

RADIOLOGICAL CHANGES IN THE SACRO-ILIAC JOINTS AND SPINE OF PATIENTS WITH PSORIATIC ARTHRITIS AND PSORIASIS

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The radiological changes in the peripheral joints of patients with psoriatic arthritis differ from those in cases of rheumatoid arthritis (Wright, 1961; Lassus, Mustakallio, and Laine, 1964; Sherman, 1952; di Vittorio, Viara, and Chiaudano, 1965; Tesárek, 1966; Sigler, 1966). Changes are also seen in the spine and sacro-iliac joints (Wright, 1961; Lassus and others, 1964; Sherman, 1952; Duthie, 1964; Traut, 1952, Smyth, 1966). In the last few years, many studies have appeared of the radiological changes in the spine in rheumatic diseases (di Vittorio and others, 1965; Traut, 1952; Ortenzi and Tomasini, 1964; Kaplan, Plotz, Nathanson, and Frank, 1964; Lucherini and Porzio, 1965; Robecchi and di Vittorio, 1965; Jajić and Križ, 1966).

In patients with psoriasis, symptoms referable to the spine are unusual without clinical evidence of peripheral arthritis or spinal involvement (Lassus and others, 1964; di Vittorio and others, 1965; Kaplan and others, 1964; Robecchi and di Vittorio, 1965). This paper presents the results of a study of the frequency and nature of involvement of the sacro-iliac joints and spine in patients with psoriatic arthritis (Ps.A) and in patients with psoriasis but without arthritis (Ps.O).

Methods

X rays were taken of the spine and sacro-iliac joints of 23 patients with Ps.A and 22 patients with Ps.O seen in 1965 and 1966 (Table I). The Ps.A group were 27 to 71 years old (mean 52), and the Ps.O group were 21 to 68 years old (mean 60). X rays were taken of the sacro-iliac joints using the method of Bársony, and of the spine using antero-posterior, lateral, and right and left oblique views. Where the interpretation of the sacro-iliac x rays was difficult, tomographs were taken.

The criteria of Hart and Robinson (1959) were used for the radiological diagnosis of sacro-iliitis. Spinal movement was measured by the method of Dürriegl (1961). Sacro-iliac pain on movement and pressure were assessed by the method of Mennell (1945).

TABLE I
DIAGNOSIS, SEX, AND AGE OF SERIES OF 45 PATIENTS

Diagnosis	Sex			Age (yrs)	
	Male	Female	Total	Mean	Range
Psoriatic Arthritis	17	6	23	52	27-71
Psoriasis	18	4	22	60	21-68
Total	35	10	45		

Results

The average age at the beginning of the skin changes and peripheral arthritis and at the onset of low back pain, and the average duration of these symptoms are listed in Table II.

TABLE II
AGE AT ONSET AND DURATION OF SYMPTOMS

Diagnosis		Psoriatic Arthritis		Psoriasis	
Sex		Male	Female	Male	Female
Average Age (yrs)	At onset of skin lesions	35	23	32	25
	At onset of arthritis	43	40		
	At onset of low back pain	43	32		
Average Duration (yrs)	Of skin lesions	16	23	13	9
	Of arthritis	11	9		
	Of low back pain	10	10		

Of the patients with Ps.A, skin lesions appeared first in nineteen (82 per cent.). In one patient, arthritis, low back pain, and skin lesions appeared simultaneously. In fourteen (60 per cent.), low back pain preceded the appearance of arthritis. In three (13 per cent.) arthritis preceded the onset of skin lesions.

Detailed analysis of the x rays of the sacro-iliac joints revealed inflammatory changes similar to ankylosing spondylitis, and the changes of osteoarthritis. Inflammatory changes were more commonly seen in Ps.A and in cases with psoriasis and

low back pain than in the Ps.O group, and the lesions commonly seen were extensive erosions with *usurae** and sclerosis of joint margins, in contrast to idiopathic ankylosing spondylitis in which the joint margins are jagged like the perforated edges of a postage stamp.

Sclerosis was more common than osteoporosis in both groups (Table III).

TABLE III
CLASSIFICATION OF RADIOLOGICAL CHANGES
OF SACRO-ILIAC JOINTS

Radiological Changes	Diagnosis			
	Psoriatic Arthritis		Psoriasis	
	Unilateral	Bilateral	Unilateral	Bilateral
Erosions	1	13	1	5
*Usurae	3	9	1	5
Osteoporosis		8		1
Sclerosis		17	1	5
Joint space changes	4	9	1	4
Ankylosis	3	6		
Osteophytes		4	1	4

While the osteoporosis was diffuse, sclerosis was more marked at the joint margins and around erosions (Fig. 1).

*The term "*usurae*" describes large erosions involving the joint surface.

Sclerosis was more commonly seen in the ilium than in the sacrum (Fig. 2, opposite) and appeared similar to osteitis condensans ilii.

The incidence and stage of sacro-iliitis is given in Table IV. Where bilateral changes were present, they were usually asymmetrical. Changes of osteoarthritis were seen in four male and one female with Ps.A.

TABLE IV
STAGE OF SACRO-ILIITIS

Diagnosis	Stage of Sacro-iliitis	Psoriatic Arthritis		Psoriasis	
		Number of Patients	Number of Joints Involved	Number of Patients	Number of Joints Involved
...	I	7	10	1	1
	II	10	12	5	10
	III	5	6		
	IV	4	8		

The spinal abnormalities are listed in Table V (opposite).

Erosive changes in the small intervertebral joints were common, and in two patients erosions were seen on the vertebral bodies adjacent to the intervertebral disk (Fig. 3, overleaf). Narrowing of the apophyseal joint spaces and intervertebral disks were seen most commonly in the lower lumbar spine in both Ps.A and Ps.O, and was considered to be a sign

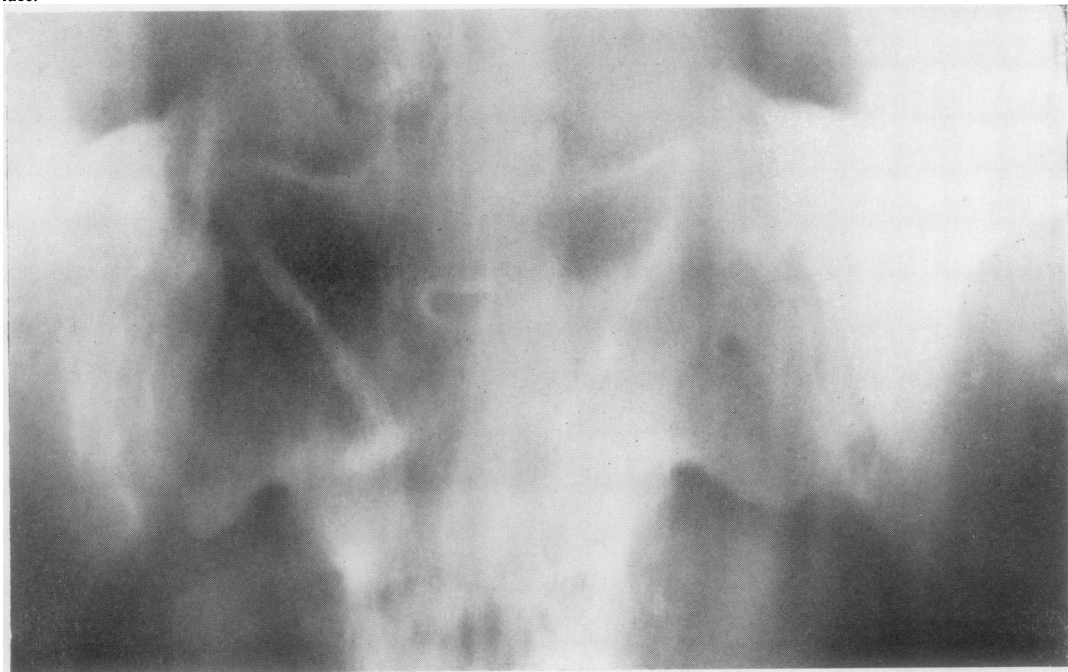


Fig. 1.—Sacro-iliac joints of a 26-year-old man with psoriatic arthritis. Tomography shows bilateral sacro-iliitis; more intensive perilesional osteosclerosis is seen in the right sacro-iliac joint.

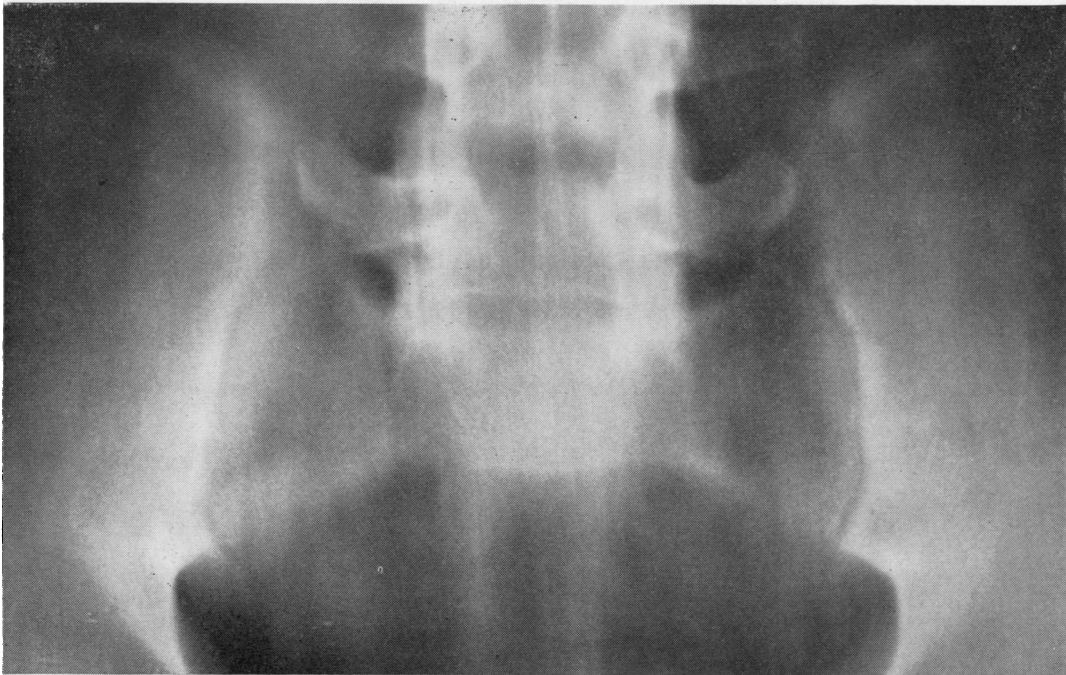


Fig. 2.—Sacro-iliac joints of a 39-year-old man with psoriasis, showing para-articular osseous condensation which is more marked on the ilium than the sacrum.

TABLE V
CLASSIFICATION OF THE RADIOLOGICAL
CHANGES IN THE SPINE

Radiological Changes	Diagnosis	
	Psoriatic Arthritis	Psoriasis
Erosion	14	2
Usurae	12	—
Osteoporosis	10	2
Sclerosis	13	4
Joint space changes	14	9
Syndesmophytes	12	5
Squaring	3	—
Ankylosis	1	—
Osteophytes	15	10
Ossification of interspinous ligaments	3	—
Changes in costo-vertebral joints	3	2
Ossification of ilio-lumbar ligaments	3	2

of degenerative joint disease. Syndesmophytes were most common in the thoraco-lumbar spine and were more common with Ps.A than Ps.O (Figs 4 and 5, overleaf); they were usually single, and when bilateral, were not symmetrical. The type of ossification which produces the bamboo spine appearance, which is common in ankylosing spondylitis, was not

seen in these patients. All patients who had syndesmophytes showed changes in the sacro-iliac joints. Ossification of the interspinous ligaments was seen in two patients (Fig. 6) and of the ilio-lumbar ligament in four. Vertebral squaring was present in three (Fig. 7). Intervertebral disk calcification was seen in one.

Only five patients complained of low back pain or morning stiffness of sufficient severity to interfere with their ability to work. There was no correlation between radiological abnormalities of the sacro-iliac joints and spine and impairment of spinal movement. Mennell's sign was positive most frequently in patients with Stage 1 and 2 sacro-iliitis, less so in Stage 3, and never in Stage 4.

Discussion

Sterne and Schneider (1953) found changes in the sacro-iliac joints in two out of six cases with Ps.A. Graber-Duvernay (1957) found changes in 23 patients with psoriasis, which were similar to those of ankylosing spondylitis. Wright (1961) found that sacro-iliitis was more common in psoriasis than in rheumatoid arthritis. Robecchi, di Vittorio, and Masrazzi (1961) described changes which were more like osteitis condensans ilii. In five out of sixty cases of Ps.A, Baker, Golding, and Thompson (1963) found spinal or sacro-iliac changes. Lassus and others (1964), in 169 cases of Ps.A, found spinal involvement in 3.6 per cent. and sacro-iliac involve-



Fig. 3.—Cervical spine of a 64-year-old man with psoriatic arthritis, showing extensive destructive changes of the lower surface of C6 and the upper surface of C7.

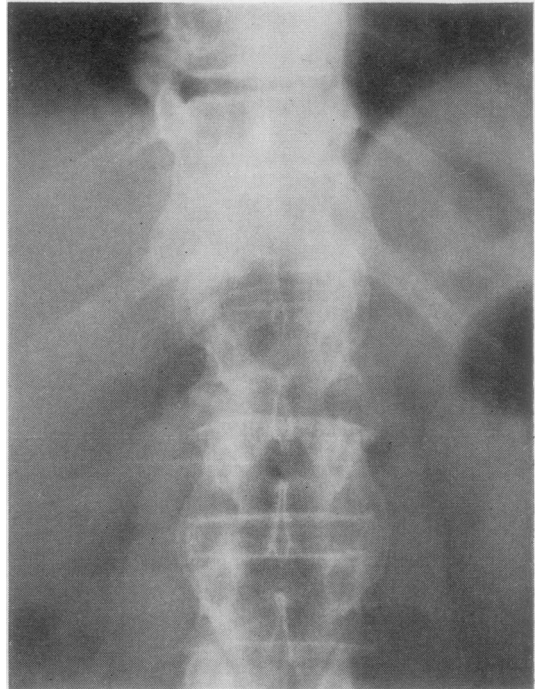


Fig. 4.—Thoraco-lumbar spine of a 58-year-old man with psoriatic arthritis. These are syndesmophytes especially between T12 and L1 and L2-3.



Fig. 5.—Cervical spine of a 55-year-old man with psoriatic arthritis showing ossification of the anterior longitudinal ligament between C6-7 and C7-T1.

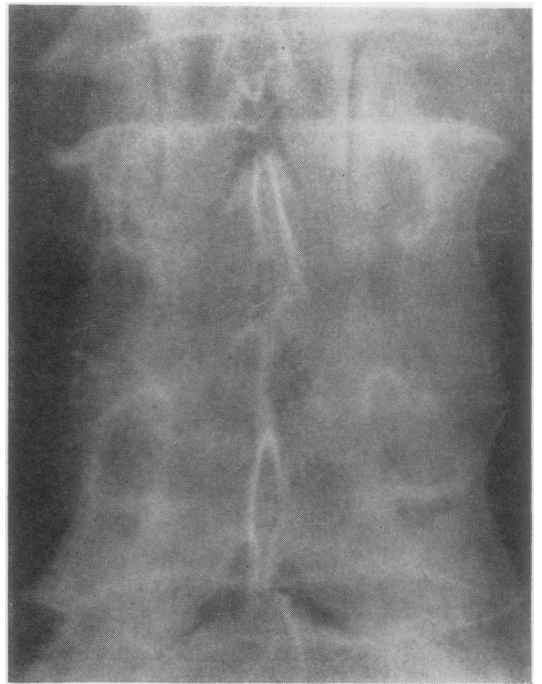


Fig. 6.—Lumbar spine of a 61-year-old man with psoriatic arthritis, showing ossification of the inter- and supraspinous ligaments between L3-4.

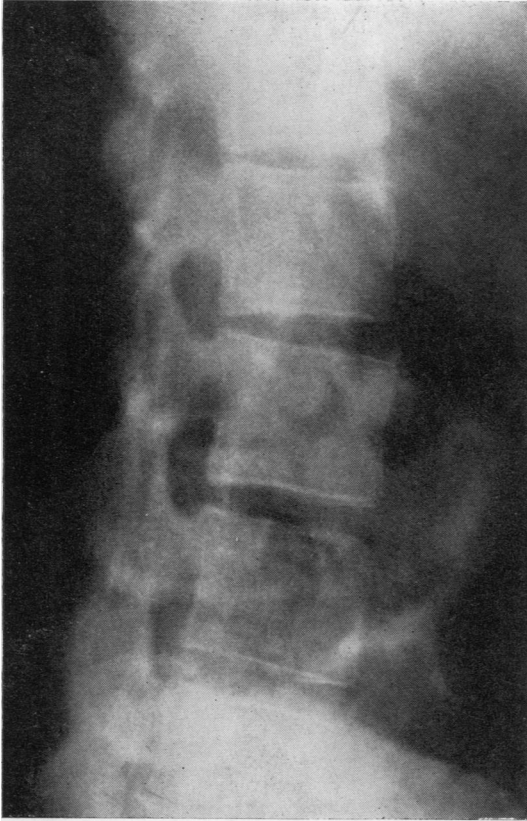


Fig. 7.—Lumbar spine of a 26-year-old man with psoriatic arthritis. Vertebrae L1-2 shows typical squaring; vertebrae L3-4 shows early squaring.

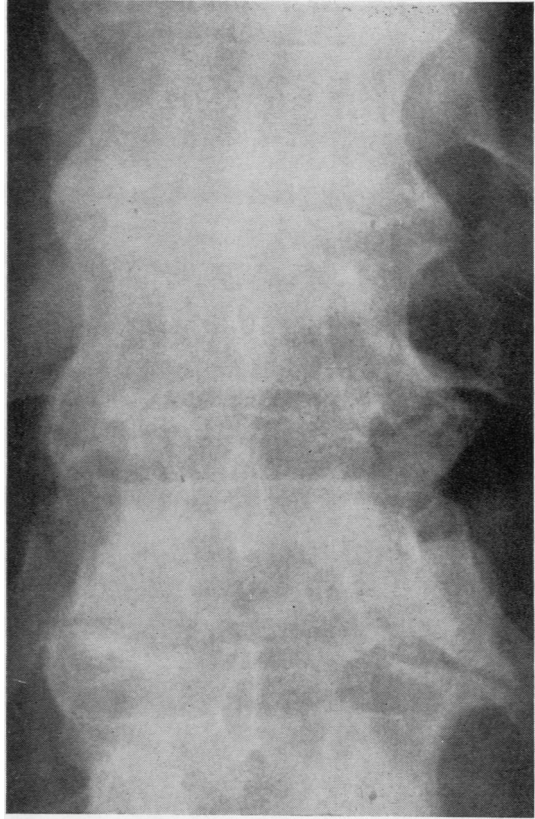


Fig. 8.—Thoraco-lumbar spine of a 61-year-old man with psoriatic arthritis.

ment in 14.2 per cent., spinal osteoporosis being more common in rheumatoid arthritis than in Ps.A. Kaplan and others (1964) found changes in the cervical spine in Ps.A which were different from those of rheumatoid arthritis and ankylosing spondylitis. di Vittorio and others (1965) and Bywaters and Dixon (1965), examining cases of Ps.A and Ps.O, found sacro-iliac and spinal changes which differed from those of ankylosing spondylitis.

Extensive subchondral ossification, especially on the ilium, which was seen in our patients, has been previously reported (di Vittorio and others, 1965; Robecchi and others, 1961; Robecchi and di Vittorio, 1965).

Radiological analysis has shown that sacro-iliac changes were more common than spinal changes and that both were more common in Ps.A than Ps.O. Spinal changes included osteophytes, syndesmophytes, and disk space narrowing. In those patients who maintained a good range of movement, there was a tendency to develop osteophytes, whereas syndesmophytes were associated with limitation of movement. In three patients in whom syndesmo-

phytes developed slowly over 2 years, increasing limitation of movement was found. In this series, syndesmophytes were seen most frequently in the thoraco-lumbar region as found by Bywaters and Dixon (1965), although some authors have reported that they occur more often in the cervical spine (Kaplan and others, 1964; Lucherini and Porzio, 1965; Graber-Duvernay, 1957).

The changes seen in the sacro-iliac joints, the syndesmophytes, the ossification of the joint capsule and interspinous ligaments, and squaring of the intervertebral bodies are characteristic of ankylosing spondylitis (Bywaters and Dixon, 1965; Lucherini and Porzio, 1965; Robecchi and di Vittorio, 1965; Jajić and Križ, 1966). In view of the frequency of sacro-iliac and spinal changes in our cases, we think that a chance association between psoriasis and ankylosing spondylitis can be excluded, and we suggest that they represent a separate entity for which the title spondylitis psoriatica is proposed. The nature of the relationship between psoriasis and arthritis remains obscure.

Summary and Conclusions

Radiological examination of the sacro-iliac joints and spine was performed on 23 patients with psoriatic arthritis (Ps.A) and 22 with psoriasis without arthritis (Ps.O). In the majority of cases of Ps.A, syndesmophytes and sacro-iliac changes were present. Calcification of the interspinous ligaments

were seen in three and of the ilio-lumbar ligament in two. Vertebral squaring was present in three.

Osteophytes and disk narrowing were seen less often and were thought to represent degenerative disease. Mobility of the spine was usually maintained. It is suggested that these changes are characteristic of a disease entity which may be described as "psoriatic spondylitis".

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Les altérations radiologiques des articulations sacro-iliaques et de la colonne vertébrale chez les malades atteints d'arthrite psoriasique et de psoriasis.

On procéda à l'examen radiologique des articulations sacro-iliaques et de la colonne vertébrale chez 23 malades ayant une arthrite psoriasique et chez 22 malades ayant un psoriasis sans atteinte articulaire. Dans la plupart des cas d'arthrite psoriasique on trouva des syndesmophytes et une atteinte des sacro-iliaques. On a observé dans trois cas la calcification des ligaments interépineux et dans deux cas du ligament iliolumbaire. Un aspect anguleux des vertèbres fut observé dans trois cas.

Des ostéophytes et un pincement discal furent trouvés moins souvent et furent considérés comme atteinte dégénérative. Généralement la mobilité de la colonne vertébrale était préservée. On suggère que ces altérations caractérisent une entité morbide à laquelle on peut donner le nom de "spondylite psoriasique".

Las alteraciones radiológicas de las articulaciones sacro-iliaacas y de la columna vertebral en enfermos con artritis psoriásica y con psoriasis

Se examinaron radiológicamente las articulaciones sacroiliacas y vertebrales de 23 enfermos con artritis psoriásica y de 22 enfermos con psoriasis sin afección articular. En la mayoría de los casos de artritis psoriásica se encontraron sindesmofitos y alteraciones sacro-iliaacas. En tres casos hubo calcificación de los ligamentos interespinosos y en dos casos del ligamento iliolumbar. La cuadratura (*squaring*) vertebral fué vista en tres casos.

Osteofitos y estrechamiento discal se encontraron con menos frecuencia y se atribuyeron a un proceso degenerativo. Generalmente la movilidad de la columna vertebral se mantuvo. Se sugiere que estas alteraciones caracterizan una entidad morbosa que se puede nombrar "espondilitis psoriásica".