
**Note:** Anti-TNF treatment is required for patients with active disease (at least 3 tender and swollen joints) who have failed at least two DMARDs. Level of evidence A.

# Therapeutic Landscape for PsA Is Expanding



**Abatacept, a selective co-stimulation modulator,  
has been approved by FDA, not yet by EMA**

# GRAPPA Treatment Guidelines for Psoriatic Arthritis



# Surgical treatment

- In the *early stages* - synovectomy, interventions for carpal canal syndrome, tendon ruptures, atlantoaxial subluxation, ruptured Baker cyst.
- *At late stages* - arthroplasty with total prosthesis of the respective joint.

# Balneophysical treatment

***Kineto- and hydrotherapy, which can:***

- relieves pain
- reduce inflammation
- strengthen muscles
- prevents osteoporosis
- prevents muscle atrophy
- Specific exercises: wide breathing, extension mobilization of the spinal column (to avoid spinal kyphosis), movements in all planes.
- Swimming is recommended sports.



# Poor prognostic factors

- Peripheral polyarticular involvement (arthritis mutilans, symmetrical arthritis)
- High inflammatory biological syndrome at onset
- Genetic factors:
  - *Family history of PsA;*
  - *HLA-B27, B39 in presence of HLA-DR7 → SEVER!*
  - *HLA-DQw3, B22 in presence of HLA-DR7 → GOOD!*
- Patients with severe forms
- Young age at the onset of arthritis
- Female
- Acute onset of arthritis
- Extensive skin damage
- Lack of response to NSAIDs
- Association with HIV/AIDS



**Mulțumesc pentru atenție!**