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Psoriatic Arthritis: A clinical challenge to Dermatologist and Orthopedist

Saroj Chandra Mohanty MBBS,MD(Skin&VD)[1] ,Kumar Anshuman MBBS,DNB (ortho)[2],Gourishankar Patnaik MBBS;MS(Ortho)FAOI(USA)PhD[3]

1.Assistant professor Dept of Dermatology and V.D.
2.Associate Professor Orthopedic Surgery
3.Professor and head, Dept Of Orthopedics : Narayan Medical college and Hospital ,Jamuhar, Dist Rohtas, Bihar

Abstract: *Psoriasis is a skin disease that is accompanied by systemic inflammation and is one of the most common inflammatory disorders, estimated to effect between 1 and 3% of the population[1]. It is characterized by epidermal hyperproliferation and dermal inflammation. The etiology of psoriasis is unknown but genetic factors play a role. Psoriasis may begin at any age but has two peak periods of onset: between 15 and 25 and between 50 to 60 years of age. In many patients, psoriasis affects only a small area of the skin (<2% of body surface area) whereas in other patients, the disease can be quite severe, affecting a large portion of the skin. The cutaneous manifestations lead to considerable morbidity and the emotional burden of severe psoriasis has been shown to be similar to that seen in patients with cancer, diabetes, and heart disease.*

Key words: *Psoriasis, arthritis, PsA, joint pain, rashes, nails*

I. Introduction

Psoriatic arthritis is a debilitating condition, which affects approximately one-quarter of psoriasis patients. Recent findings have furthered our understanding of the complex pathophysiology of PsA. There have been major advances in the identification of genes associated with joint involvement but not with cutaneous disease alone. The elucidation of key immunologic pathways has allowed the development of novel targeted therapies that are in the research pipeline. Currently, good screening tests and biomarkers to diagnose early PsA and to guide therapy are limited. In this paper, we present recent findings with regard to the immunopathogenesis and genetics of PsA, biomarkers, and screening tools and review the targeted therapies currently in clinical trials.

Dry, Flaky, Irritated Skin

This is not what usually comes into the mind of most people when the word Psoriasis is mentioned. Arthritis is generally not thought of in relation to psoriasis. But, perhaps it should be. Up to 20% of people suffering from psoriasis will also develop an arthritis in association with their skin condition.

Similar to Rheumatoid Arthritis

The symptoms of psoriatic arthritis are similar to those of rheumatoid arthritis, although they are often not as severe. They include pain, stiffness and swelling in and around a joint, decreased movement, morning stiffness and tiredness.

The likelihood of nail involvement also increases if psoriatic arthritis develops. 80% of people with psoriatic arthritis will report pitting or lifting of the nail, while only 20% of people suffering from psoriasis without arthritic involvement develop nail pitting.

Redness and pain of the eye may also occur in association with this condition. Psoriatic arthritis is usually seen in the 30 –50 year old age group and affects both men and women equally.

oriatic arthritis (PsA) is an inflammatory arthropathy, which is associated with psoriasis in approximately 25% of patients. It is characterized by stiffness, pain, swelling, and tenderness of the joints as well as the surrounding ligaments and tendons . It affects men and women equally and typically presents at the age of 30 to 50 years . Cutaneous disease usually precedes the onset of PsA by an average of 10 years in the majority of patients but 14–21% of patients with PsA develop symptoms of arthritis prior to the development of skin disease . Psoriatic arthritis is classified as a seronegative spondyloarthritis due to the potential axial involvement, the contribution of enthesitis to its pathogenesis, and increased association with HLA-B27 . The presentation is variable and can range from a mild, nondestructive arthritis to a severe, debilitating, erosive arthropathy.[1]

There are multiple clinical subsets as defined by Moll and Wright: monoarthritis of the large joints, distal interphalangeal arthritis, spondyloarthritis, or a symmetrical deforming polyarthropathy much akin to that of rheumatoid arthritis. Left untreated, a proportion of patients may develop persistent inflammation with deforming progressive joint damage which leads to severe physical limitation and disability [3]. In many patients articular patterns change or overlap in time [2]. Enthesitis may occur at any site, but more commonly at the insertion sites of the plantar fascia, the Achilles tendons, and ligamentous attachments to the ribs, spine, and pelvis [4]. Dactylitis, an important feature of PsA, is a combination of enthesitis of the tendons and ligaments and synovitis involving all joints in the digit. The severity of the skin and joint disease frequently do not correlate with each other. Although in the past it was always thought that the presence of nail psoriasis correlated with the development of psoriatic arthritis, more recent evidence does not support this [5]. Ocular manifestations of PsA include conjunctivitis, iritis, and urethritis. Radiographic characteristics of PsA include the development of erosions, the presence of pencil-in-cup deformity, arthritis mutilans, spur formation, nonmarginal asymmetric syndesmophytes, and asymmetric sacroiliitis.

In the past decade, considerable progress has been made in further elucidating the immunologic and genetic basis of PsA, and defining its clinical and epidemiological characteristics. More importantly, there have been significant advances in the development of more targeted systemic and biologic treatments for PsA. This update review advances in the field of psoriatic arthritis in the past decade and discusses the future direction of PsA research and therapy.

II. Advances in Epidemiology

Psoriasis can present at any age and has been reported at birth and in older people of advanced age. Accurate determination of the age of onset of psoriasis is problematic, as studies which do so typically rely on a patient's recall of the onset of lesions or determine the onset from the physician's diagnosis as recorded on the initial visit. Data based on patient recall can be inaccurate; determining onset based on first visit to a physician could underestimate the time of disease occurrence, as minimal disease may be present for years before a consultation is sought. A bimodal age of onset has been recognised in several large studies. The mean age of onset for the first presentation of psoriasis can range from 15 to 20 years of age, with a second peak occurring at 55–60 years.[6-10]

III. Diagnosis

The upper joints of the fingers and toes are most commonly affected. However there may also be some spinal involvement. Early diagnosis is important to prevent long term damage to the joints and tissues. This is not always straight forward as diagnosis, especially in the early stages is quite difficult. Many people have a degree of bone loss by the time the disease is diagnosed.

The relationship between the two (skin and arthritis) is often difficult to determine, as there is no set pattern to be followed. Symptoms of the two may not always occur at the same time. In fact it is not unusual for the psoriatic arthritis to appear some 10 years after the first signs of psoriasis appear on the skin. It is also possible for the arthritis symptoms to appear before the skin symptoms develop. Similarly the severity of the psoriasis rash does not mirror the severity of the associated arthritis and a flare up in one does not indicate a flare up in the other.

Psoriatic arthritis commonly runs in families, so this is one aspect looked at when seeking a diagnosis. Diagnosis is based on a medical history, physical examination, blood tests, and xrays. It is the absence of the rheumatoid factor in a blood test that distinguishes psoriatic arthritis from rheumatoid arthritis.

IV. Clinical Features

Psoriasis is a papulosquamous disease with variable morphology, distribution, severity, and course. Papulosquamous diseases are characterised by scaling papules (raised lesions <1 cm in diameter) and plaques (raised lesions >1 cm in diameter). Other papulosquamous diseases that may be considered in the differential diagnosis include tinea infections, pityriasis rosea, and lichen planus. The lesions of psoriasis are distinct from these other entities and are classically very well circumscribed, circular, red papules or plaques with a grey or silvery-white, dry scale. In addition, the lesions are typically distributed symmetrically on the scalp, elbows, knees, lumbosacral area, and in the body folds.(Fig 1) Psoriasis may also develop at the site of trauma or injury, known as Koebner's phenomenon. If psoriasis is progressive or uncontrolled, it can result in a generalised exfoliative erythroderma. Nail involvement may be present, particularly if psoriatic arthritis (PsA) is present.

Occasionally psoriasis may involve the oral mucosa or the tongue. When the tongue is involved, the dorsal surface may have sharply circumscribed gyrate red patches with a white-yellow border. The patches may evolve and spread, changing on a daily basis, can assume distinct annular patterns and may resemble a map, hence the term *geographic tongue*.

Psoriasis can be highly variable in morphology, distribution, and severity. Despite the classic presentation described above, the morphology can range from small tear shaped papules (guttate psoriasis) to pustules (pustular psoriasis) and generalised erythema and scale (erythrodermic psoriasis). In addition, these different forms of psoriasis may be localised or widespread and disabling. Further, psoriasis may have a variable course presenting as chronic, stable plaques or may present acutely, with a rapid progression and widespread involvement. Psoriasis may be symptomatic with patients complaining of intense pruritus or burning. The various types and presentations of psoriasis are outlined below. (Fig 2,3)

Fig 1

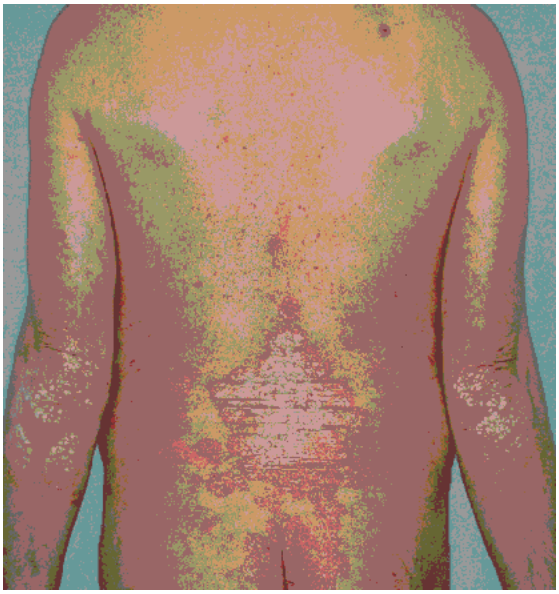

Fig 2

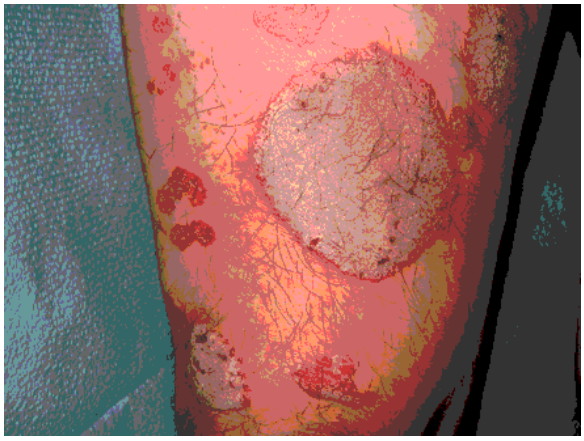

Fig 3

V. Therapy

Nonsteroidal anti-inflammatory drugs (NSAIDs) help with symptomatic relief, but they do not alter the disease course or prevent disease progression. Intra-articular steroid injections can be used for symptomatic relief. In psoriatic arthritis, dramatic flares in skin disease have been reported with corticosteroid taper; therefore, systemic corticosteroids ideally should be avoided in this patient population 11. Physical therapy may also be helpful in symptomatic relief. As there is no cure for the condition, treatment is aimed at relieving the symptoms. Many doctors prescribe anti-inflammatory drugs as their preferred treatment. The use of steroids is not recommended as it may have a detrimental effect on the psoriatic rash causing a flare up on the skin.

VI. Quality of life and psychological aspects of psoriasis

Although psoriasis generally does not affect survival, it certainly has a number of major negative effects on patients, demonstrable by a significant detriment to quality of life.[7] Despite this, most clinical trials of new treatments for psoriasis focus on "objective" physical measures for the primary endpoint of efficacy. This is incongruous as it is the improvement in quality of life that patients and physicians rely upon when selecting treatment. Impairment of quality of life has been highlighted particularly by the work of Finlay.[12] Patients with psoriasis have a reduction in their quality of life similar to or worse than patients with other chronic diseases, such as ischaemic heart disease and diabetes.[13] That patients with psoriasis feel stigmatised by the condition is well established. This of itself contributes to everyday disability leading to depression and suicidal ideation in more than 5% of patients.[14]

It is imperative to diagnose psoriatic arthritis at its first onset because early diagnosis and treatment may reduce irreversible joint damage. Patients with PsA who were started on etanercept within two years of disease onset had a more significant improvement in pain assessments than those who had PsA for more than two years prior to commencing etanercept [15]. Additionally, the SwePsA registry found that the early diagnosis of psoriatic arthritis was associated with lower joint disease activity at the 5-year follow-up time point [16]. In this study, male gender, axial disease, preserved function at diagnosis and lower baseline health assessment questionnaire scores also portended a better prognosis. Surprisingly, it was also shown that male gender was a predictor of more rapid radiological progression despite a better clinical outcome [17].

VII. Comorbidities

It is now well known that psoriatic patients are at higher risk for the metabolic syndrome and thus have a larger waist circumference. It was recently shown, however, that there is no correlation between a larger waist circumference and more severe PsA [18]. Interestingly, a prospective study of 135 obese and 135 nonobese PsA patients starting tumor necrosis factor-alpha (TNF-α) inhibitors showed that obese patients were less likely to achieve minimal disease activity (MDA) (hazard ratio: 4.90, 95% CI : 3.04–7.87,). Of those who achieved MDA, obese patients were more likely to relapse at 24 months [19].

VIII. Conclusions

Psoriatic arthritis is an inflammatory arthritis with a number of clinical patterns. Currently there are no validated screening serological methods to aid in early clinical diagnosis. Psoriatic arthritis is associated with different degrees of disability and an increased mortality risk especially when there is a delay in diagnosis. There are distinct genetic differences between psoriatic patients who develop PsA and those who remain free of joint involvement. This likely produces differences in the microenvironment of the skin and synovial tissues where inflammatory mediators are not identical. Treatment options include symptomatic as well as disease modifying agents either singly or in combination. Therapeutic agents beneficial for the cutaneous manifestations of psoriasis may not necessarily be equally efficacious for PsA and vice versa. However, even with the most effective agents there are still a significant percentage of treatment failures, creating the need for the further development of more effective and safer treatment options. Several medications are currently undergoing clinical trials and are showing promising results. Patients with PsA should be diagnosed early and treated promptly and aggressively in order to prevent joint destruction and poor clinical outcomes.

Psoriasis is a common chronic, recurrent, immune mediated disease of the skin and joints. It can have a significant negative impact on the physical, emotional, and, psychosocial wellbeing of affected patients. Psoriasis is found worldwide but the prevalence varies among different ethnic groups. It has a strong genetic component but environmental factors such as infections can play an important role in the presentation of disease. There are several clinical cutaneous manifestations of psoriasis but most commonly the disease presents as chronic, symmetrical, erythematous, scaling papules and plaques. The epidemiology, clinical features, and impact on quality of life of psoriasis are reviewed.

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