SYSTEMIC DISEASES AND THE SKIN

By

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Skin being the outer-most covering of the body offers itself for easy examination. Many a physiological and pathological process in the body is reflected on the skin which has aptly been designated as the 'Mirror of the Body'. Appearance of some specific or quasi-specific lesions on the skin surface may thus be a good guide to detection of some of the systemic disorders. Prompted by these considerations, it was decided to analyse our clinical case material and to assess the frequency with which the skin lesions encountered in some of the systemic disorders and the significance that could be attached to them; and in a similar way to find and detect some systemic disorders after cutaneous lesions had been noticed.

MATERIAL AND METHODS

The case material for this study was divided into two groups. Groups I comprised of patients who presented primarily for their skin lesions which have been known or reported to be associated with a systemic disorder and in whom the systemic disease had not previously been diagnosed whereas group II comprised of patients who came primarily to seek medical aid for a systemic disorder with or without cutaneous lesions. Both these groups of patients were surveyed by further examination and laboratory investigations in arriving at a diagnosis both for systemic disease and the cutaneous disorder

RESULTS

Group I

The cases in this group were further classified into following sub-groups.

(A) cases studied for detection of internal malignancy :— These patients presented with skin lesions that have often been incriminated to the presence of a systemic malignancy. Table I shows the details of patients presenting with such dermatological complaints and those in whom a malignant process was ultimately detected.

(B) cases studied for the detection of diabetes mellitus :— Table II shows the type or patients taken up for investigation to uncover a hyperglycemic state and the patients in whom this was detected.

C) cases investigated for various collagen disorders:- Twenty four cases of scleroderma and eight cases presenting with cutaneous features of lupus erythematous were picked up to assess the degree and extent of systemic involvement

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TABLE I

Prevalence of Internal Malignancy in various dermatoses.

Dermatoses	20–40 years	41–60 years	Above 61 years	Total cases	Positivity of internal malignancy
Herpes Zoster	7	12 (1)	16(1)	35	2
Generalised Pruritus	2	4 (1)	7(2)	13	3
Exfoliative dermatitis	2	5	5	12	0
Purpura	3(2)	3(1)	4	10	3
Papulonodular lesions	2	3(2)	4	9	2
Dermatitis herpetiformis	2	2	4	8	0
Palmoplantar Keratoderma	2	3	3	8	0
Thrombophlebitis	1	1	2	4	0
Dermatomyositis	1	2	0	3	0
Total	22 (2)	37 (5)	43 (3)	102	10
CONTROL					
Psoriasis	4	6	5	15	0
Lichen planus	3	3	4	10	0

(Figures in parenthesis represent number of cases having internal malignancy)

TABLE II

Prevalence of Diabetes Mellitus in various Dermatoses.

Dermatoses	20–40 years	41–60 years	Above 61 years	Total cases		No. of positive for Diabetes		Percentage	
Pyoderma									
Boils	8 (3)	6 (2)	9 (1)	23	12	6	12	26.1%	36%
Carbuncles	1 (1)	3 (2)	2 (2)	6		5		83.3%	
Cellulitis	2	1 (1)	1	4		1		25%	
Pruritus									
Generalised	2	4 (1)	7 (1)	13	28	2	8	15.4%	28.5%
Localised (Pruritus valvae)	6 (2)	6 (3)	3 (1)	15		6		40%	
Moniliasis									
Intertrigo	4 (3)	5 (3)	3 (2)	12	26	8	14	66.6%	53.8%
Balanoposthitis	3 (2)	2 (1)	2 (1)	7		4		57%	
Paronychia	2 (1)	3 (1)	2	7		2		28.5%	
Xanthomatosis	2 (1)	3 (1)	3 (1)	8		3		37.5%	
Mixed									
Generalised pruritus + multiple boils	0	2 (1)	1	3		1		33.3%	
Generalised pruritus + balantitis	1 (1)	1	0	2		1		50%	
Total	33 (15)	39 (16)	28 (8)	100		39		39%	
CONTROLS									
Herpes zoster	4	3	6	13		0		0	
Exfoliative dermatitis	1	3 (1)	3	7		1		14.2%	

(Figures in parenthesis show number of cases having diabetes mellitus)

Of these 24 patients of scleroderma, nine complained of dyspnoea and two of dysphagia. Two cases presented with a combined picture of scleroderma and dermatomyositis. Table III shows the number of cases investigated radiologically to find out involvement of different organs and the degree of positivity obtained.

TABLE III

Radiological evidence of systemic involvement in cases of Scleroderma

System	Number examined	Number involved	percentage
Gastrointestinal system			
Oesophagus	24	12	50%
Small intestine	16	3	18.7%
Large intestine	16	1	6.25%
Musculoskeltal system			
Bone (terminal phalanges) soft	22	8	36.3%
tissue (calcification)	22	7	31.8%
Pulmonary system lungs	20	4	20%

All the eight patients presenting primarily with cutaneous lesions suggestive of lupus erythematosus were diagnosed to be suffering from systemic lupus erythematosus.

(D) Miscellaneous group:– Three patients presenting with xanthoma tuberosum showed elevated values for serum cholesterol. One gave history of angina pectoris and another had electro-cardiographic evidence of coronary artery insufficiency.

(ii) Out of 14 cases of erythema multiforme investigated, two had streptococcal pharyngitis.

(iii) Out of 20 cases of photodermatitis, 8 were diagnosed as pellagra on the basis of characteristic skin and mucous membrane lesions. One patient each had congenital erythropoietic porphyria and porphyria cutanea tarda, which were confirmed by porphyrin studies in urine, stools and blood.

(iv) Ten cases of hirsutism were included. One of these had a Theca cell tumour of the ovary and another had Cushing's disease.

(v) Of 2 cases of Pseudo-xanthoma elasticum one had characteristic angioid streaks in the retina.

(vi) Two cases of urticaria pigmentosa did not show any evidence of systemic involvement.

(vii) A study of ten cases of generalised neurofibromatosis revealed one patient each with epilepsy, mental retardation and elephantiasis of right leg and marked scoliosis of the lumbar spine.

TABLE IV

Prevalence of Dermatoses in cases of internal malignancy.

Disease Group	Metastatic lesions	Herpes Zoster	Generalised pruritus	purpura	Hyperpigmentation	prurigo	Mucocutaneous Ulceration	Pachydermaperiosteosis	Multiple neurofibromatosis	Total
Hodgkin's disease (35 cases)	1	4	3	2	2	0	0	0	0	12
Leukaemias (20 cases)	0	1	0	4	0	1	1	0	0	7
Bronchogenic carcinoma (19 cases)	1	1	1	0	0	0	0	1	0	4
Intracranial tumours (8 cases)	0	0	0	0	0	0	0	0	3	3
Carcinoma of breast (7 cases)	1	1	0	0	0	0	0	0	0	2
G. I. Tract Malignancy (4 cases)	1	0	0	0	0	0	0	0	0	1
Total	4	7	4	6	2	1	1	1	3	29

Group II

Such systemic diseases which were associated with cutaneous lesions, were also studied under the following classes.

(A) Internal malignancies:— 55 cases of various forms of lymphomas; 19 of Bronchogenic carcinoma; 8 of intracranial tumours, 7 of carcinoma breast and 4 of G. I. tract malignancies were included. Table IV shows the various types of cutaneous lesions in these patients.

TABLE V

Prevalence of Dermatoses in established cases of Diabetes Mellitus (140 cases)

Disease Group	20–40 years	41–60 years	Above 61 years	Total cases		Percentage
Pyoderma						
Folliculitis	6	6	4	16		
Carbuncle	2	0	2	4	23	16.4%
Cellutitis	1	1	3	3		
Moniliasis						
Intertrigo	4	3	3	10		
Vulvovaginitis	0	2	1	3	18	12.8%
Paronychia	2	1	0	3		
Balanoposthitis	0	1	1	2		
Pruritus						
Generalised	2	1	2	5	18	12.8%
Localised	5	5	3	13		
Xanthomatoses	2	0	2	4		2.85%
Diabetic dermatopathy	2	2	0	4		2.85%
Gangrene	1	1	0	2		1.4%
Necrobiosis lipoidica	0	1	0	1		0 7%
Miscellaneous (Dermatoses other than above)	2	3	4	9		6.4%
Total	29	26	23	78		55.7%

(B) One hundred and forty cases of diabetes mellitus were studied for the type of cutaneous lesions as shown in Table V. 52 patients with other endocrinal disturbances were also studied, 46 of these revealing characteristic cutaneous manifestations.

(C) Twelve patients with mental retardation studied revealed adenoma sebaceum in 3 and incontinentia pigmenti in 2;14 cases of portal cirrhosis showed cutaneous lesions in 8. All the 6 cases of obstructive jaundice complained of itching.

DISCUSSION

The present study was undertaken to assess, in the hospital population, cutaneous manifestations of systemic diseases as also systemic disorders commonly associated with certain specific or non-specific skin lesions. No attempt was made to establish a cause and effect relationship.

It was observed that various systemic diseases presented with a very wide variety of cutaneous lesions and with the exception of metastatic lesions secondary to internal malignancies none of them were specific. Internal malignancies and diabetes mellitus were for instance frequently associated with generalised pruritus, but it is also common knowledge that generalised pruritus is seen in the absence of any systemic disease. In the absence of comparable figures in the "non-systemic -disease" group, it will be difficult to correctly assess the significance of an isolated complaint. It may, however, be pointed out that the presence of generalised pruritus in the elderly may be the first indication of a malignant process or a hyperglycemic state and hence should be so investigated. The incidence of pruritus in association with malignant disorders has been variously reported between 3.5% (Longscope 1927 to 84.6% (Colrat, 1921)

The significance of the presence of herpes zoster and purpura in the elderly is also similar to that of pruritus. The detection of a hyperglycemic state in approximately one third of the patients with recurrent *pyococcal* infections and in one half of the patients with chronic monilial infections, compared to a mere 2.0% in normal urban population in North India (Ahuja et al, 1970) is a strong circumstantial evidence in favour of an association between diabetes mellitus and chronic recurrent *pyococcal* and monilial infections. It is, therefore, suggested that every patient with recurrent or persistent form of bacterial or monilial infection should be investigated for a hyperglycemic state. Rook (1968) states that about 20% of cases of diabetes are discovered as a result of septic skin lesions and Wilson (1961) stated that the appearance of candidiasis may be an earlier indication of diabetes than blood sugar values.

Other endocrinal disorders like hypothyroidism, Addison's disease and Cushing's syndrome presented characteristic skin changes in a vast majority of patients.

The importance of skin lesions in the so-called collagen diseases was particularly striking. In fact in all patients, attention to the presence of a systemic disease was first attracted by the presence of skin lesions. Similar results have also been reported by other workers. Analysis of some series, for example, showed that a skin rash occurred in 80% of cases with S L. E. and 90% of cases of systemic sclerosis (Rook, 1968).

A word of caution, based on our findings is that while some of these skin lesions are not infrequently associated with a systemic disease, a majority is still without any systemic involvement. Hence these skin lesions should only be considered as guides and not, barring certain exceptions, as the diagnostic or cardinal signs for any of these diseases.

The significance of skin lesions in the presence of a known systemic disease is twofold.

First, it gives an insight into the factors facilitating the acquisition of a particular dermatosis. The presence of pyoderma in 16.4% and monilial infection in 12.8% of the diabetics would suggest that the hyperglycemic state predisposes to acquiring these infections. Another significance of finding this association is therapeutic, where the systemic diseases should be adequately treated or atleast controlled before hoping for a proper relief from skin condition.

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