Clinical Features and Diagnostic Considerations in Psoriatic Arthritis

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KEYWORDS

• Psoriatic arthritis • Dactylitis • Enthesitis • Axial disease • Clinical features
• Differential diagnosis

KEY POINTS

- Psoriatic arthritis is a unique musculoskeletal disease occurring in patients with psoriasis.
- There are specific clinical and imaging features that help identify it.
- It should be differentiated from other forms of arthritis that might coexist with psoriasis.

Psoriasis is an inflammatory immune-mediated skin disease that affects 2% to 3% of the population. Some 30% of patients with psoriasis develop an inflammatory form of arthritis, termed psoriatic arthritis. Psoriatic arthritis was initially described in detail by Wright,[1] and then Wright and Moll,[2] who considered it "an inflammatory arthritis associated with psoriasis usually seronegative for rheumatoid factor." They described 5 clinical patterns of the disease, namely distal, oligoarticular, polyarticular, primarily axial, and arthritis mutilans.[2] However, it has been demonstrated that patients change their pattern over time, such that a patient may present with oligoarthritis and then develop polyarticular involvement, or present with polyarthritis and remain oligoarticular after therapy. Alternatively, patients may have primarily peripheral disease at presentation and then develop axial disease, or vice versa. Because patients may present at different points during their disease course, these patterns are not useful in terms of identifying disease.[3] Moreover, patients with psoriatic arthritis may present with peripheral arthritis, axial disease, or enthesitis. Thus, the new definition of psoriatic arthritis is "an inflammatory musculoskeletal disease associated with psoriasis."[4] More recently, most investigators consider psoriatic arthritis to consist of 5 domains: peripheral arthritis, axial disease, enthesitis, dactylitis, and skin and nail disease.[5]

In this article, the clinical features of psoriatic arthritis are discussed, together with diagnostic considerations.

Disclosure: None.
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Rheum Dis Clin N Am 41 (2015) 569–579
http://dx.doi.org/10.1016/j.rdc.2015.07.003 **rheumatic.theclinics.com**
0889-857X/15/$ – see front matter

CLINICAL FEATURES OF PSORIATIC ARTHRITIS

Peripheral Arthritis

Psoriatic arthritis is inflammatory in nature. Thus, patients present with joint pain that is worse with inactivity, and is associated with morning stiffness of more than 30 minutes' duration. The joint pain and stiffness improve with activity. There may be joint swelling associated with the pain. Any joint may be affected, but the most common joints are the joints of the feet and hands, followed by knees, wrists, ankles, and shoulders (**Table 1**).

On physical examination, joints may be tender and swollen; however, it should be noted that patients with psoriatic arthritis are not as tender as patients with rheumatoid arthritis.[6] Moreover, the effusions may be tight and difficult to appreciate. Patients with psoriatic arthritis may demonstrate a purplish discoloration over their affected joints.[7] When assessing disease activity in psoriatic arthritis, it is important to assess 68 joints for tenderness and 66 joints for swelling, as one may otherwise underestimate the extent of the disease.[8] Because the feet are most commonly affected, a joint count that excludes the feet is inappropriate for the assessment of psoriatic arthritis.

Most patients with psoriatic arthritis present with polyarticular disease, with 5 or more joints involved (**Fig. 1**). The distribution tends to be asymmetrical, but the more joints involved the more likely the symmetry.[9] Isolated distal joint involvement may occur in 5% to 10% of the patients (**Fig. 2**). Oligoarticular disease occurs in 37% of the patients (**Fig. 3**). Oligoarticular presentations are more likely to occur in early disease. Polyarticular disease is prognostic for progression of damage.[10,11] Patients with oligoarticular disease are more likely to achieve remission.[12]

Psoriatic arthritis may appear as a rapidly destructive arthritis described as arthritis mutilans. It was recognized by Wright and Moll[2] as a unique pattern. However,

Table 1
Active and damage joint prevalence among 355 inception patients

	Frequency (%)	
Joints Involved	**Active Joint Involvement**	**Damage Joint Involvement**
Temporomandibular	19 (5.4)	0 (0.0)
Sternoclavicular	11 (3.1)	0 (0.0)
Shoulder	71 (20.0)	4 (1.1)
Elbow	43 (12.1)	2 (0.6)
Hand		
Wrist	101 (28.5)	4 (1.1)
Metacarpophalangeal	167 (47.0)	3 (0.9)
Proximal interphalangeal	203 (57.2)	21(5.9)
Distal interphalangeal	123 (34.7)	19 (5.4)
Hip	23 (6.5)	3 (0.9)
Knee	102 (28.7)	3 (0.9)
Ankle	81 (22.8)	3 (0.9)
Foot		
Metatarsophalangeal	186 (52.4)	11 (3.1)
Proximal/distal interphalangeal	131 (36.9)	16 (4.5)

Fig. 1. Polyarticular psoriatic arthritis.

patients with other patterns may develop arthritis mutilans and therefore it is not considered a pattern but rather a specific phenotype within the disease. Clinically, one detects flail joints, although some patients demonstrate joint fusion.[13] Radiologically, there is evidence for significant osteolysis with bone resorption that may involve whole phalanges (**Fig. 4**). Fortunately, this extreme phenotype occurs in a minority of patients. In Wright and Moll's series[2] it occurred in only 5% of the patients. Two recent studies that defined arthritis mutilans as osteolysis also report low prevalence both in Nordic countries and in Bath, England.[14,15]

Patients with arthritis mutilans present at a younger age compared with other forms of psoriatic arthritis, demonstrate poorer function and more prevalent nail dystrophy, and show more radiographic axial disease/sacroiliitis. The rate of osteolysis is higher in earlier disease, and more severe in those with nail dystrophy.[15] HLA-B*27 is associated with the development of arthritis mutilans.[16]

It is important to appreciate the degree of inflammation in patients with psoriatic arthritis. Inflammation in a single joint predicts the development of damage in that joint.[17]

Fig. 2. Distal psoriatic arthritis.

Fig. 3. Oligoarticular psoriatic arthritis.

Axial Involvement in Psoriatic Arthritis

Similar to the peripheral joints, inflammation of the back presents with inflammatory-type back pain that is worse in the morning and with inactivity, and is associated with prolonged stiffness. Both the pain and stiffness improve with activity. The pain may be felt in the sacroiliac area, or the cervical, thoracic, and lumbar spine.

On physical examination, one may find limitation of movement that may be detected using the Schober test, lateral flexion of the spine, cervical rotation, or chest expansion[18] (**Fig. 5**). Spinal mobility is correlated with radiographic progression in axial psoriatic arthritis.[19]

Fig. 4. Osteolysis in psoriatic arthritis.

Fig. 5. Axial metrology in psoriatic arthritis.

Isolated axial disease occurs in only 2% to 4% of patients with psoriatic arthritis. Most patients with axial psoriatic arthritis present with axial as well as peripheral disease. The prevalence of axial disease among patients with psoriatic arthritis varies depending on whether radiographs are obtained.[20] Just as mentioned previously for peripheral arthritis, patients with axial psoriatic arthritis do not complain of as much pain as patients with ankylosing spondylitis.[21] Thus, many patients with axial psoriatic arthritis remain asymptomatic and their diagnosis would be missed unless radiographs were performed. On the other hand, it has been demonstrated that the assessment of patients with axial psoriatic arthritis is as reliable as the assessment of patients with ankylosing spondylitis, both in terms of clinical and radiographic assessment.[22]

Although HLA-B*27 is associated with the presence of axial disease at presentation to clinic, more severe disease, manifested by polyarticular peripheral disease and more damaged joints, is not a predictor of developing axial disease later in the course of psoriatic arthritis.[17,23]

Dactylitis

Dactylitis refers to inflammation of a whole digit. It results from inflammation in the joints, the tendon sheaths, and the soft tissues.[24] It usually presents as a painful digit with reduced mobility. The digit is often red hot and very tender. If not treated, chronic dactylitis may result with a swollen digit that is no longer painful, or red, but is often associated with reduction in range of movement (**Fig. 6**). Dactylitis commonly affects the feet, more often than the hands. The second and fifth toes are most commonly affected.[25] It is recognized as a specific feature of psoriatic arthritis, although the differential diagnosis includes trauma, sarcoidosis, gout, and reactive arthritis.

Dactylitis can be assessed by the number of "sausage digits" with or without a tenderness scale, or by the Leeds dactylitis index.[26] Tender dactylitis fingers have been demonstrated to have more severe abnormalities on MRI than those that are not tender.[27]

Dactylitis occurs in approximately 48% of the patients at some point in their disease course, and is detected in approximately 30% of the patients at presentation. It has been associated with more severe radiographic changes in the affected digits.[23]

Enthesitis

Enthesitis refers to inflammation at the insertion of tendons and ligaments into bone (**Fig. 7**). Enthesitis is a feature of all forms of spondyloarthritis, but occurs more commonly in psoriatic arthritis. It occurs in approximately 48% of patients with psoriatic arthritis. At first visit, approximately 35% of the patients present with enthesitis. Enthesitis may be the only manifestation of psoriatic arthritis and hence has been recognized as part of the stem for application of the Classification of Psoriatic Arthritis (CASPAR) criteria.[4,28,29]

Enthesitis is detected more commonly on ultrasound in patients with psoriasis without clinical evidence of psoriatic arthritis compared with healthy controls.[30] Three of 30 patients developed evidence of psoriatic arthritis after 2 years of follow-up, suggesting that enthesitis may be a clinical feature that identifies patients with psoriasis destined to develop psoriatic arthritis.[31] However, it should be noted that although ultrasound-detected enthesitis is more common and more severe in patients with psoriatic arthritis than those with psoriasis without arthritis or healthy controls, the sensitivity is only 30%, whereas the specificity is 95% compared with healthy controls and 89% when compared with patients with psoriasis without arthritis.[32] Moreover, body mass index is particularly relevant to the development of enthesitis.

Fig. 6. Dactylitis in psoriatic arthritis.

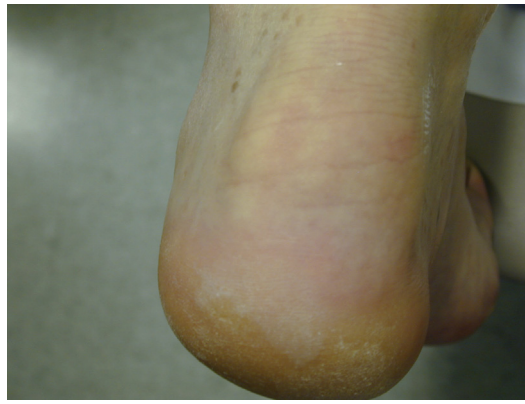

Fig. 7. Enthesitis in psoriatic arthritis.

Radiographically, enthesitis may present as spurs. It was recently demonstrated that calcaneal spurs are more common in subjects with psoriatic arthritis than controls. The presence of fluffy plantar periostitis and broad-based and longer midsegment dimensions are radiological features for inflammatory spurs.[33]

Skin and Nail Disease

Skin manifestations precede the development of psoriatic arthritis in 70% of the patients. In an additional 15% of the patients, skin and joint manifestations present simultaneously. Although the severity of skin lesions has been identified as a risk factor for developing psoriatic arthritis among patients with psoriasis,[34,35] the fact that some 15% of the patients develop psoriatic arthritis before the recognition of psoriasis suggests that it is not a very strong risk factor. Indeed, in rheumatology clinics, the severity of psoriasis tends to be lower than in dermatology clinics. Nonetheless, skin involvement is necessary for the diagnosis of psoriatic arthritis. According to the CASPAR criteria, the presence of psoriasis on current examination, a personal history of psoriasis, or a family history of psoriasis are relevant to the classification of a patient as having psoriatic arthritis.[4] Most patients with psoriatic arthritis have plaque psoriasis, with a minority having either guttate, flexural, or palmoplantar disease.

Nail lesions have also been found to be risk factors for developing psoriatic arthritis and should be sought for in patients with psoriasis. They should also be sought in patients with inflammatory arthritis who present with features of psoriatic arthritis described previously. These lesions include pits, onycholysis, hyperkeratosis, and nail bed crumbling (**Fig. 8**). A relationship between nail disease and enthesitis has been suggested, and is supported by ultrasound and MRI studies.[36]

Diagnosis of Psoriatic Arthritis

Although the CASPAR criteria are classification criteria, they have facilitated the diagnosis of psoriatic arthritis. Testing the criteria in early psoriatic arthritis, in early arthritis clinics, and in family medicine clinics demonstrated their usefulness.[37–40] However, the studies performed to date have used rheumatologists to ascertain the inflammatory musculoskeletal stem, thus making it easier to identify the patients. It is not as easy for a nonexpert to recognize the features of inflammatory musculoskeletal disease. The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) is currently developing criteria to define inflammatory musculoskeletal disease that can be applied by primary care physicians and dermatologists.

Fig. 8. Nail lesions in psoriatic arthritis.

In the meantime, there are clinical features, including the extent of psoriasis, site of psoriasis, and nail lesions, that should alert dermatologists to consider the presence of psoriatic arthritis and refer patients to a rheumatologist.[41]

Diagnostic Considerations

When a patient with psoriasis presents with peripheral inflammatory arthritis, the differential diagnosis includes not only psoriatic arthritis, but also the possible coexistence of rheumatoid arthritis and psoriasis, gout and psoriasis, or osteoarthritis and psoriasis.

Differentiating psoriatic arthritis from rheumatoid arthritis

Rheumatoid arthritis typically involves the proximal joints of the hands, whereas psoriatic arthritis affects the distal interphalangeal joints either alone or in combination with other joints in at least half the cases. Although rheumatoid arthritis usually presents with a symmetric distribution, psoriatic arthritis is most often asymmetric. Rheumatoid arthritis affects women 3 times as often as men, whereas psoriatic arthritis affects men and women equally. The presence of an erythematous change over the affected joint is more characteristic of psoriatic arthritis. In addition to the aforementioned features, the presence of inflammatory distal joint disease, dactylitis or enthesitis, axial disease, or nail lesions also helps distinguish psoriatic arthritis from rheumatoid arthritis. It has been demonstrated that the presence of 20 or more pits identifies patients with psoriatic arthritis in a rheumatology clinic.[42] On the other hand, the presence of rheumatoid nodules would favor the diagnosis of rheumatoid arthritis and psoriasis. Although it is possible for a patient to have rheumatoid arthritis and psoriatic arthritis, this co-occurrence is rare, and expected in 1:10,000 patients.

Differentiating psoriatic arthritis from gout

Gout may affect joints in a similar distribution to psoriatic arthritis. Moreover, gouty joints may have marked erythema, although it would usually extend beyond the joint and include periarticular areas. The presence of nail lesions would support a diagnosis of psoriatic arthritis, as would enthesitis and axial disease. Dactylitis may be confused with podagra, which will make the differentiation more difficult. Radiographs may be helpful, as the changes in gout are usually to a single bone, whereas in psoriatic arthritis, the erosions are marginal. The presence of tophi may support the diagnosis of gout. However, serum uric acid may be elevated in patients with psoriasis and psoriatic arthritis, making the differentiation more difficult; an increased frequency of gout has been observed among patients with psoriasis and psoriatic arthritis.

Differentiating psoriatic arthritis from osteoarthritis

Osteoarthritis is a common musculoskeletal disease and may occur concurrently with psoriasis. Because it commonly affects the distal joints in the lower extremity, it must be differentiated from psoriatic arthritis. Most of the time the differentiation is not difficult, as osteoarthritis does not usually present with inflammatory features, and the pain usually worsens with activity and improves with rest, whereas the morning stiffness, if present, tends to be short lived. Indeed, in this context, the CASPAR criteria should not be applied, as the stem requires "an inflammatory musculoskeletal disease." However, the differential diagnosis becomes particularly difficult when a patient has the inflammatory form of osteoarthritis, in which inflammatory complaints are coupled with destructive changes on radiographs. A careful evaluation, however, should allow differentiation, as the radiographs in osteoarthritis reveal focal changes that reflect cartilage loss (central joint space loss with gull wing appearance), whereas in psoriatic arthritis, the erosions are marginal and the cartilage space is less frequently affected until later in the disease. As in the case of rheumatoid arthritis or gout, the presence of nail lesions, dactylitis, and enthesitis, as well as inflammatory axial disease should help in differentiating coexisting osteoarthritis and psoriasis from psoriatic arthritis.

Differentiating psoriatic arthritis from other forms of spondyloarthritis

A difficult differential diagnosis is presented when a patient with inflammatory axial disease has psoriasis. The question that arises is whether the patient has ankylosing spondylitis and psoriasis, a situation that is recognized in approximately 10% of patients with ankylosing spondylitis, or psoriatic arthritis. According to the CASPAR criteria, if a patient has inflammatory axial disease and psoriasis with nail lesions, dactylitis, or negative rheumatoid factor, the patient would be classified as having psoriatic arthritis. As a group, patients with axial psoriatic arthritis differ from patients with ankylosing spondylitis by the severity of the pain, less severe functional limitation, less symmetric distribution of radiographic changes of sacroiliitis, and the presence of paramarginal syndesmophytes. In an individual patient, the differentiation may be more difficult. However, from a practical point of view, it probably does not matter because the management is similar, whether the patient was diagnosed with ankylosing spondylitis and psoriasis or axial psoriatic arthritis.

Reactive arthritis may be more difficult to differentiate from psoriatic arthritis, as patients have peripheral arthritis, axial disease, and skin lesions, which both clinically and pathologically may be similar to palmoplantar psoriasis. It is essential to take a careful history to determine if the patient has experienced recent enteric (*Shigella*, *Salmonella*, *Yersinia*, or *Campylobacter*) infections or symptoms suggestive of a genitourinary (*Chlamydia*) infection. Other features of reactive arthritis may be present, such as circinate balanitis or keratoderma blennorhagicum. The latter presentations also can be challenging because the appearance is psoriasiform in nature. It is important to secure a diagnosis of reactive arthritis because in many patients it does not take on a chronic course and may respond to antibiotics.

The arthritis of inflammatory bowel disease is also difficult to differentiate at times, particularly because there is an association between psoriasis and Crohn disease. The presentation can be in either the axial or peripheral skeleton and often the activity of the peripheral joint disease correlates with bowel inflammation.

SUMMARY

Psoriatic arthritis is a unique musculoskeletal disease occurring in patients with psoriasis. There are specific clinical and imaging features that help identify it. It should be differentiated from other forms of arthritis that might coexist with psoriasis.

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