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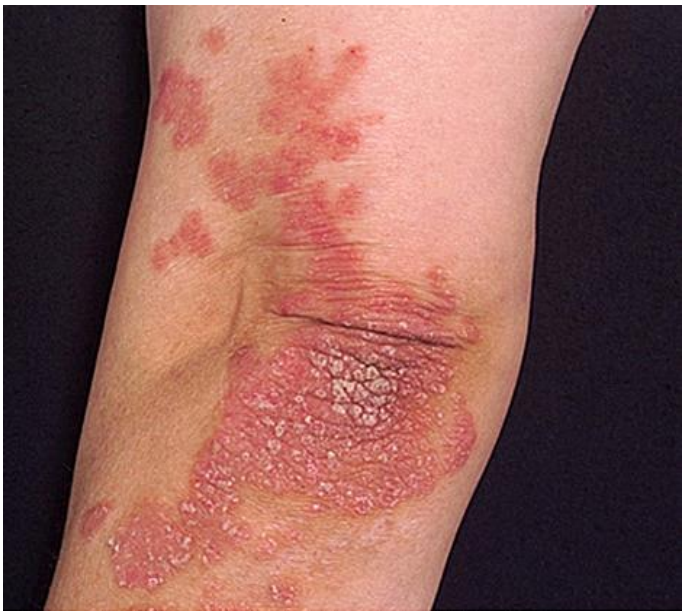
(6) Psoriatic arthritis

Psoriatic arthritis (PsA)(التهاب المفاصل الصدفي) is a chronic inflammatory joint disease which develops in patients with psoriasis (داء الصدفية). It is characteristic that the rheumatoid factor in serum is absent. Etiology of the disease is still unclear. Inheritance of the disease is multilevel and the role of **environmental factors is emphasized**. Immunology of PsA is also complex. Inflammation is caused by immunological reactions leading to release of kinins. Destructive changes in bones usually appear after a few months from the onset of clinical symptoms.

In other word, psoriatic arthritis is a form of arthritis that affects some people who have psoriasis a condition that features **red patches of skin topped with silvery scales (قشور فضية)**. Most people develop psoriasis first and are later diagnosed with psoriatic arthritis, but the joint problems can sometimes begin before **skin patches appear**.



Etiology (risk factors)

- **Family history:** Psoriatic arthritis is considered one of the more inheritable autoimmune diseases. About 40 % of people with psoriasis or psoriatic arthritis have a family member with one of these diseases. Up-to-date, close relatives of people with psoriatic arthritis are about 55 times more likely to develop the disease than an unrelated person.

- **Genes:** The **HLA-Cw6** allele is present in 90 % of patients with early onset psoriasis, in 50 % of those with late onset psoriasis, and only 7.4 % of a control population. HLA-B27 gene is also risk factors for the development of PsA.
- **Smoking:** Past smokers had a 50 percent greater risk compared to those who had never smoked. It's thought that chemicals in tobacco increase the amount of inflammatory chemicals in the body).
- **Obesity:** Up to 40 percent of people with PsA are obese (سمنة). Studies show that being overweight increases the risk of developing PsA and that losing weight can help improve PsA symptoms.
- **Age**: Psoriatic arthritis can start at any age. However, it occurs most often in adults ages 30 to 50. For the majority of patients, PsA starts five to 10 years after the development of psoriasis.
- **Environmental factors**: Exposure to certain infections like (streptococcal infection, certain skin infections like staphylococcus, and HIV), physical trauma, stress and stressful life events are also involved.
- **Others**: like lithium, antimalarial medications, Inderal (for blood pressure).

Epidemiology

According to the National Institutes of Health (NIH), approximately 2.2% of the United States population has psoriasis. Internationally, the incidence of psoriasis varies dramatically. Approximately2-3% of people are affected by psoriasis worldwide. Psoriasis can begin **at any age**, yet there is a bimodal peak (ذروة ثنائية الاتجاه) between age 20-30 years and 50-60 years. Approximately 10-15% of new cases begin in children younger than 10 years. The median age at onset is 28 years. **Psoriasis is slightly more common in women than in men**. The incidence of psoriasis is dependent on the climate and genetic heritage (التركة الجينية) of the

population. It is **less common** in the tropics and in dark-skinned persons. Psoriasis prevalence in African Americans is 1.3% compared with 2.5% in whites.

Classification criteria of psoriasis

There are several types of psoriasis:

Psoriasis plaque (الصدفية القشرية) is a chronic autoimmune condition. This type is characterized by the appearance of thick patches on the skin, red, scaly skin.

Guttate psoriasis (الصدفية النقطية) type of psoriasis that presents as small (0.5–1.5 cm in diameter) lesions over the upper trunk and proximal extremities; it is found frequently in young adults. The term "guttate" is used to describe the drop-like appearance of skin lesions.

Inverse psoriasis: (الصدفية المعكوسة) sometimes called hidden psoriasis or intertriginous psoriasis (صدفية ما بين الثنايا), is a form of psoriasis that affects skin folds. These are areas of your body where skin rubs against skin.

Pustular psoriasis: (الصدفية البثرية) is a rare (نادر) and severe form of psoriasis that involves widespread inflammation of the skin and small white or yellow pus-filled blisters or pustules. The pus consists of white blood cells and is not a sign of infection. On light skin, the affected areas will appear red.

Erythrodermic psoriasis: (الصدفية المُحمرّة للجلد) is an uncommon, aggressive, inflammatory form of psoriasis. Symptoms include a peeling rash (طفح جلدي متقشر) across the entire surface of the body. The rash can itch(حكة) or burn intensely, and it spreads quickly. Erythrodermic psoriasis is one of the most severe types of psoriasis.

Nail psoriasis: (صدفية الاظافر) alters the way your toenails and fingernails look. They may get thick, develop pinprick holes and change color or shape. They also can feel tender and hurt. You can treat these problems with medicine.

Psoriatic arthritis: sets off joint swelling and pain that can lead to permanent damage. Your immune system is responsible for it.

Symptoms

The signs and symptoms of psoriatic arthritis often resemble those of rheumatoid arthritis.

1- Joint pain on just one side or on both sides of your body, stiffness and swelling are the main sings.
2- Swollen fingers and toes**:** Psoriatic arthritis can cause a painful, sausage-like swelling of fingers and toes. You may also develop swelling and deformities (تشوهات) in your hands and feet before having significant joint symptoms.
3- Foot pain: Psoriatic arthritis can also cause pain at the points where tendons and ligaments attach to your bones — especially at the back of your heel (Achilles tendinitis التهاب وتر العرقوب) or in the sole of your foot (plantar fasciitis التهاب اللفافة الأخمصية).
4- Lower back pain: Some people develop a condition called spondylitis as a result of psoriatic arthritis.

Pathophysiology

- Dendritic cells (DCs) and T cells (in particular the Th1 and Th17) as key cell types, and type I IFN, IFN-γ,TNF-α and IL-1β as key cytokines in pathogenicity of psoriatic arthritis.

- Myeloid dendritic cell(mDC), Natural killer cells(NK), Macrophage and Plasmacytoid dendritic cell(pDC) are present in inflammatory infiltrates of skin and synovium of patients with Ps and PsA
- pDCs have an important role as an inducer of Ps by release of IFN-α.
- Psoriatic keratinocytes have been implicated in the regulation of skin immune response. In addition, they respond to activated DC- and T-cell-derived mediators, including TNF-α, IFN-α, IFN- γ, IL-17 and IL-22.
- Once activated (بمجرد تنشيطها), keratinocytes induce the production of antimicrobial peptides and different proinflammatory cytokines (mainly IL-1b, IL-6 and TNF-α), chemokines (CXCL8, 9, 10 and 11, CCL-20) and S100 proteins.
- These soluble mediators feed back into the proinflammatory disease cycle and modulate the psoriatic inflammatory infiltrate.
- In adaptive immunity, myeloid dermal DCs present antigen and secrete mediators such as IL-12 and IL-23, leading to the differentiation of Th1 and Th17 cells. Homing of these cells, in particular the Th17 cells, to the skin plays a key role in the perpetuation (تخليد او بقاء) and amplification of the inflammatory reaction

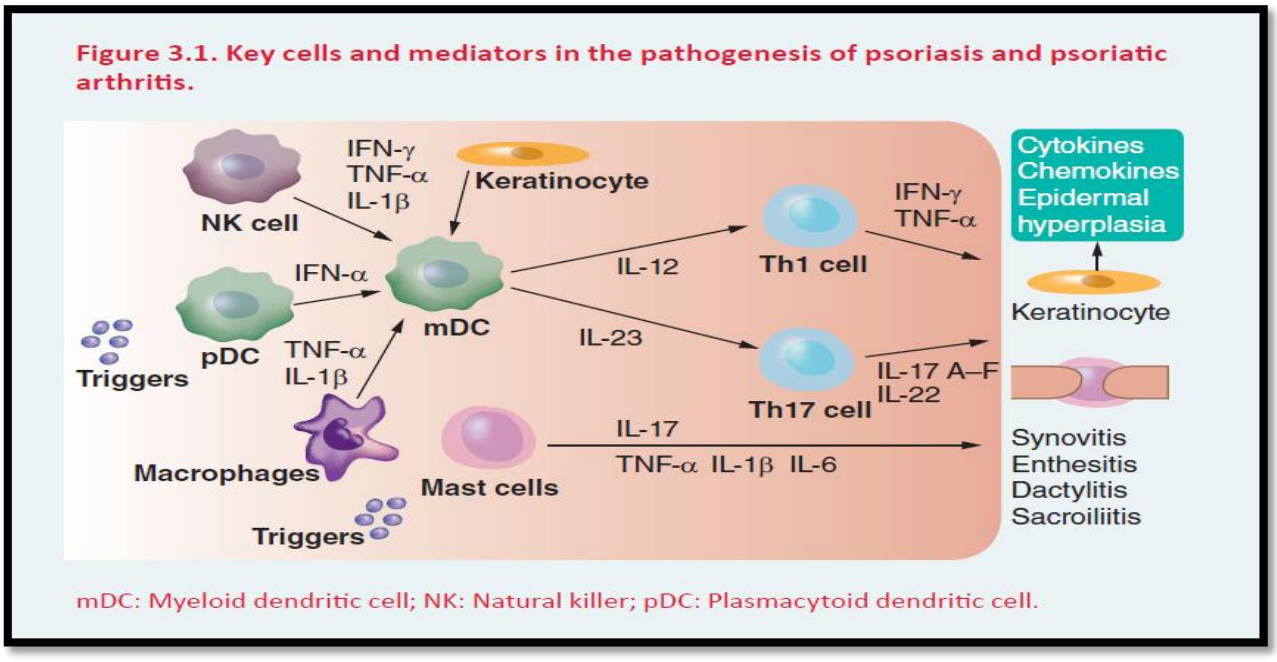


Figure 3.1. Key cells and mediators in the pathogenesis of psoriasis and psoriatic arthritis.

mDC: Myeloid dendritic cell; NK: Natural killer; pDC: Plasmacytoid dendritic cell.

Diagnosis.

There is no single test to diagnosis psoriatic arthritis.

Typically, the diagnosis of psoriatic arthritis is based on combination of :-

- Patients history
- Physical examination
- Imaging of the joints (X-rays, Ultrasound, MRI)
- Biopsy for examination under a microscope. This helps determine the type of psoriasis and rule out other disorders.
- Blood tests (CRP, ESR ,WBC count)

Differential diagnosis.

Less common variants of psoriasis include inverse psoriasis, pustular psoriasis, guttate psoriasis, erythrodermic psoriasis, etc. These variants can be differentiated from the common plaque type by **morphology**. Differential diagnoses include atopic dermatitis(الاكزيما) , contact dermatitis،(التهاب الجلد التماسي) lichen planus الحزاز) (المسطح/طفح جلدي, secondary syphilis, mycosis, and tinea corporis(نوع من انواع الفطريات فوق الجلد).

Laboratory findings (testing)

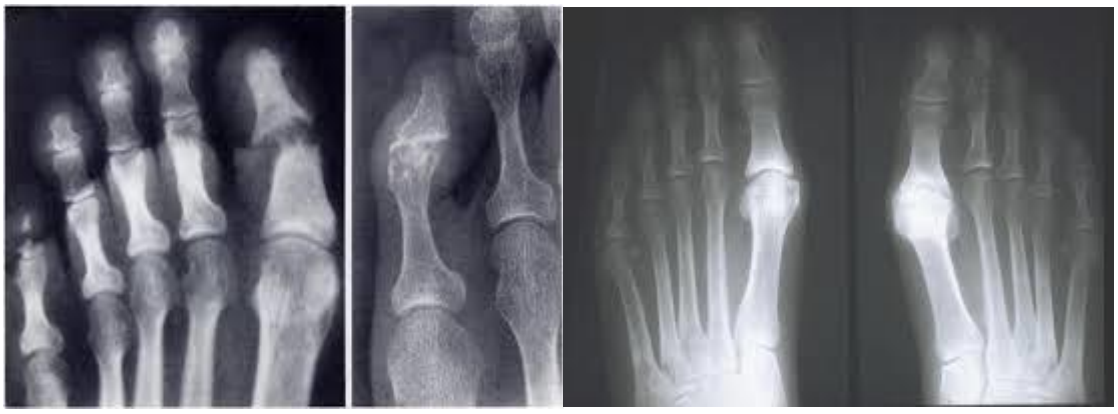
No specific diagnostic test is available which used for this disease (depend on clinical and radiologic criteria) but:-

- Elevated CRP, ESR, WBC count and anemia (for blood)
- Skin biopsy
- Radiologically imaging :

  *erosive changes (تغيرات تأكلية) and new bone formation in distal joints.

  *lysis of terminal phalanges(تحلل السلاميات الطرفية) .

*fluffy periositis (التهاب السمحاق الرقيق).



Radiology Overview of Erosive Osteoarthritis and Psoriatic Arthritis