THE HAND IN PSORIASIS

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Fifty-six patients with psoriatic arthropathy have been reviewed to assess the extent and severity of their hand involvement. The hand was affected in 84% of cases. Although the distal interphalangeal joints are said to be classically affected, we found the proximal interphalangeal and metacarpophalangeal to be more frequently involved. Many other findings often associated with rheumatoid arthritis (e.g. boutonnière and swan-neck deformities, or tenosynovitis) can be seen in psoriatic arthropathy.

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The association between psoriasis and arthritis was first noted by Alibert (1822) and confirmed in detail by Bourdillon (1888). Psoriatic arthropathy as a disease entity, however, has only recently become accepted (American Rheumatism Association, 1964). Moll and Wright (1973) classified psoriatic arthropathy into five sub-groups:

1. Classical psoriatic arthritis in which the D.I.P. joints are predominantly involved,
2. "Arthritis mutilans": a severe destructive form of arthritis affecting the hands and feet.
3. A symmetrical pattern of arthritis indistinguishable from rheumatoid arthritis,
4. A symmetrical oligo- (or mono-) articular presentation,
5. The predominant feature is ankylosing spondylitis.

In their series, they reported "classical" distal joint arthritis in 5%, mutilans in 5%, and asymmetrical oligo/mono-articular digital arthritis in 70%. Using similar criteria, Leonard et al. (1978) identified classical psoriatic arthritis in 3%, arthritis mutilans in 3% and oligo-arthritis in 63%. Scarpa et al. (1984), again using similar criteria, found D.I.P. joint involvement in 7.5%, mutilans in 2.3% and oligo/mono-articular arthritis in 16.1%.

Many authors have been more specific and identified various joints in the hand as being more commonly affected. Wright (1956, 1957 and 1961), in his series of 42 patients with psoriatic arthropathy, found D.I.P. joint involvement in 26% of cases clinically and 52% radiologically. Clinically, the P.I.P. joint was involved in 20% of cases, 30 of 103 joints having radiological erosions. In the thumb interphalangeal joint, 18 patients had evidence of erosions. In the finger M.P. joints, 13% of patients had clinical evidence of involvement, 24 of 103 joints showing radiological signs of erosions. In the carpus, 18 patients had radiological evidence of involvement, 6% having clinical and 19% radiological signs of radio-scaphoid joint disease. Vilanova and Pinol (1951) found 54 patients with arthritis in a group of 214 cases of psoriasis. They found 61 cases of involvement of the small articulations of the hand, particularly the D.I.P. joint. They also found nail lesions in more than 50% of cases. The wrist joint was involved in 36 cases. Similar results were found by Zachariae et al. (1965) who found D.I.P. joint involvement in 64% of cases.

Avila et al. (1960) looked at the X-rays of the hands and feet of 155 patients with psoriatic arthropathy. They identified 48 cases of pure psoriatic arthritis. In these, all had involvement of the D.I.P. joints; 25% had bony ankylosis, 70% had widening of joint spaces with the adjacent bony surfaces sharply demarcated and 25% had resorption of tufts of the distal phalanges.

Baker et al. (1963), in their study of 53 patients with psoriatic arthropathy, found joints in the hand involved in 37 (70%) and the wrist in 16 (30%).

Three authors have reported specifically on psoriatic arthritis in the hand. Their findings are summarized in Table 1.

Table 1—Frequency of involvement of wrists and hands in psoriatic arthritis according to three previous papers

	Martel et al. (1980)	*Belsky et al. (1982)*	*Kapasi et al. (1982)*
Number of patients	50	25	30
Joints affected (% of patients)			
Radio-carpal	32	68	35
Inferior radio-ulnar	14		
Finger M.P.	50	100	27.5
P.I.P.		88	51
D.I.P.	26	68	51.3
Thumb C.M.C.		60	20
M.P.			48.3
I.P.			43.3
Nail involvement			100
Tenosynovitis		4	

The aim of this paper is to report the incidence and extent of hand involvement in a large group of patients with psoriatic arthropathy.

Material and methods

The hands and wrists of 56 patients with psoriatic arthropathy were examined both clinically and radiologi-

cally. The patients were examined personally by one author (I.A.T.). First, they were asked to identify any pain they had or were experiencing in their hands. Second, they were examined for any skin or nail changes, joint deformities, swelling or restriction of movement and any tendon abnormalities. Finally, X-rays (P.A. and lateral) were taken of both hands and wrists; these were later reviewed by the second author (J.K.S.) for evidence of loss of joint space, erosions, expanded base of distal bone, subluxation or dislocation and ankylosis.

In addition, the X-rays of the hands and wrists of 56 patients (matched for age and sex) taken in the Accident and Emergency Department at Hope Hospital were examined and used as a control series. None of these patients had any known arthritic problem with their hands.

The statistics were analysed using the χ^2 test.

Results

Of the 56 patients, 30 were male and 26 female. Their ages ranged from 16 to 81, with a mean of 48.1 ($\pm$15.4). All but three were seronegative. Arthritis had been present for between one and 48 years, with a mean of 14.9 years ($\pm$10.1). Ten patients had previously or were now receiving steroids orally, and seven had received local steroid injections. Three were on methotrexate, one on penicillamine and one on gold therapy.

Of the 56 patients, nine had no hand involvement clinically and 18 had normal X-rays. In the fingers, the *P.I.P. joint* was the most frequently involved (Table 2). Of the 19 who were found to have deformities, eight had a flexion contracture, seven had a boutonnière (Fig. 1) and four had swan-neck deformities. Two more were found to be completely dislocated. Six joints have been treated surgically; three by Swanson arthroplasty; one by arthrodesis, one by soft tissue correction for boutonnière deformity and one by percutaneous suspensory ligament release (Stanley et al., 1986).

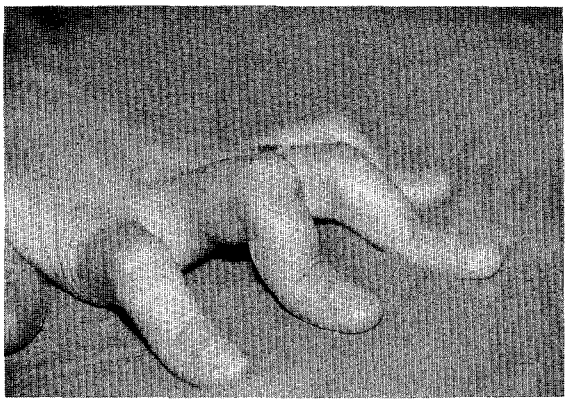

Fig. 1 Boutonnière deformity.

The *M.P. joints* of the fingers were almost as frequently involved. 11 of these joints were found to be subluxed: five had volar subluxation, two ulnar subluxation and four had both. One patient had undergone a Swanson M.P. replacement.

The *D.I.P. joint* was clinically the least frequently involved of all the joints in the finger. Four patients were known to have deformities; two a flexion deformity, one an extension deformity and one an ulnar deviation deformity (Fig. 2). One joint was found to have spontaneously ankylosed: another had been surgically arthrodesed. Radiologically, however, the joint was seen to be involved as commonly as the P.I.P. and M.P. joints: narrowing and erosions were frequently seen (Fig. 3).

In the *thumb*, the M.P. joint was frequently involved, five patients having deformity: two a flexion contracture and three an abduction deformity. Three others had fused spontaneously and one had been arthrodesed. The I.P. joint was the next most frequently involved; here five had deformities, three being flexion contractures and two were radially deviated. One had ankylosed spontaneously. The least frequently involved joint in the thumb

Table 2—Frequency of involvement of wrists and hands in psoriatic and control patients in our series (Figures in brackets are percentages of patients involved)

	Psoriatics								*Controls*			
	Clinical				*X-ray*				*X-ray*			
	Pain	*Swollen and stiff*	*Deformity*	*Subluxation/ Dislocation*	*Narrowing*	*Erosions*	*Expanded*	*Ankylosis/ Arthrodesis*	*Narrowing*	*Erosions*	*Expanded*	*Ankylosis*
Radio-carpal	12(21.4)	3(5.4)	1(1.8)	—	19(33.9)	14(25.0)	—	2(3.6)	5(8.9)	—	—	—
Inferior radio-ulnar	5(8.9)	1(1.8)	6(10.7)	—	13(23.2)	21(37.5)	—	—	2(3.6)	1(1.8)	—	—
Carpus	—	—	—	—	12(21.4)	20(35.7)	—	6(10.7)	3(5.4)	1(1.8)	—	—
Finger M.Ps	20(35.7)	11(19.6)	11(19.6)	11(19.6)	22(39.3)	26(46.4)	—	—	2(3.6)	—	—	—
PIPs	21(37.5)	20(35.7)	19(33.9)	2(3.6)	25(44.6)	27(48.2)	—	—	10(17.9)	2(3.6)	—	—
DIPs	12(21.4)	16(28.6)	4(7.1)	—	26(46.4)	20(35.7)	9(16.1)	1(1.8)	13(23.2)	5(8.9)	—	—
Thumb CMC	8(14.3)	2(3.6)	3(5.4)	3(5.4)	14(25.0)	—	—	—	9(16.1)	6(10.7)	—	—
M.P	24(42.9)	6(10.7)	5(8.9)	2(3.6)	20(35.7)	21(37.5)	—	4(7.1)	5(8.9)	2(3.6)	—	—
IP	11(19.6)	1(1.8)	5(8.9)	1(1.8)	21(37.5)	14(25.0)	1(1.8)	1(1.8)	10(17.9)	5(8.9)	—	—

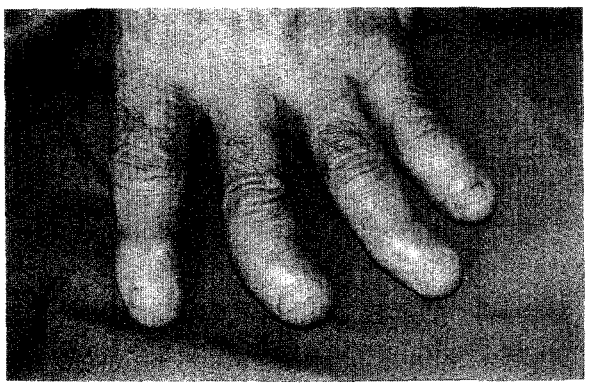

Fig. 2 Ulnar deviation at D.I.P. joint.

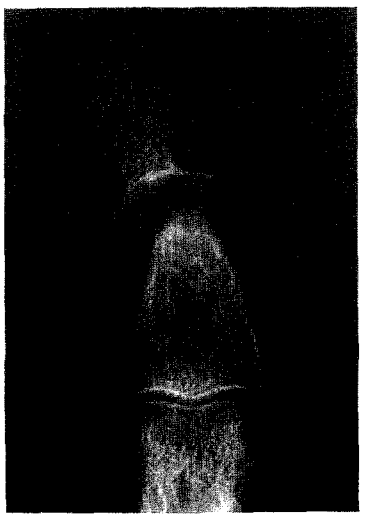

Fig. 3 Destruction of D.I.P. joint.

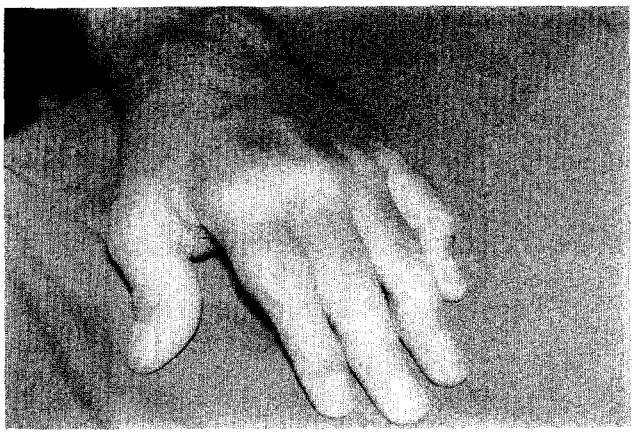

Fig. 4 Prominent lower end of ulna with supinated carpus and swelling of M.P. joints of fingers.

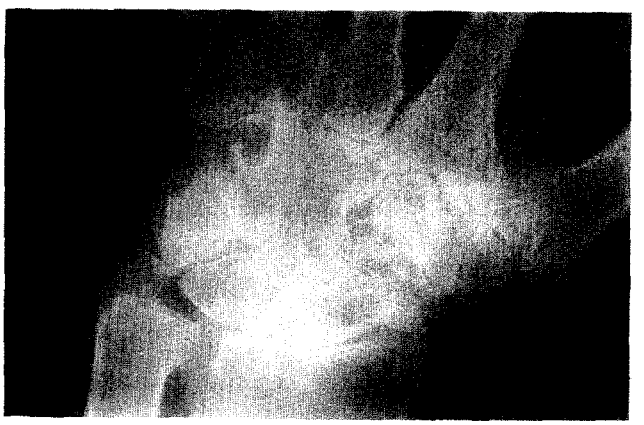

Fig. 5 Narrowing of the radio-carpal joint with erosions.

was the carpo-metacarpal joint, with three patients having adduction deformities with subluxation. One patient had had a trapezium replacement. Statistically, the carpo-metacarpal joint of the thumb was the only joint not significantly more frequently involved in the psoriatic group than in the control group.

At the *wrist* joint, five patients had a prominent lower end of the ulna with a supinated wrist (Fig. 4); one of these was bilateral and one had marked radio-ulnar synovitis. Three patients had a swollen wrist with a reduced range of movement and one had a flexion contracture. Four patients had undergone surgery to the wrist: two arthrodeses, one arthroplasty and one excision of distal ulna.

Radiologically, narrowing and erosions were frequently seen in both the radio-carpal (Fig. 5) and the radio-ulnar joints.

Four cases had both clinical and radiological evidence of *arthritis mutilans*; two had involvement of only one finger whilst the others were more widespread (Figs. 6 and 7). 29 patients had *nail involvement*, 27 grade 1 and two grade 2, according to the classification of Zaias et al. (1969). Of these 29 patients, ten had involvement of the D.I.P. joint.

11 patients were considered clinically to have *synovitis*; five of the extensor tendons and six of the flexor. One patient had ruptured his extensor pollicis longus tendon which required grafting. Two patients had clinical signs and symptoms of median nerve compression. One patient had Dupuytren's disease and another Kienbock's disease shown radiologically.

Finally, as can be seen from Table 3, a wide range of surgical procedures was undertaken on this group of patients, ranging from flexor tenosynovectomy to extensor grafting. In addition, one patient was noted to have the Koebner phenomenon (psoriasis involving a surgical scar: Rook et al., 1979) in a scar over a P.I.P. replacement.

Discussion

In this series, 47 of 56 patients (84%) with psoriatic arthropathy had clinical involvement of their hands.

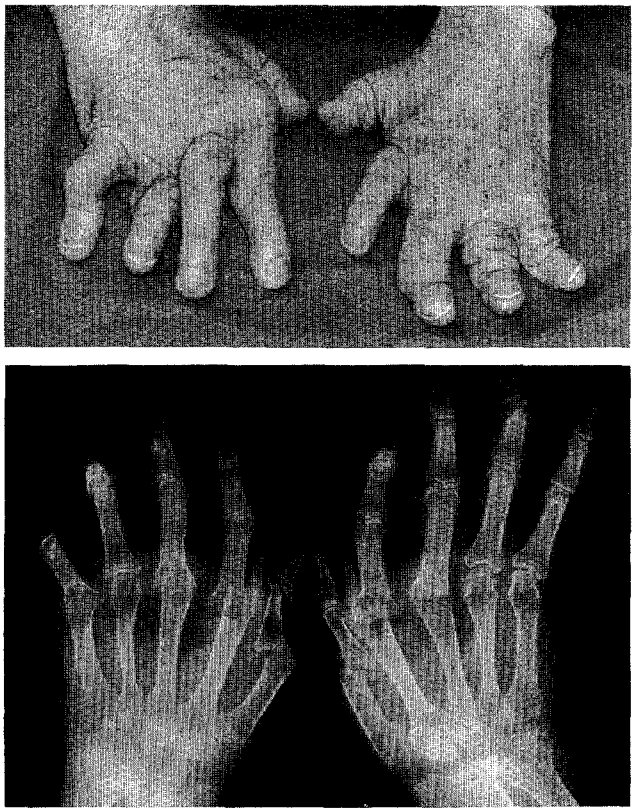

Fig. 6 & 7 Bilateral mutilans deformity.

Table 3—Surgical procedures performed on psoriatic hands

Wrist arthrodesis	2
Wrist arthroplasty	1
Excision of ulnar head	1
M.P. replacement	1
P.I.P. replacement	3
P.I.P. arthrodesis	1
P.I.P. joint soft-tissue correction for boutonnière deformity	1
Percutaneous suspensory ligament release at P.I.P. joint	1
D.I.P. arthrodesis	1
Trapezium replacement	1
M.P. arthrodesis (thumb)	1
Flexor tenosynovectomy	4
E.P.L. graft	1
Release trigger finger	1
Total	20

Radiologically, 38 out of 56 (68%) had involvement. Both sexes were almost equally involved. This contrasts sharply with Baker et al. (1963), who found a marked predominance of females.

All joints in the hand were involved to a greater or lesser degree, the incidence being statistically significantly different to the control group in most cases ($p < 0.01$). The noticeable exception was the thumb carpo-metacarpal joint, where the differences between the psoriatic and control groups were not statistically significant ($p < 0.5$).

We can confirm the findings of Belsky et al. (1982) and Kapasi et al. (1982) that the P.I.P. joint of the finger is the most frequently and severely affected joint. Of almost equal importance, however, is involvement of the M.P. joints of the finger and thumb. In our series, the finger M.P. joints were involved almost as frequently as the I.P. joints: this, however, was less than in the patients studied by both Belsky and Kapasi. Indeed Belsky et al. found finger M.P. involvement in all the patients they studied. In the thumb, we found the M.P. joint to be clinically the most frequently involved joint, in contrast to both Belsky and Kapasi.

As to the D.I.P. joint, we cannot agree with previous authors (Nunemaker and Hartman, 1950; Plenk, 1950; Vilanova and Pinol, 1951; Sterne and Schneider, 1953; Avila et al., 1960; Baker et al., 1963; Zachariae et al., 1965 and Martel et al., 1980). Although it is frequently involved, it is not the most commonly involved joint or indeed typical of psoriatic arthropathy. It is, however, more often affected in psoriatic than in rheumatoid arthritis, which rarely involves the D.I.P. joints.

We also found frequent involvement of the wrist joint with deformities, such as prominence of the lower end of the ulna which are typical of rheumatoid arthritis. Our incidence was again much less than Belsky but similar to Martel and Kapasi, who also describe deformities such as radial deviation and flexion contracture in significant numbers. Belsky et al. probably had a higher incidence of hand involvement because all their patients were from a specialised hand unit.

Another interesting feature is the almost symmetrical involvement of both the right and left hands (Fig. 8). It would appear, therefore, that overuse is not a factor in psoriatic arthropathy, as the disease is not commoner in the dominant hand.

Arthritis mutilans is well-known in patients with psoriatic arthropathy (Shlionsky and Blake, 1936; Clarke, 1950; Baker et al., 1963). Our two cases with

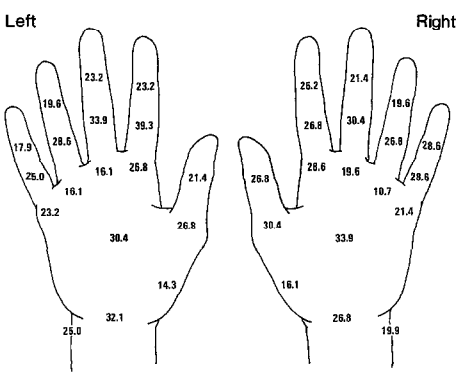

Fig. 8 Frequency (% of patients) of involvement of individual joints.

multiple finger involvement seem typical of this severely deforming and crippling manifestation of arthritis. The two with single finger involvement are unusual, in that most cases previously described have multiple digit involvement.

We cannot confirm the work of Vilanova and Pinol (1951) who stated that over 50% of cases with distal interphalangeal joint involvement had typical psoriatic nail lesions. We agree with Baker et al. (1963) and Kapasi et al. (1982) who found no relationship between the severity of nail involvement and joint changes.

As regards surgical treatment (Table 3), some interesting contrasts to the work by Belsky et al. can be seen. Our most commonly-performed operation was flexor tenosynovectomy and only one M.P. joint replacement was undertaken in the total of 112 hands. This contrasts sharply with Belsky et al. who had only one tenosynovectomy but 58 M.P. replacements. In both series, the P.I.P. and wrist joints were commonly operated upon.

We conclude, therefore, that all joints of the hand, except the carpo-metacarpal joint of the thumb, are frequently involved in patients with psoriatic arthropathy. Although the D.I.P. joints are affected, the P.I.P. and M.P. joints are more frequently involved. The point about the D.I.P. joints is the distinction from rheumatoid arthritis which seldom affects the distal joints. Many findings usually associated with rheumatoid arthritis, e.g. boutonnière and swan-neck deformities and tenosynovitis can also be seen in psoriatic arthropathy.

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