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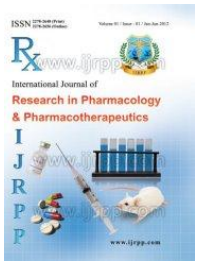

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A case study of dermatosclerosis with features of crest syndrome

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ABSTRACT

Systemic sclerosis (systemic scleroderma or SSc) is a chronic connective tissue disease of unknown etiology that causes widespread micro vascular damage and excessive deposition of collagen in the skin and internal organs, in particular GI tract, lung, heart, and kidney. We report the case of a 55 year old female patient who came to RIMS-GH, Kadapa complaints of cough, difficulty in swallowing, breathlessness since 2 weeks along with numbness of fingers. The patient had an ulcer on the right leg with white crystals; it shows the presence of calcinosis. Radiographic data showed bony erosion of the terminal phalanges and esophageal involvement, these findings indicates CREST syndrome. The biopsy report revealed it as scleroderma. The anti-nuclear antibodies and anti-topoisomerase I antibody tests were confirmed as diffuse cutaneous scleroderma. This case illustrates the clinical manifestations of a diffuse cutaneous scleroderma with CREST syndrome features.

Keywords: Calcinosis, Diffused cutaneous Scleroderma, Raynaud's phenomenon, Scleroderma, Sclerosis.

INTRODUCTION

Systemic sclerosis (systemic scleroderma or SSc) is a chronic connective tissue disease of unknown etiology that causes widespread micro vascular damage and excessive deposition of collagen in the skin and internal organs, including the GI tract, lung, heart, and kidney. SSc can present at any age, but 30–50 years are the most common age of onset for both limited and diffuse cutaneous forms[1]. The prevalence of scleroderma is estimated to be between 4 and 253 cases per million persons. Factors such as age, sex, genetic background, and environmental exposure may influence susceptibility[2]. Scleroderma is further subdivided into limited and diffuse variants depending on the extent of cutaneous involvement (Table 1). The two variants differ in their clinical course and outcome [3].

The diffuse cutaneous form of SSc (dcSSc) is characterized by thickening of the skin and distinctive involvement of multiple internal organs, most notably the lungs, gastrointestinal tract, heart, and kidneys. These patients are at risk for early pulmonary fibrosis and acute renal involvement. The anti-nuclear antibodies and anti-topoisomerase I antibodies are frequently found in dcSSc. Limited cutaneous SSc (lcSSc) generally have long-standing Raynaud's phenomenon before other manifestations of SSc appear. Skin involvement in lcSSc is slowly progressive and remains limited to the fingers (sclerodactyly), distal extremities, and face, but the trunk is not affected. A subset of patients with lcSSc

have prominent Calcinosis cutis, Raynaud's phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia, a constellation termed CREST syndrome. CREST syndrome is a subset of scleroderma in which the anti-centromere antibody is frequently found.[4-6] Moreover, while dcSSc is associated with prominent and early internal organ involvement, lcSSc presents with long-standing Raynaud's phenomenon, indolent skin, limited internal organ involvement, and a better prognosis. While patient stratification into diffuse and limited cutaneous subsets is useful, disease expression is far more complex, and several distinct phenotypes exist within each subset. For example, 10–15% of patients with lcSSc develop severe pulmonary arterial hypertension without significant interstitial lung disease (ILD).CREST syndrome features may also be seen in patients with DcSSc.

Case Presentation

A 55-year-old agriculture labourer from rural area of Kadapa district Andhra Pradesh; stated that she had been prone to attacks of numbness and pallor for past few years. She had observed wasting of the distal phalanges of the hand. She presented to RIMS GH with cough and breathlessness for past 2 weeks prior to admission.

On examination a lean built and moderately nourished lady she had typical scleroderma face (figure 1), sclerodactyly (figure 2), calcinosis cutis were present on the dorsum of the right foot (figure 3).

On examination her pulse rate was 82/min, Blood pressure 150/90 mmHg and S_1, S_2 were positive. Her respiratory rate was 20 cycles/min, SpO_2 90 and She had basal lung crepitations. On abdominal examination she had mild hepatomegaly. Her urine output was normal. On cutaneous examination there was skin thickening, stellate healed scars on the fingers and ankle. She had mild pallor.

Patient's Laboratory and Diagnostic Data

Her reports showed HIV nonreactive and HBsAg was negative. The 2D-ECHO cardiogram report showed that enlarged right atrium, right ventricle, and pulmonary artery, mild Pulmonary regurgitation, moderate tricuspid valve regurgitation, pulmonary artery hypertension, left ventricular diastolic dysfunction, right ventricular dysfunction and no intra cardiac thrombi. The chest x-ray showed linear and reticular pattern, superimposed upon the ground glass attenuation in the basal region of the lung and mild cardiomegaly (figure 4). The high-resolution computed tomography sections closer to the lung bases showed evidence of interstitial lung disease (predominantly sub-pleural in location) with septal thickening, bronchiectasis, and fibrotic changes (figure 5). Her sputum was negative for AFB. Ultrasound abdomen showed mild hepatomegaly, minimal ascites and renal parenchymal changes. Barium swallow examination showed moderate dilatation of 1/3rd esophagus with poor progression of peristalsis (figure 6). Renal Doppler showed main renal artery, segmental renal artery were normal color filling and normal spectral wave pattern. Her random blood sugar was 68 mg/dl and her Hemoglobin was 8 gm%.

Radiographs of hands showed bony erosion of the terminal phalanges (figure 7). A biopsy revealed that the sample punch biopsy of skin over the thigh normal epidermis with thickened and space between large collagen bundles, much more prominent in the deep dermis (figure 8). It is suggested as scleroderma.

We evaluated the following auto antibodies in this patient by ELISA method. In this Anti-centromere antibodies was negative (1.26 U/mL). Antinuclear antibodies (124.00 units) and Anti topoisomerase 1 antibodies (> 100.00 U/mL) were positive. Rheumatoid factor (80 1U/ML) was positive (Table 2).

Patient's Treatment and Medication History

She was admitted to the RIMS GH medical ward. She was resuscitated and managed with antibiotic Amoxicillin + Clavulanic acid 625 mg BD, Tab., Chlorpheneramine maleate 4 mg HS, Tab., Prednisolone 40 mg OD, Tab., Colchicine 0.5 mg OD, Tab., Pantoprazole 40 mg OD and Tab., Sildenafil 50mg OD. Following this her condition improved with stable vital signs. She had repeated admissions due to cardiopulmonary complications of systemic sclerosis.

Later she was discharged from hospital with Prednisolone 5 mg in tapering dose. She had been

following at dermatology, general medicine of the hospital with periodically given medications.

Table 1: Classification of Scleroderma at presentation

Presenting Feature	**Scleroderma classification**	
	Limited	**Diffuse**
Raynauid's phenomenon	Long duration	Short duration
Skin involvement	Distal limbs & face	Proximal limbs & trunk
Tendon friction rubs	Absent	May be present
Nail fold capillaries	Dilatation	Dilatation & loss
Auto antigen	Commonly Centromere	Commonly Topoisomerase I
Calcinosis cutis	Frequent, prominent	May occur, mild
Renal Crisis	Very rare	Occurs in 15%; early
Pulmonary fibrosis	Occasional, moderate	Frequent, early and Severe
Pulmonary arterial hypertension	Frequent, late, may be isolated	May occur, often in association with pulmonary fibrosis

Table 2: Diagnosis of diffused cutaneous scleroderma and rheumatoid arthritis

S.No	**Test**	**Results**	**Reference range**
1	Anti-centromere antibodies (ACA)	1.26	< 3.00 U/mL
2	Anti-Nuclear Antibody (ANA)	124.00	20.00 units
3	Antibodies to Topoisomerase 1 (Sc1-70)	> 100.00	< 3.00 U/mL
4	Rheumatoid factor (Latex Agglutination method)	Titreup 80 (1:8 dilution)	Less than 10 1U/ML
5	Hemoglobin	8	12 – 15gm/dl
6	2D ECHO Cardiogram Report	Pulmonary Hypertension	

Fig 1: Photograph of the patient showing pinched nose and forte ring appearance of mouth

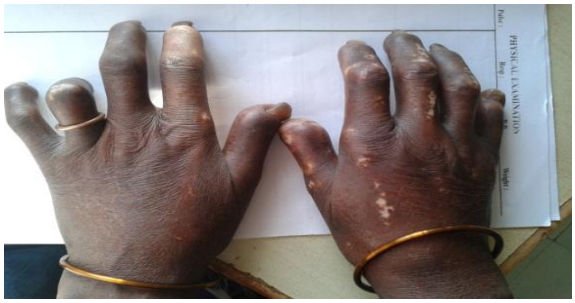

Fig 2: Photograph of hands showing stellate heeled scars on fingers and ankle

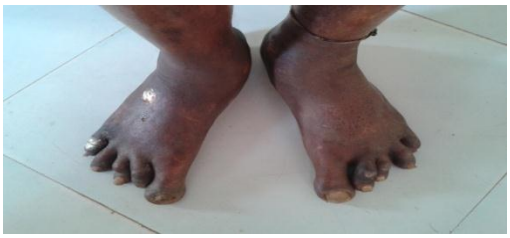

Fig 3: Photograph of the patient showing calcinosis cutis on legs

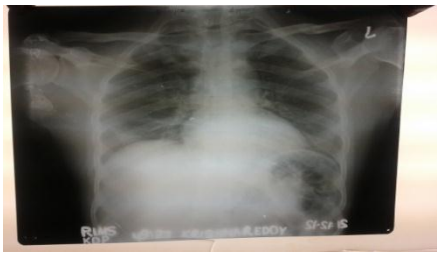

Fig 4: Chest X-ray shows that interstitial lung disease shows linear and reticular pattern, superimposed upon the ground-glass attenuation in the basal region of lung and mild cardiomegaly.

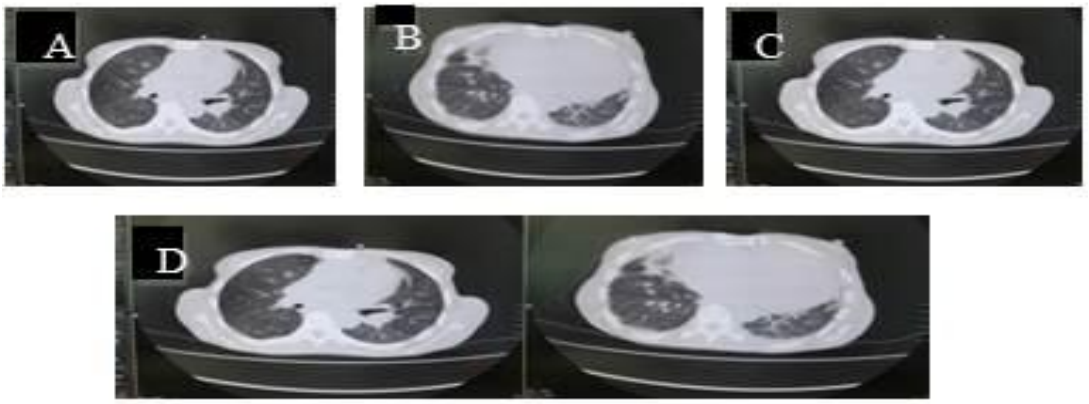

Fig 5: A. HRCT finding of interlobular septal thickening and ground-glass attenuation was atypical, B. Paraseptal emphysematous changes in the bilateral lower lobes, C. Reticular and linear septal thicking with collapse of bilateral upper lobes – fibrotic changes, D. Bronchietatic changes in the posterior segments of right upper lobe.

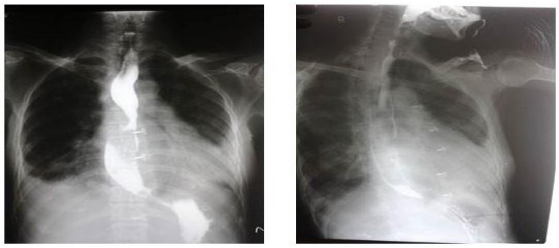

Fig 6: Barium swallow examination showing moderate dilatation of lower 1/3rd oesophagus and throat segment stricture just below it is noted

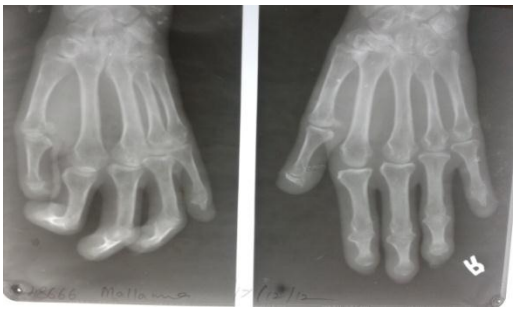

Fig 7: Acro-osteolysis involving terminal phalanges of hand

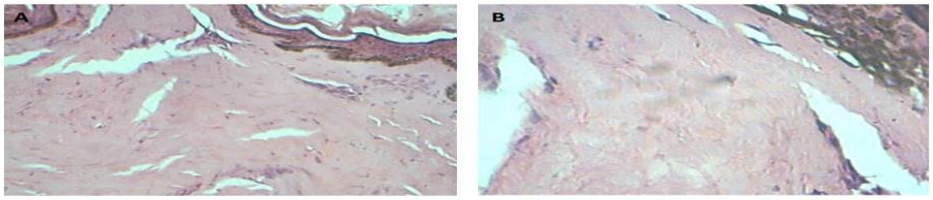

Fig 8: A. (100x) showing collagen in the dermis, B. (400x) Thick collagen in the dermis. (Note: lack of skin adnexae)

DISCUSSION

According to The American College of Rheumatology/European League against Rheumatism criteria for the classification of SSc, in our case the score was 15 (the maximum score is 19). This clearly indicates that the patient having definite SSc (total score >9).[7] In our case Anti-Nuclear Antibody and Anti Topoisomerase 1 were positive, which conformed as dcSSc.

In patients with dcSSc, the interval between Raynaud's phenomenon and appearance of other manifestations is generally brief (weeks to months). Soft tissue swelling and intense pruritus are signs of the early inflammatory "edematous" phase of dcSSc. The fingers, hands, distal limbs, and face are usually affected first. During the progression of the disease, the inflammatory edematous phase changes into the "fibrotic" phase. In our case fingers, hands, distal limbs, and face are affected followed generalized edema and fibrotic changes in lungs. The most common visible manifestation of early dcSSc is the involvement of important internal organ. The initial 4 years from disease onset is the period of rapidly evolving systemic involvement and greatest risk for pulmonary and renal damage. If organ failure does not occur during this period, the systemic process may stabilize. In our case pulmonary involvement (i.e., fibrotic and bronchietatic changes), GI involvement were present; we observed esophageal involvement, Calcinosis cutis, sclerodactyly; these indicates CREST syndrome features except Raynauds Phenomenon and Telangiectasia in this particular case.

CONCLUSION

Generally CREST syndrome will be seen in lcSSc and it disappears in dcSSc. But in rare cases, CREST syndrome features may also be seen in patients with DcSSc. We here reported a rare combination of CREST syndrome features in diffuse cutaneous SSc.

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