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Original Research Article

Pattern of dermatological manifestations among patients of rheumatic disorders at a tertiary care centre from Kashmir valley in North India

Farah Sameem[1], Samia Aleem[2], Sumaiya Majeed[1], Aaqib Aslam[1]*, Seerat Fatima[1], Sheikh Manzoor[1]

[1]Department of Venereology and Leprosy, Postgraduate Institute of Dermatology, SKIMS Medical College, Srinagar, Jammu and Kashmir, India
[2]Department of Health and Family Welfare, Jammu and Kashmir, India

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***Correspondence:**
Dr. Aaqib Aslam,
E-mail: shahaaqib2010@gmail.com

ABSTRACT

Background: Various rheumatic disorders have cutaneous manifestations which sometimes precede systemic symptoms. These manifestations, therefore can act as diagnostic and prognostic markers of the rheumatic disorders. Understanding them may lead to early diagnosis, prompt treatment, and hence lower morbidity and mortality of the affected persons. The aims and objectives were to study the pattern of dermatological manifestations among patients of rheumatic disorders at a tertiary care centre from Kashmir valley in North India.
Methods: Prospective observational study carried out in the department of Dermatology at SKIMS medical college in Kashmir valley in north India over a span of 12 months from July 2021 to June 2022. A sample size of 100 native Kashmiri patients of rheumatic disorders presenting to OPD with dermatological manifestations were included in the study. A detailed dermatological examination and history was taken. The various demographic data sought included age, gender, occupation, residence and clinical diagnosis. Each clinical entity was individually studied for specific features.
Results: The mean age of presentation of rheumatic disorders was 33 years with the maximum number of patients (n=61) belonged to the age group of 20-40 years. Females outnumbered males (ratio of 1:2.225). Disorders like lupus and scleroderma were the most common rheumatic entity in this series. Besides these, vasculitis, Behcet's disease, rheumatic arthritis, psoriatic arthritis and others also have significant cutaneous manifestations.
Conclusions: Some rheumatic disease have significant cutaneous manifestations, understanding of which is essential for their proper management.

Keywords: Cutaneous, Rheumatic, Systemic, Diagnosis

INTRODUCTION

Rheumatic disorders are one of the commonest chronic disabling disorders, associated with significant impairment of quality of life.[1] They range from a non-inflammatory common low backache (LBA) to inflammatory multisystemic disease like systemic lupus erythematosus (SLE). Various inflammatory rheumatic disorders have cutaneous manifestations, varying from negligible to most significant ones. In SLE, skin is the most common organ involved after the joints. Skin manifestations are present in more than 75% of these patients during their lifetime, and are in fact the initial presentation in more than 25% of them.[2,3]

Skin signs help in diagnosing the conditions as they often precede systemic symptoms. Dermatological intervention and management are also essential as these manifestation further deteriorate the quality of life of these patients due to their physical and psychosocial impact.

Due to the paucity of literature regarding the dermatological manifestations of rheumatic diseases from Kashmir valley in North India, the present study was designed with an aim to offer a novel look into the trends of dermatological manifestations among patients of rheumatic diseases in order to guide both the dermatologists as well as rheumatologists in order to manage such diseases optimally.

Objective

The objective was to study the pattern of dermatological manifestations among patients of rheumatic disorders at a tertiary care centre from Kashmir valley in North India.

METHODS

This prospective hospital based observational study was carried out in the Department of Dermatology at SKIMS Medical College in Kashmir valley in North India over a span of 12 months from July 2021 to June 2022 after obtaining informed consent from the patients and approval of institutional ethical committee. A sample size of 100 native Kashmiri patients of rheumatic disorders presenting to the out-patient department (OPD) with dermatological manifestations were included in the study. Accepted international criteria were used in individual rheumatic disorders (Table 1). All rheumatic patients presenting as naïve cases as well as referrals of an already diagnosed rheumatic entity were included. However, emphasis was laid on non-referrals where the diagnosis was made for the first time by the dermatologist. A detailed dermatological examination was done and history was taken. The various demographic data sought included age, gender, occupation, residence and clinical diagnosis. Then each clinical entity was individually studied for specific features. The major clinical entities included were lupus group of disorders, scleroderma group of disorders, rheumatoid arthritis, psoriatic arthritis and systemic vasculitis. In many cases serological markers and confirmatory skin biopsies were sought wherever deemed necessary. Nail fold capillaroscopy (NFC) was not recorded as exclusive clinical criteria were applied.

Table 1: Diagnostic criteria.

Diagnosis	Criteria
SLE	SLICC classification criteria for SLE [4]
Systemic sclerosis (SSc)	ACR/ EULAR classification criteria for systemic sclerosis [5]
Dermatomyositis (DM)	Bohan and Peter diagnostic criteria for dermatomyositis [6]
Rheumatoid arthritis (RA)	ACR AND EULAR criteria for rheumatoid arthritis [7]
Psoriatic arthritis (PsA)	CASPAR criteria for Psoriatic arthritis [8]
Jevunile idiopathic arthritis (JIA)	ILAR criteria for Jevunile idiopathic arthritis[9]
Sjogrens syndrome	ACR AND EULAR classification criteria for primary Sjögren's syndrome [10]
Relapsing polychondritis (RP)	Michet et al criteria [11]
Mixed connective tissue disorder (MCTD)	Alarcon-Sergovia diagnostic criteria for mixed connective tissue disease [12]
Behcet's disease	The international study group for Behcets disease criteria [13]
Henoch scholein purpura (HSP)	EULAR/PRINTO/PRES criteria for Henoch Scholein Purpura [14]
Chrug Straus syndrome	ACR criteria for Chrug Straus Syndrome [15]
Wegners Granulomatosis	ACR criteria for Wegners granulomatosis[16]
Kawasaki disease	AHA criteria for diagnosis of classical and complete Kawasaki disease[17]

Statistical analysis

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as mean±SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar and pie diagrams.

RESULTS

In this study mean age of presentation was 33 years. The youngest patient was a neonate and the eldest was 65yrs old. The maximum number of patients (n=61) belonged to the age group of 20-40 years, followed by 0-20 years (n=23) and 40-65 years (n=16). Females outnumbered males. There were 31 males and 69 females (male to female ratio of 1: 2.225) (Table 2).

The most common rheumatic entity in this series were the lupus group and the scleroderma group of disorders. Out of 100 cases, 33 has lupus erythematosus, 20 had scleroderma followed by dermatomyositis (12) and cutaneous vasculitis (11). Interestingly 5 cases of Bechet's disease were also seen (Table 3).

Majority of the patients with lupus erythematosus were females. In fact all patients of SLE were females however

in some subtypes of DLE males were predominant. In chilblain lupus, M:F ratio was 5:1. SLE presented with a variety of dermatological manifestations like butterfly rash (n=2) and single cases presenting as TEN, livedo reticularis, lupus hair, periorbital scaly erytrhematous plaques, papular mucinosis and perforating dermatoses.

Table 2: Demographic characteristics of study patients.

Parameters		Number of patients (n)	Male/female
Age (years)	0-20	23	
	20-40	61	
	40-65	16	
Gender	Male	31	1
	Female	69	2.225

Table 3: Diagnostic characteristics of study patients.

S. no.	Diagnosis	Number	M/F
1.	Lupus erythematosus	33	
	SLE	8	0/8
	Subacute cutaneous lupus erythematosus (SCLE)	3	2/1
	Chronic cutaneous lupus erythematosus (CCLE)	22	12/10
2.	Scleroderma	20	
	SSc	13	
	Localised cutaneous SSc (lcSSc)	10	0/10
	Diffuse cutaneous SSc (DcSSc)	3	2/1
	Morphea	7	1/6
3.	DM	12	3/9
4.	RA	4	0/4
5.	Psoriatic arthritis (PsA)	5	4/1
6.	MCTD	1	0/1
7.	Undifferentiated Connective Tissue Disorder (UTCD)	2	0/2
8.	Sjogrens syndrome	2	0/2
9.	Cutaneous vasculitis	11	
	Henoch schonlein purpura (HSP)	5	1/4
	Urticarial vasculitis	2	0/2
	Wegners granulomatosis	1	1/0
	Churg straus syndrome	2	1/1
	Cryoglobulinemic vasculitis	1	0/1
10.	Vasculopathies	2	
	Cryoglobulinemicvasculopathy	1	1/0
	Antibody Phospholipid antibody syndrome	1	0/1
11.	Behcet's disease	5	3/2
12.	Relapsing polychondritis	2	0/2
13.	Juvenile idiopathic arthritis	1	0/1

Among patients of discoid lupus erythematosus (DLE), chilblain lupus was the commonest presentation (n=6) while Mucosal discoid and ulcerative lesions as well as lupus panniculitis were seen in 2 cases each. Single cases of lupus mastitis, telengiactatic DLE, rosaceal DLE and Lichen planus- DLE overlap were also seen. All the patients of SCLE presented with annular polycyclic lesions on trunk (n=3) (Figure 1).

Scleroderma most commonly affected females of age group 20-40 years. Raynaud's phenomenon, sclerodactyly, digital ulcers and mask facies with perioral furrowing, microstomia and beaked nose, were seen in all cases of systemic sclerosis. Amputation of the fingers was seen in 3 patients with severe Raynaud's phenomenon. Mat telangiectasias were seen in some cases of the localised SSc type only (n=3). No calcinosis was seen in any patient in this series. Pigmentary changes in the form of salt and pepper dyspigmentation (n=2) and Addisonian pattern of hyperpigmentation (n=1) were seen in very few patients. SLE-Scleroderma overlap was also seen in Figure 2.

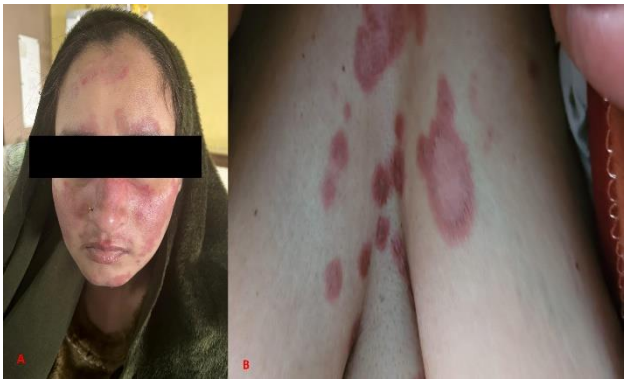

Figure 1 : (A) Female patient of SLE with erythematous malar rash; (B) patient of SCLE presenting with annular polycyclic lesions on trunk.

Figure 2: SLE-scleroderma overlap; malar rash with perioral furrowing, microstomia and beaked nose.

Figure 3: (A) DM: heliotrope rash; (B) Gottrons papules.

Among patients of dermatomyositis (DM), heliotrope rash (n=12), Gottron's sign (n=12), Gottron's papules (n=10) and periungual erythema (n=11) and telangiectasias (n=10) were the commonest manifestations (Figure 3). Other features included palmar erythema (n=5), Shawl's sign (n=3), Holster's sign (n=3) as well as solitary cases of poikiloderma atrophicans vasculare, calcinosis in a juvenile case, lipodystrophy in a juvenile case, poikiloderma associated with gastric carcinoma and erythroderma.

Most patients of Bechet's disease presented with orogenital ulcerations (n=4) (Figure 4). Pustules were present in two and pyoderma gangrenosum in one patient. Pathergy was positive in three patients.

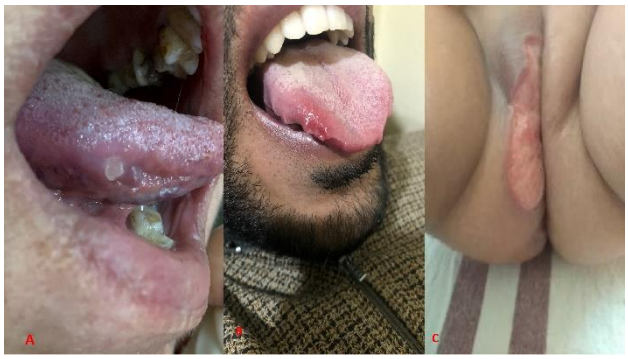

Figure 4: (A and B) Bechet's disease patients presenting with oral ulceration; (C) and/or genital ulceration.

Among vasculitis, Henoch Schoenlein purpura (HSP) was the commonest diagnosis with palpable purpura the commonest presenting symptom. Majority of the cases were seen in spring or autumn.

Four patients of rheumatoid arthritis were referred to our department, with cutaneous lesions of rheumatoid neutrophilic dermatosis, pyoderma gangrenosum, rheumatoid nodules and interstitial granulomatous dermatitis, one each. Five patients of psoriatic arthritis were also seen over the specified period. Majority (n=3) of them had chronic plaque psoriasis, with one each of palmoplantar and erythrodermic type.

DISCUSSION

The clinical spectrum of some rheumatic disorders can range from isolated skin or internal organ involvement to varied multisystem manifestations. Therefore, they present either to a rheumatologist or a dermatologist, depending upon the end of spectrum involved. Inflammatory rheumatic diseases are multisystem disorders with skin involvement often the initial presentation, thus likely to present to a dermatologist.

Our study of 100 consecutive patients of rheumatic disorders was conducted in a Dermatology OPD, with

cutaneous manifestations as the main focus. Some of them were referrals from department of rheumatology, especially cases of rheumatoid arthritis. Youngest patient was a two-week-old with neonatal lupus erythematosus, who had received phototherapy for neonatal jaundice, followed by periorbital annular lesions and hypopigmented plaques on neck. Oldest was 65 years old with dermatomyositis, paraneoplastic to gastric carcinoma. Mean age of our study patients was 33 years, with majority belonging to the middle age group. This is consistent with other studies as rheumatic disorders commonly present in the similar age range. Females outnumbered males (1:2.225) which was also in consonance with other studies.[18,19]

The most common rheumatic entity in this series were the lupus group and the scleroderma group of disorders. This was not similar to other studies involving rheumatic disorders, where osteoarthritis or rheumatoid arthritis were the predominant clinical diagnosis.[19,20] This variation can be attributed to the difference in pattern of data reported by rheumatologists and dermatologists, as some rheumatic entities had prominent and early dermatological features as compared to others.

Lupus erythematosus (LE) in its cutaneous form or cutaneous LE (CLE) is about 2-3 times more common than systemic. It is important to screen a patient with CLE for systemic laboratory markers, since their presence can imply systemic involvement and progression to systemic LE (SLE). The high prevalence of cutaneous findings in LE, during the course of the disease and at the presentation, emphasized the importance of diagnosis based on cutaneous findings

Skin manifestations can be subdivided into acute CLE (ACLE), subacute CLE (SCLE) and chronic CLE (CCLE) where classic discoid LE (DLE) is the most common form.[21] In ACLE, butterfly rash is usually associated with a systemic upset and hence the patients are more likely to present to rheumatologists. That could explain the lesser number of patients included in this study as compared to other studies.[22,23] ACLE had variable presentations in our study. A case of toxic epidermal necrolysis (TEN) with SLE was subjected to direct immune fluorescence (DIF) of skin biopsy for confirmation. Also, a case of perforating dermatosis lesions, with negative ANA, was diagnosed as SLE on the basis of renal biopsy only. Papular mucinosis was seen in a female in the form pale translucent lesions on chest and face and neck, with positive ANA and skin biopsy positive for Alcian blue staining. Another female with carpal tunnel syndrome whose biopsy from skin revealed mucin deposition was also ANA positive. She did not satisfy all criteria and was labeled as undifferentiated connective tissue disorder (UDCTD). In another patient a long history of urticaria was present prior to development of features and serology of MCTD. All three cases of SCLE in this series had annular polycyclic lesions and no case of psoriasiform pattern was seen. Significantly one 25 years old male with extensive annular polycyclic lesions on back had been initially misdiagnosed as leprosy. During subsequent visit he developed systemic features in the form of fever, arthralgia and myalgia. On investigation marked ANA positivity was seen. In accordance with the SLICC criteria, SCLE lesions were one of the diagnostic criteria. Hence the patient proved to be a case of SLE subsequently. In the other two cases it remained a skin restrictive disease only.

Kashmiri nomads were particularly affected with DLE in this study. The variant chilblain LE was seen in 6 patients as Kashmir is a cold area. Among disseminated DLE patients (n=3), one female developed low complement C3 levels with nephritis. Following renal biopsy, she was then reclassified as SLE. Another female with disseminated DLE had serological positivity for ANA and RA factor. Cases of telengiactatic, rosaceal and ulcerative DLE were also seen.

Scleroderma group included 7 patients with morphea and 13 patients with SS. Amongst the 7 patients with morphea, linear morphea involving the upper and/or lower limbs was seen crossing one or more major joints. Hence these cases fulfilled the criteria for being prescribed systemic immunosuppressants. Generalised morphea was seen in a 48-year-old male recalcitrant to therapy. The patient was extensively reevaluated for scleromyxedema but biopsy was consistent with morphea only. A case of *en coup de sabre* was also seen in a young boy aged 9 years. The patients were referred to ophthalmologist and also subjected to EEG and both investigations were normal. In contrast to Parry Romberg syndrome even sclerosis of skin was seen.

SSc per se was amongst the common rheumatological entities (13 cases). Cutaneous manifestations were important EULAR criteria for diagnosis including sclerodactyly, digital ulcers, digital pitted scars, sclerosis of skin proximal to metacarpophalangeal joint including face. Also, Raynaud's phenomenon was often the presenting complaint in as many as 70% of patients.[24] Although Raynaud's phenomenon, sclerodactyly, digital ulcers and facial features were seen in all cases, mat telengiactasias were seen in only three lcSSc. This was in consonance with another Indian study, where mat-teliengietasias were more common in limited form as compared to diffuse one.[25] In contrast to higher percentage of calcinosis seen in other studies no calcinosis was seen in any patient in this series. Addisonian pattern of hyperpigmentation and salt and pepper dyspigmentation of the upper trunk was seen in only few patients. Similarly, in a previous study from Kashmir acrosclerosis alone was seen in majority, and diffuse cutaneous systemic sclerosis with severe sclerosis and contractures, salt and pepper hyperpigmentation and hypertrichosis in a minority only.[26]

DM was well represented in this series as it had varied interesting dermatological manifestations early on as well. The characteristic rash of DM can be Gottron's papules, Gottron's sign, heliotrope rash, “V” sign shawl sign and erythroderma. In fact the cutaneous signs actually help to arrive at the diagnosis. The occurrence of malignancy in adult DM patients is estimated to be 6-60%, with large population based COHORT studies reporting a rate of 20-25% of cases. The most often reported malignancies were gynaecological especially ovarian carcinoma; however, others associated with DM included lung, pancreas, stomach, colorectal and non-Hodgkin lymphoma.[27] All the three males in this series had paraneoplastic DM, gastric carcinoma being the underlying entity. In two patients, it preceded the rash and the pattern was amyopathic. It arose subsequently only in one. One of them developed erythroderma recalcitrant to corticosteroids. The patient died during evaluation itself. The most frequent mis-diagnosis for DM was air-borne contact dermatitis. In the single juvenile case calcinosis and lipodystrophy were prominent. The scalp symptoms were an important clue. Scalp erythema pruritus and pareasthesia were prominent and common, often under evaluated symptoms sine myositis.

MCTD presented as chronic urticaria in one case. UDCTD presented as chronic urticaria in one and mucinosis in the other. Two females with Sjogrens syndrome were also seen. One 45-year-old female presented with skin photo aggravated plaques, in addition to xerosis, xerophthalmia and xerostomia and the other 20 year old only had xerosis, xerophthalmia and xerostomia.

Although RA is a chronic debilitating disease predominantly affecting joints, a variety of cutaneous manifestations are associated with RA, occurring in 40% of patients over the course of the disease. However, a lesser number of patients were seen in our study, as dermatological manifestations along with other extraarticular manifestations, tends to occur in patients with more severe disease.[28] All of these cases were referrals from Department of Rheumatology and were of a higher age group. These included four patients with specific cutaneous lesions of rheumatoid neutrophilic dermatosis, pyoderma gangrenosum, rheumatoid nodules and interstitial granulomatous dermatitis, one each. No other cutaneous manifestations were seen or appreciated. However, in consonance with the previous studies, there was a female preponderance in the present series.[28,29]

Psoriatic arthritis is a disabling comorbidity, affecting about 7-26% patients of psoriasis.[30] In majority of the cases psoriatic skin lesions precede joint symptoms, thus providing dermatologists a significant role of identifying patients at risk before irreversible joint damage occurs. Similarly, among five patients in our study, skin lesions preceded in all except one, where psoriasis and psoriatic arthritis had simultaneous onset. Five patients of psoriatic arthritis were seen over the specified period. Majority (n=3) of them had chronic plaque psoriasis, with one each of palmoplantar and erythodermic type. This was similar to other studies. The most common type was asymmetric oligoarthritis followed by symmetrical polyarthropathy. This was similar to some but in contrast to other studies where symmetrical polyarthopathy was the commonest. This can be explained by lesser number of patients in our study.[31,32] A strong association between nail involvement in psoriasis and presence of psoriatic arthritis had been observed.[33] In our study nail changes were present in all, varying from coarse nail pitting, onycholysis, sub-ungual hyperkeratosis and oil drop sign. Nail pitting was the commonest, present in all patients

A single case of juvenile inflammatory arthritis (JIA) in a 13-year-old female presented with spiking fever, recurrent urticaria like rash in a lace like pattern on thighs and elevated serum ferritin levels. Cases of relapsing polychondritis presented as auricular erythema, pain and tenderness and were referred to department of otorhinolaryngology on giving history of nasal stuffiness and arthritis.

Behcet’s disease is a disease of silk route and in ancient times Kashmir was a component of this route. Five patients of Behcet’s disease were seen-3 males and 2 females. This was similar to other studies from middle-east but different from western studies.[34] Muco-cutaneous manifestations were markers of BD and their recognition may allow diagnosis and treatment. Their frequency varies from 48-88% in diagnosed patients.[35] In fact recurrent oral lesions are the presenting feature in 47-86% of the cases.[36] The earlier the onset of cutaneous manifestations, the worse the prognosis, with consequent increase in morbidity and mortality.[37] One male developed ophthalmic involvement and needed cyclosporine and another male developed severe neurological involvement with personality changes. He later succumbed to the disease. One female remained with a bland mucosal disease and the other had a miscarriage due to colchicine. A child of Behcet’s fully evaluated for IBD was referred to for pyoderma gangrenum vulva.

Various cutaneous vasculitis was also seen, among which HSP was the most common diagnosis. Palpable purpura was the commonest presenting manifestation of cutaneous vasculitis which was in consonance with other studies.[38,39] Among them, an adult female with recurrences of skin lesions and progressive renal involvement also developed transient loss of vision due to posterior cerebral syndrome. A 45-year-old with Wegner’s granulomatosis presented with vasculitic ulcers, pyoderma gangrenosum, acral gangrene and oral ulcers. One male (45 years) and a female (37 years) were diagnosed as Chraug Straus syndrome. They presented as cutaneous vasculitis with biopsy proven eosinophilic infiltrate. Two females with urticarial lesions with purpura and post inflammatory hyperpigmentation were

diagnosed as urticarial vasculitis. One among them gave a history of upper respiratory tract infection. Hypocomplementimia, underlying LE or systemic involvement was ruled out in both. Preceeding respiratory infections have been associated with urticarial vasculitis in other studies also. Hypocomplementemia has been observed in a minority of cases.[40] Kawasaki's disease kids had toxic erythema, palmar erythema, periorificial rash and peri anal skin peeling.

Our study emphasized the significance of skin manifestations in rheumatic disorders. There had been a few studies where dermatological presentations of rheumatic disorders had been concentrated on however an extensive study from this part of the world had not been seen.

Limitations

Number of patients was less and long-term follow-up was not done as the patients stood referred to rheumatology department for comprehensive management.

CONCLUSION

Dermatological signs are an important tool in diagnostic armamentarium of rheumatological disorders especially at an early stage. Hence a dermatologist should be included in the initial assessment of suspected patients. It is also critical for rheumatologists to maintain a high end awareness and understanding of these cutaneous manifestations for early diagnosis, and prompt treatment, and thus reduction in morbidity and mortality of these disorders.

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