Discoid lupus erythematosus in Hong Kong Chinese: a review of 12 cases

WYM Tang, LY Chan, KK Lo

The records of twelve patients with discoid lupus erythematosus who attended the Social Hygiene Service, Department of Health, Hong Kong, during the period from March 1987 through June 1994 were reviewed and analysed. Our series shows that discoid lupus erythematosus affects both men and women equally. Compared with studies in Caucasians, a higher proportion of our patients (17%) subsequently developed features that satisfied the American College of Rheumatology's revised classification criteria for systemic lupus erythematosus. Hence, regular follow up of these patients for the early detection of systemic lupus erythematosus is important.

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Introduction

Discoid lupus erythematosus (DLE) is a type of lupus erythematosus (LE) that is mainly confined to the skin and has minimal systemic involvement. The lesions of DLE are characterised by erythematous, disc-like, scaly plaques that extend centrifugally. Healing is accompanied by scarring, atrophy, and pigmentary abnormalities. Sun-exposed areas are vulnerable and photosensitivity is common. Discoid lupus erythematosus usually runs a chronic course with remissions and relapses. Previous studies have shown that a small proportion of DLE patients, given the time, manifest features that meet the criteria for systemic lupus erythematosus (SLE). To date, information on DLE affecting Hong Kong Chinese has been scanty. To our knowledge, this article is the first study of this kind to more closely examine this group of patients, and we believe that it provides a basic framework for a subsequent, larger, prospective study.

Social Hygiene Service, Department of Health, Hong Kong Government, Hong Kong
WYM Tang, MRCP, FHKAM (Medicine)
LY Chan, MB, BS, MRCP(Ire)
KK Lo, MRCP, FHKAM (Medicine)

Correspondence to: Dr WYM Tang

Subjects and methods

The records of 31 patients who attended the Social Hygiene Service, Department of Health, Hong Kong, during the period from March 1987 through June 1994 who were given a diagnosis of LE were retrieved. All patients were invited to attend an interview in July 1994 when clinical and laboratory information was further clarified. Laboratory investigations included a complete blood picture with differential counts, erythrocyte sedimentation rate, renal and liver function tests, urinalysis for red cells and albumin, antinuclear antibody (ANA), antibodies to extractable nuclear antigens (anti-ENA), complements C3 and C4 levels, immunoglobulins IgG, IgA, IgM, and a VDRL test for syphilis. Antibody to double-stranded DNA (anti-DNA) was also performed when the ANA result was positive. The diagnostic criteria for DLE and for inclusion in the study are shown in Table 1a.

Results

Demography

Table 1b shows the demographic data of the patients. All 12 patients were Hong Kong Chinese, six women and six men. The age of onset ranged from 10 to 61 years with a mean of 37.8 years (women, 36 years; men, 39.5 years). The duration of follow up ranged from six months to seven years. The duration from

Table 1a. Diagnostic criteria for discoid lupus erythematosus

1. One or more cutaneous lesions in the form of an erythematous, disc-like, patch or plaque with some or all of the following features: scales, follicular plugs, scarring, atrophy, telangiectasia, central hypopigmentation, and peripheral hyperpigmentation.
2. Skin biopsy of an established lesion showing features compatible with a diagnosis of LE.
3. An absence of significant extra-cutaneous symptoms and signs at initial presentation, e.g. fever, arthralgia, Raynaud's phenomenon, diffuse alopecia.
4. Normal systemic examinations except for the presence of skin and mucous membrane lesions.
5. An absence of significant laboratory abnormalities at initial visits.
6. Clinical features and results of investigations did not meet the American College of Rheumatology's revised classification criteria for SLE at initial visits.

the onset of the disease to the first dermatological consultation ranged from one month to 28 years.

Clinical presentation

Table 2 shows the clinical presenting features of each patient. Two patients (Nos. 1 and 2) [17%] had a bald patch on the scalp as their only initial complaint. One patient (No. 8) [8%] complained of co-existent skin lesions and a bald patch on her scalp. The remaining nine patients (75%) reported only skin eruptions. Seven patients (58%) had a history of photosensitivity. Increased redness, itchiness, and swelling of lesions were the major photosensitivity symptoms. Only one of the women (17%) reported a flare of the skin lesions at menstruation. None of the patients had a family history of autoimmune disease.

Lesions could be detected in all patients on sun-exposed areas. Except for one patient (No. 3) who had lesions located below the neck, in all other patients (92%), lesions were found above the neck. Scarring alopecia was found in seven patients (58%). One patient (No. 6) had an irregular, tender, subcutaneous swelling on his right arm that was thought to be panniculitis. However, he refused to undergo a biopsy for confirmation.

Laboratory findings

Table 3 shows the main laboratory findings. A review of the laboratory data showed that nine patients (75%) had abnormal results, either initially or during a subsequent illness. Eight of the patients (67%) showed a

Table 1b. Patient demography

Patient no.	Sex	Age of onset (y)*	Duration before first attendance (y, mo†)	Duration of follow up (y) autoimmune	Family history of disease
1	M	31	1	2	Nil
2	F	25	25	5	Nil
3	F	10	1 mo	1	Nil
4	M	55	6 mo	1	Nil
5	F	61	6 mo	3	Nil
6	M	41	1	2	Nil
7	M	17	28	1.5	Nil
8	F	42	10	0.5	Nil
9	F	34	3 mo	7	Nil
10	M	48	2 mo	3	Nil
11	M	45	6 mo	1	Nil
12	F	45	1 mo	7	Nil

*y years
†mo months

Table 2. Patient clinical features on presentation

Patient no.	Primary complaint	Exacerbating factors	Cutaneous signs other than discoid lesions	Systemic and extra-cutaneous features
1	Bald patch on scalp	Sunlight	Scarring alopecia	Nil
2	Bald patch on scalp	Sunlight	Scarring alopecia	Nil
3	Skin eruption	Nil	Nil	Nil
4	Skin eruption	Nil	Scarring alopecia	Nil
5	Skin eruption	Nil	Scarring alopecia	Nil
6	Skin eruption	Nil	Clinically lupus profundus	Nil
7	Skin eruption	Sunlight	Nil	Nil
8	Bald patch on scalp, skin eruption	Sunlight	Scarring alopecia	Nil
9	Skin eruption	Sunlight	Nil	Nil
10	Skin eruption	Nil	Nil	Nil
11	Skin eruption	Sunlight	Scarring alopecia	Nil
12	Skin eruption	Sunlight, menstruation	Scarring alopecia	Nil

positive ANA titre at some time in the course of their illness. However, in only three patients (Nos. 5, 6, 12) [25%] were the laboratory results considered significantly abnormal. One patient (No. 5) developed anaemia, lymphopenia, positive ANA, positive anti-ribonucleoprotein (RNP), positive anti-Ro(SS-A), a markedly reduced C3 level, and a raised IgG level. Patient number 6 had anaemia, lymphopenia, an increased erythrocyte sedimentation rate (ESR), positive ANA, positive anti-DNA, positive anti-Ro(SS-A), and a markedly reduced C4 count. Patient number 12 had anaemia, a raised ESR, positive ANA, and a raised IgG level. Her anti-DNA was recently positive, and she is under surveillance for possible progression to SLE.

Of the remaining nine patients who at the time of survey had no systemic manifestations of SLE, one had a positive anti-Ro(SS-A) result and a mild reduction of C3, another had a reactive VDRL test and treponemal tests, which were also positive and was treated as a case of late latent syphilis. We noted no correlation between the severity or activity of cutaneous lesions and the level of ANA titre in our patients.

Treatment and progress

Details are shown in Table 4. All patients received potent topical corticosteroids as first-line treatment and these included betamethasone valerate (Betnovate), halometasone monohydrate (Sicorten) and fluocinolone acetonide 0.025% (Synalar). Four patients (33%) showed a mild to moderate response in terms of reduction of itchiness, erythema, and swelling. However, eight patients (67%) claimed no benefit, and no patients reported significant regression of lesions with topical corticosteroids alone. Four patients (Nos. 4, 9, 11, 12) also received chloroquine phosphate (Syncoquin). The daily dose of chloroquine prescribed ranged from 250 mg to 500 mg. One patient (No. 4) reported nausea, dizziness, and epigastric pain that required cessation of the chloroquine after 10 weeks. There was no improvement of his skin lesions during this time. The skin lesions of three patients (Nos. 9, 11, 12) showed marked regression when treated with chloroquine rather than topical steroid alone. Patient number 9 had transient insomnia while being given chloroquine but this rapidly resolved. Patient number 11 reported no side effects and patient number 12 developed xanthopsia (yellow vision) six months after commencing the chloroquine, necessitating its withdrawal. Fortunately, her visual acuity returned to its pre-treatment level.

At subsequent visits, patients number 5 and 6 exhibited systemic manifestations of SLE. Patient number 5 developed fever lasting for one month, associated with diffuse non-scarring alopecia aside from her pre-existing scarring alopecia. Further investigations

Table 3. Patient laboratory findings

Patient	Haematology/ Biochemistry/ Urinalysis	Immunological markers	Complement levels	VDRL test
1	N*	N	N	NR§
2	N	Anti-Ro(SS-A) pos†	low C3	NR
3	N	N	N	NR
4	Thrombocytopenia	N	N	NR
5	Anaemia, lymphopenia, proteinuria	ANA pos Anti-DNA neg‡ Anti-RNP pos Anti-Ro(SS-A) pos raised IgG	low C3	NR
6	Normal initially, then anaemia, lymphopenia raised ESR Urine: Protein + RBC +	ANA pos Anti-DNA pos Anti-Ro(SS-A) pos	low C4	NR
7	N	ANA pos	N	Reactive: undiluted only TPHA +‖ FTA-ABS +¶
8	N	ANA neg Anti-DNA borderline	N	NR
9	raised ESR	ANA pos raised IgG	N	NR
10	N	ANA pos	N	NR
11	N	ANA neg	N	NR
12	Anaemia, raised ESR	ANA pos Anti-DNA pos raised IgG	N	NR

* N normal
† pos positive
‡ neg negative
§ NR non-reactive
‖ TPHA *Treponema pallidum* haemagglutination assay
¶ FTA-ABS fluorescent treponemal antibody absorption test

ANA antinuclear antibodies
Anti-DNA anti-deoxyribonucleic acid
Anti-RNP anti-ribonucleoprotein

showed anaemia, leucopenia, proteinuria, and microscopic haematuria; her renal biopsy revealed Class IIa lupus nephritis. Patient number 6 developed Raynaud's phenomenon, arthralgia, and diffuse non-scarring alopecia six months after his initial presentation. He also had anaemia, leucopenia, a positive anti-DNA, proteinuria, and microscopic haematuria. His renal biopsy revealed Class III lupus nephritis. Both patients satisfied the American College of Rheumatology's revised classification criteria for SLE. Oral prednisolone

Table 4. Patient treatment and progress

Patient no.	Potent topical steroid	Systemic drugs given/side effects	Progress
1	Reduced itchiness	Not given	Persistent skin lesions
2	Reduced erythema	Not given	Persistent skin lesions
3	Not effective	Not given	Spontaneous regression of skin lesions, post-inflammatory hyperpigmentation
4	Not effective	Chloroquine Nausea,dizziness, epigastric pain	Persistent skin lesions
5*	Not effective	Prednisolone, azathioprine	Persistent fever, haematological abnormalites, diffuse non-scarring alopecia. Progressed to SLE. Treatment response: Fever subsided, non-scarring alopecia resolved. Regression of skin lesions.
6*	Not effective	Prednisolone	Raynaud's phenomenon, arthralgia, diffuse non-scarring alopecia, haematological abnormalities. Progressed to SLE. Treatment response: Skin lesions regressed and systemic symptoms subsided with prednisolone
7	Not effective	Not given	Skin lesions deteriorated
8	Reduced oedema, reduced erythema	Not given	Skin lesions remitted and relapsed
9	Not effective	Chloroquine Transient insomnia	Skin lesions improved within two weeks of chloroquine and then remained under control
10	Not effective	Not given	Spontaneous regression, post-inflammatory hyperpigmentation
11	Not effective	Chloroquine	Skin lesions controlled
12	Reduced itchiness	Chloroquine Referred to rheumatologist Reduced number of lesions Stopped due to development of xanthopsia	Skin lesions remained static after chloroquine withdrawal

* This patient had SLE at the time of analysis

was given to these two patients for SLE. Patient number 5 also had a course of azathioprine (Imuran) in addition to her prednisolone. Both patients reported considerable regression of skin lesions without new eruptions.

Discussion

The characteristic cutaneous lesions of DLE begin as erythematous, oedematous, scaling papules that spread centrifugally and coalesce into plaques. The surface of a plaque has thick and adherent scales. Lifting of the scales produces a carpet-tack appearance, revealing dilated pilo-sebaceous orifices occupied by horny plugs (follicular plugging). The size of a plaque can vary from a few millimetres to a few centimetres. The healing of a lesion usually takes place in the centre, producing atrophy, scarring, telangiectasia, and pigmentary changes (hypopigmentation in the centre and hyperpigmentation in the active margin). The lesions of DLE can occur anywhere but commonly occur on the head and sun-exposed areas (Fig 1). If the hair-bearing areas are affected, the lesional morphology is similar and scarring alopecia often results (Fig 2).

The diagnosis of DLE can be confirmed by the histopathological examination of a biopsy from an established lesion. Five important changes are usually present.[1] Using direct immunofluorescence, IgG immunoglobulins and less commonly, IgM deposits can be seen at the dermo-epidermal junction in 80% of cases. For old lesions, however, this test can be negative. Hence, while examination of a lesion for immunoreactants can be a useful test to support the diagnosis, it cannot be used to confirm or rule out the diagnosis.

In this survey, the ratio of women to men was 1:1 instead of the 2:1 reported in Western studies,[2,3] which suggests a higher male prevalence in Hong Kong. Ng et al reported a male preponderance in DLE patients in Singapore, with a ratio of 0.7:1.[4] Our patients showed a wide range of onset age but the mean for each sex was similar, with men at 39.5 years and women at 36.0 years. This figure conforms with Caucasian data.[2]

Scarring alopecia was the second most common physical sign (58%) of DLE in our study. Hence, the scalp of all patients should be closely inspected since this provides a useful clinical clue. Photosensitivity is a significant exacerbating factor and it occurred in 58% of our patients. Patients with DLE should be told to avoid exposure to the sun and to always use appropriate sunscreens.

Fig 1. Multiple discoid lesions in a patient

Fig 2. Scarring alopecia affecting the scalp with atrophy, telangiectasia, and keratotic plugs

A proportion of patients who initially present with DLE may subsequently develop SLE. This occurred in 17% of our patients. Compared with the usual 5% to 10% reported in Caucasian studies,[5,6] we had a higher percentage of these patients. Previous studies on patients with SLE have reported that approximately 15% to 20% of patients also had discoid lupus lesions.[7] Our survey suggests that all DLE patients should be asked about systemic symptoms during follow up and an evaluation of hematological, biochemical, and immunological parameters should be performed when necessary. The exact relationship between DLE and SLE remains unsettled. Some workers regard the two as poles of the lupus erythematosus spectrum.[8-10] Ackerman considers DLE and SLE to be two distinct diseases with DLE being a skin disease and SLE a systemic disease.[11]

The proportion of DLE patients with a positive ANA titre in other reported series ranges from 2% to

35%.[3] In contrast, we had a high proportion of patients (67%) with positive ANA results. In our study, the titre of ANA in those patients with stable DLE appears to bear no correlation to the extent and severity of the cutaneous lesions. This differs from reports by Millard and Callen who found that elevated ANA titres occurred more often in patients with widespread DLE.[12,13]

The treatment of DLE aims at avoiding exacerbating factors and the palliative suppression of lesions.[14] Topical steroid is frequently employed as a first line drug for localised cutaneous lesions but it produced improvement in only 33% of our patients. The patients who had satisfactory results with topical steroid alone were those who had mild disease.

Antimalarials are effective in treating cutaneous LE, some photosensitive dermatoses, and rheumatoid arthritis, but their side effects are considerable and irreversible retinopathy does occur. Three of the four patients (75%) who had extensive lesions received chloroquine in addition to topical corticosteroids and showed significant improvement. However, disturbed vision occurred in one patient (25%). Two factors are reported to be important for the development of retinopathy—the total cumulative dose and daily dose. In the majority of reported cases, retinopathy occurred after cumulative doses of more than 200 g.[15] The incidence increases with increases in total dose.[16] However, some believe that retinopathy is more closely related to high daily doses than it is to cumulative doses.[17-19] Mackenzie recommended that the daily doses for chloroquine and hydroxychloroquine should not exceed 4 mg and 6.5 mg/kg ideal body wight, respectively.[18] For all patients, a pre-treatment ophthalmological assessment and thereafter, a regular check up for pre-maculopathy by an ophthalmologist is required, since symptoms of retinopathy may occur only when the disease is advanced. Dark sunglasses should be worn by those who need to spend much time in the sunlight.[18] Dosage should be adjusted when liver or renal dysfunction occurs.

Although we have not treated our patients with systemic corticosteroid solely for their skin lesions, prednisolone is a useful second line drug for skin lesions of LE when antimalarial treatment fails or is contraindicated. For the two patients with SLE, they had significant improvement in both their skin lesions and systemic symptoms after being treated with prednisolone.

Topical corticosteroid or chloroquine did not appear to influence the natural course of DLE. In two patients (17%), the skin lesions regressed spontaneously despite an absence of response to prior topical steroid therapy. This shows that DLE can undergo spontaneous remission.

Admittedly, the number of patients recruited for this survey was small, and a review of more patients with a longer and more detailed follow up may provide a better understanding of this disease in the Chinese population in Hong Kong.

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