

# Psoriatic Arthritis Clinico Therapeutic Advances

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## ABSTRACT

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**Background:** Psoriasis, a papulosquamous disorder, continues to be one of the common diseases affecting the skin. Estimates of its occurrence in different parts of the world vary from 0.1 to 3 %.

**Objective:** To describe the diagnostic features of different types of Psoriasis and their medical management.

**Result:** Various clinical types of psoriasis include psoriasis vulgaris, guttate, pustular, plaque, exfoliative, flexural and arthritic psoriasis and psoriasis unguis are described here.

**Keywords:** Psoriasis, Psoriasis types and medical management, Ankylosing spondylitis

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Psoriasis, a papulosquamous disorder, continues to be one of the common diseases affecting the skin. Estimates of its occurrence in different parts of the world vary from 0.1 to 3 %. Onset of psoriasis is most common in the second to fourth decades of life. Its high familial occurrence suggests that genetic factors play a role in its etiology. Focal benign epidermal hyperplasia results in well-defined erythematous scaly plaques. The scales are dry, loose and micaceous. Various clinical types of psoriasis include psoriasis vulgaris, guttate, pustular, plaque, exfoliative, flexural and arthritic psoriasis and psoriasis unguis.

### Psoriatic Arthritis

Psoriatic arthritis is an inflammatory arthritis associated with psoriasis usually with a negative test for rheumatoid factor. Arthritis occurs in about 5% to 10% of patients with psoriasis. Onset of arthritis is concurrent with the skin disease in 10% of cases but rarely may precede it. Like cutaneous psoriasis, psoriatic arthritis also is a genetically determined disorder. HLA studies reveal that the B27, DR3, A26 and B38 haplotypes are significantly associated with psoriatic arthritis. Environmental factors like trauma may precipitate arthritis. It occurs commonly between the ages of 30 and 55. There are five clinical patterns of psoriatic arthritis. They are:

#### Classic psoriatic arthritis

This form of arthritis involves the distal interphalangeal joints of the fingers and toes. In the acute stage the involved joint is swollen and tender; the swelling often

includes juxta-articular tissues leading to the so-called 'sausage' appearance of the affected fingers and toes. The nails of the affected fingers are usually involved. If there are more than 30° pits on the fingernail of a patient with chronic inflammatory arthritis, the diagnosis of psoriatic arthritis is confirmed. About 16% of patients with psoriatic arthritis have the classic form of a1thropathy.

#### Rheumatoid type of psoriatic arthritis

This is a symmetric polyarthritis similar to rheumatoid arthritis. It accounts for about 15% of all forms of psoriatic arthritis. Unlike the classic type, the proximal interphalangeal joints of the fingers and toes are affected. They are swollen and tender, and result in a 'swan neck' deformity as in rheumatoid arthritis. Serum tests for rheumatoid factor are usually negative. The arthropathy is less extensive and more benign in its course. Early morning stiffness, fusiform swelling of the proximal interphalangeal joints of the fingers, symmetrical involvement and the late deformity of ulnar deviation all pathognomonic of rheumatoid arthritis are usually not seen in psoriatic arthritis.

#### Arthritis mutilans

This type accounts for about 5% of all forms of psoriatic arthritis. Osteolysis and destruction of bones, especially of the hands and feet, result in telescoping of the soft tissue and gross deformities.

#### Oligoarticular arthritis

This is the most common type (70%) of psoriatic

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arthritis. Usually a single joint or sometimes a few interphalangeal or metacarpophalangeal joints are affected. This form is characteristically asymmetrical in distribution.

### **Psoriatic spondylitis**

An association between psoriasis and ankylosing spondylitis was noted at a much later date than its association with peripheral arthritis. Though radiological evidence of spondylitis is seen in 30% of patients with psoriasis, clinical disease occurs in few. The concept of psoriatic spondylitis has been strengthened by epidemiologic studies showing an increased incidence of ankylosing spondylitis and sacroiliitis in patients with psoriasis.

Arthritis is a common accompaniment of pustular psoriasis. A recent report describes the autopsy findings in 2 cases of generalized pustular psoriasis with associated aseptic purulent arthritis. Histopathological study of the synovium revealed invasion by polymorphonuclear leukocytes, edema and dilatation of small vessels. Levels of immunoreactive leukotrienes B<sub>4</sub> and C<sub>4</sub> were significantly increased in the synovial fluid; the former attracted PMNLs to the joint and the latter caused exudation of synovial fluid.

Helliwell et al recently classified psoriatic arthritis into three subgroups; peripheral arthritis, spondyloarthropathy and extraarticular osseous disease. This last subgroup also contains SAPHO syndrome and POPP syndrome.

SAPHO syndrome was first described Benhamon et al in 1988. The acronym SAPHO stands for synovitis, acne, pustulosis, hyperostosis and osteomyelitis. Most cases were initially reported from Japan. Osteoarticular involvement occurs on the anterior chest wall in the form of sternocostoclavicular osteoarthritis and hyperostosis. The cutaneous manifestations include palmoplantar pustulosis and acne. Rarely, psoriatic skin lesions and sacroiliitis may also occur.

Unless the radiologist is aware of this syndrome, it may be mistaken for tumour or infection. The skin lesions need not always accompany the osteoarticular manifestations, but may develop later. There is some evidence that *Propionibacterium acnes* infection may be involved in its pathogenesis, at least in some cases.

The POPP syndrome, the acronym for 'psoriatic onychopachydermo-periosteitis' is another subset of psoriatic arthritis. There is painful onychopathy, soft

tissue swelling above the terminal phalanges and radiological signs of periosteal reaction with bone erosions. The big toes are predominantly affected. The distal interphalangeal joints remain unaffected. Onycholysis and longitudinal ridging are the nail changes always seen. Acral solid periosteal reaction and bone condensation leading to the 'ivory' phalanx are radiologic features.

Many other conditions have been reported in association with psoriatic arthropathy. They include ocular lesions like conjunctivitis, iritis, scleritis and keratoconjunctivitis sicca, ulcerative colitis, Reiter's disease, Behcet's syndrome, myopathy, aortic incompetence, amyloidosis and Crohn's disease.

### **Radiologic features of Psoriatic Arthritis**

The radiologic features of psoriatic arthritis closely simulate those of rheumatoid arthritis. The changes are asymmetric oligoarticular in psoriasis. The peripheral joints as well as the spine may be involved. Important changes in the peripheral joints are osteolysis which results in whittling away of the phalanges, metacarpals and metatarsals. Destruction of the terminal phalangeal tufts may occur (acro-osteolysis) and in the most severe form, the bones completely disappear. Along with destruction new bone formation also occurs. Due to this the phalanges show splaying of their bases causing 'fish-tail' deformity or more commonly 'pencil-in-cup' deformity.

Erosions may also occur in the bones and in the early stages cannot be easily differentiated from 'osteolysis'. Early erosions occur subarticularly. Later considerable cystic destruction of the affected bones occurs, but the articular cartilage is often spared in the destructive process, as indicated by the lack of narrowing of the joint space. Bony ankylosis of the joints may occur. Osteoporosis occurs less often in psoriatic arthritis. Psoriatic arthritis has a predilection for the distal interphalangeal and proximal interphalangeal joints with relative sparing of the metacarpophalangeal and metatarsophalangeal joints.

Asymmetric sacroiliitis may occur in about 20% of psoriatics. Erosions, narrowing and fusion of sacroiliac joints may occur. Often atypical syndesmophytes may be present without sacroiliitis. The cervical spine shows radiographic changes more frequently than the rest of the spine. Various patterns of vertebral and paravertebral ossification may be seen. Marginal and non-marginal syndesmophytes occur. The non-marginal type appears as 'inverted comma'. 'tear drop'

or as 'bag - pipe' forms. Paravertebral ossification (Bywaters-Dixon lesion) may rarely be seen.

### Treatment

Psoriatic arthritis has a chronic course with periods of remission and exacerbation. The course and prognosis in a particular patient is unpredictable. Various drugs may give symptomatic relief to the patient and may prolong remission.

### Retinoids

Etretinate and its active metabolite acitretin used in the treatment of psoriasis. They have immunomodulatory action in treatment of psoriasis.<sup>1</sup> Since acitretin is eliminated rapidly from body long term contraception in women patients is not required. Though there are conflicting reports on the efficacy of retinoids in the treatment of psoriatic arthritis,<sup>2,3</sup> the authors of one study considered etretinate to be the one of the first choices in the treatment of psoriatic arthritis. They administered it in a daily dose of 1 mg/ kg for 1 month, followed by maintenance dose of 25 mg/day or, where possible 10 mg per day or on alternate days for a maximum period of 25 months. Common side effects associated with oral retinoids are cheilitis, dryness of nasal mucosa and epistaxis, alopecia, conjunctivitis, nausea, vomiting, diarrhoea and raised levels of SGPT and hyper lipidemia. Rarely raised intracranial tension, papilloedema and toxic liver necrosis may occur.

### Methotrexate

Methotrexate is the commonly used systemic drug in the treatment of psoriasis. Psoriatic arthritis especially its mutilating variety not controlled with NSAID responds well to methotrexate. It is given in a dose of 7.5mg weekly. Before initiation of therapy, the full blood count and renal and hepatic function tests should be done. Adequate contraceptive measures may be commenced where appropriate. To reduce incidence of nausea 5mg of folic acid can be given daily. Hepatotoxicity is a major concern with a 7% overall risk of severe fibrosis/cirrhosis in psoriatics. The risk factors are total dose of methotrexate above 2.5 g, past history of hepatitis B or C infection, diabetes and obesity. Baseline liver biopsies as well as pretreatment hepatitis B and C serology have been recommended, but the usefulness of a baseline biopsy in the absence of risk factors has been questioned. The risk of fibrosis due to methotrexate should be balanced with the risk of biopsy related complications. In one study bleeding complicated 1.7% of liver biopsies and there were 0.13 - 0.33% liver biopsy related deaths.<sup>4</sup>

Considering high morbidity associated with liver biopsy, there is a need for non invasive techniques to screen for liver fibrosis and cirrhosis. Serum assays for products of matrix synthesis or degradation and the enzymes involved in the process have been investigated as markers of liver fibrosis. The aminoterminal propeptide of type III collagen (P III NP) is the serum marker investigated in patients receiving methotrexate.<sup>5</sup>

P III NP is cleaved during collagen synthesis, which is upregulated in active fibrogenesis. Proton magnetic resonance spectroscopy (HMRS) is able to measure liver fat content non invasively. A combination of HMRS and PMRS (which estimates cell membrane turn over and fibrosis) is the most suitable techniques for monitoring methotrexate-induced liver toxicity.<sup>6</sup>

### Biologics

Biologics are the new introduction in the treatment of psoriatic arthritis. There are 4 basic potential strategies for immunomodulation with biological therapy in psoriasis. They are:

- a. Targeting pathogenic T -cell
- b. Inhibition of T-cell activation
- c. Induction of immune deviation
- d. Inhibition of cytokines.

Once an appropriate target strategy is chosen, biological can be produced by recombinant DNA technique.

Biologic therapies for psoriasis on or close to market are: Alefacept, Etanercept, Infliximab, Efalizumab and Adalimumab.

### Etanercept:

Composed of 2 soluble TNF receptor (P 75) domains fused to human immunoglobulin, etanercept neutralizes the inflammatory cytokines TNF and lymphotoxin alpha. Administered subcutaneously 25 mg twice weekly, it has shown excellent safety and efficacy in the treatment of psoriatic arthritis. Study it as shown that at 12 weeks, 87 % of patients achieved a clinical response by the Psoriatic Arthritis Response Criteria compared with 23 % of the placebo group. The drug is generally well tolerated and well-suited to long-term therapy in psoriatic arthritis.

### Infliximab:

It is a chimeric monoclonal antibody that has high specificity, affinity and avidity for TNF- $\mu$ . This is also effective in the treatment of psoriatic arthritis.

### Non steroidal anti-inflammatory agents

The commonly used NSAIDS eg: indomethacine, phenylbutazone, salicylates and ibuprofen cannot be safely administered for treatment of psoriatic arthritis because they may rarely exacerbate psoriasis. Chloroquine, a drug commonly used in rheumatoid arthritis is also known to exacerbate psoriasis. Meclofenamate another NSAID is an appropriate drug for psoriatic arthritis.

### Corticosteroids

Corticosteroids both systemic and intra articular give excellent therapeutic response, but often causes recurrence of the disease in a more severe form on cessation of therapy. Still they are often recommended for severe mutilating arthropathy.

### END NOTE

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