Scleroderma: a case report

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Abstract. Scleroderma is a complex disease in which extensive fibrosis, vascular alterations, and autoantibodies against various cellular antigens are among the principal features.[1,2] The prevalence ranging from 50 to 300 cases per 1 million persons with women are at much higher risk. The average age of diagnosis is the fifth decades of life.[2] There is no cure for scleroderma, but many of its problems and complications can be treated.[3-7] A 54-year-old female patient with main complains limitation of motion and mouth, stiffness and painful joints in the hands and feet, thickening on the skin in the chest and trunk for eight years, purplish red spots on arms and legs intermittent for ten years. On physical examination found sclerosis lesions, sclerodactyly on fingers and toes, telangiectasias in the antebrachii and cruris region. On laboratory, examination showed ANA test 10.7 and Anti DS DNA 123. The histopathological of the skin result is scleroderma. The patient was diagnosed with scleroderma and treated with methotrexate 7.5 mg/weeks, ciclosporin 2x100 mg/day, omeprazole 2x20 mg. After seven days of therapy, there is aclinical improvement, and the patient becomes an outpatient treatment.

1. Introduction
Systemic sclerosis (SSc / scleroderma) is an autoimmune disease that is characterized by the distinctive pathogenetic triad of 1. microvascular damage; 2. dysregulation of innate and adaptive immunity; and 3. generalized fibrosis in multiple organs due to excessive collagen deposition.[8,9] The prevalence was ranging from 50 to 300 cases per 1 million persons and an incidence ranging from 2.3 to 22.8 cases per 1 million persons per year. Women are at much higher risk for scleroderma than men, with a ratio ranging from 3:1 to 14:1.[6]

Many factors, including environmental factors, can lead to immunologic system disturbances and vascular changes. Endothelial alterations may lead to a cascade of stimulatory changes that involve many cells, including fibroblasts, T lymphocytes, macrophages, and mast cells. In turn, the activated cells secrete a variety of substances, including cytokines and their soluble receptors and enzymes and their inhibitors. These substances lead to changes in the extracellular matrix compounds, including fibronectin; proteoglycans; and collagen types I, III, V, and VII. Increased collagen production or disturbances in its degradation can cause excessive collagen deposition in tissues. Features of the tissue lesions in various stages of scleroderma are early microvascular damage, mononuclear-cell infiltrates, and slowly developing fibrosis. In later stages of scleroderma, the main findings are very densely packed collagen in the dermis, loss of cells, and atrophy. Although skin fibrosis is the distinguishing hallmark, the pathological changes in the lungs, gastrointestinal tract, kidneys, and heart determine the clinical outcome. In general, the extent of skin involvement and its rate of progression reflect the severity of visceral organ complications.[8,9]
A striking feature of systemic sclerosis is its patient-to-patient variability, and heterogeneity has been observed in clinical manifestations, autoantibody profiles, the tempo of disease progression, response to treatment and survival. By the extent of their skin involvement, patients are grouped into limited cutaneous systemic sclerosis (lcSSc) and diffuse cutaneous systemic sclerosis (dcSSc) subsets. In lcSSc, skin fibrosis is restricted to the fingers (sclerodactyly), distal extremities and face, whereas in dcSSc, the trunk and proximal extremities are also affected. In patients with lcSSc, Raynaud phenomenon typically precedes skin involvement and other disease manifestations by months to years, whereas patients with dcSSc have rapid disease progression with extensive skin changes and early development of visceral organ complications.[8]

Autoantibodies are particularly helpful in systemic sclerosis for both diagnosis and classification. lcSSc is commonly associated with centromere-specific antibodies, whereas dcSSc more often associated with topoisomerase I- or RNA polymerase III-specific antibodies. However, not all patients with systemic sclerosis fall clearly into one of these two disease subsets, and some can change their subset assignment over time.[8]

There is no treatment for scleroderma, but many of its problems and complications can be treated.[3,4,5]

2. Case Presentation
A 54-year-old female patient came to the emergency department with a chief complaint limitation of motion and mouth, stiffness and painful joints in the hands and feet, thickening on the skin in the chest and trunk for 10 years, purplish red spots on arms and legs intermittent for 10 years. The vital signs were blood pressure 110/60 mmHg, pulse 84 x/minute; regular, respiration 20 x/minute, and temperature 36.8°C. On physical examination, we found sclerosis lesions, sclerodactyly on fingers and toes, telangiectasias in the region of the antebrachii and crus. Laboratory examination: Hb 10.3 g/dl, platelet count 156,000/mm3. Leucocyte 8,320/mm3, platelet count 156,000/mm3. Urea random plasma glucose: 105 mg /dl, Na: 144 mEq/l; K: 3.1 mEq/l, CRP quantitative: 0.7, ANA test (+): 10.7 Anti DS DNA: 123. Results of histopathological examination of the skin: from skin tissue preparations with chisel-lined epithelium lining the experience hyperkeratosis with shortening rete-ridge, subepidermis was thickened fibrous connective tissue that contains collagen and consists of the core fibrocyte and fibroblasts, it is also evident exocrine glands and hair follicles, with the conclusion: scleroderma. Thorax x-ray, ECG, echocardiography: in normal limits. Patients diagnosed with systemic sclerosis and were treated with porridge foods, intravenous fluid drips of NaCl 0.9% 20 gtt/minute, methotrexate 7.5 mg/week, Cyclosporin 2x100 mg/day, omeprazole 2x20mg. After 7 days of treatment, the patients showed clinical improvement and recommended for outpatient treatment.

3. Discussions
Ascleroderma affects many different organ and regions of the body. On the skin, patients are at risk for the development of rapidly progressive acral and trunk skin thickening and early visceral abnormalities. Skin and visceral changes tend to parallel each other in severity, but not always. Some patients have rapid progression for 2 to 3 years and then arrest for the disorder, allowing for some improvement of the disorder. Raynaud phenomenon can occur in almost all patients. It usually occurs more than two years before skin changes. The vasospasm in the hands can associate with reduced perfusion to the heart, lungs, kidneys, and gastrointestinal tract.[10,11]

On the joints, non-deforming symmetric polyarthritis similar to rheumatoid arthritis may precede cutaneous manifestations by 12 months. Patients can have both articular erosions and nonarticular bony resorptive changes of ribs, mandible, radius, ulna, and distal phalangeal tufts which are unique to systemic sclerosis. Up to 60% of patients have “leathery” crepitation of the wrist tendons.[10,11]

Diffuse interstitial fibrosis occurs in approximately 70% of patients and is the most common pulmonary abnormality. Cardiac problems can also occur in 70% of the patients. Cardiac arrhythmias or conduction defects are the most common findings, and pulmonary hypertension with
corpulmonale is the most serious problems. At least 90% of patients suffered from gastrointestinal abnormality, and most of them are asymptomatic. Esophageal dysfunction is the most common problem and may develop into esophageal strictures or ulcers due to acid reflux.[10,11]

Renal involvement may result in fulminant hypertension, renal failure, and death if not treated aggressively. Proteinuria, newly diagnosed mild hypertension, microangiopathic hemolytic anemia, vascular changes on renal biopsy, and rapid progression of skin thickening may precede overt clinical findings of renal crisis.[10,11]

Further laboratory tests to determine the diagnosis of scleroderma are Antitopoisomerase I antibody (anti-Scl-70) found in approximately 25% of patients with scleroderma, and anticentromere antibody found in 10% to 20% patients.[10,11]

In this case, a patient with the main complaints limitation of motion and mouth, stiffness and painful joints in the hands and feet, thickening on the skin in the chest and trunk for ten years, purplish red spots on arms and legs intermittent for ten years. On physical examination found sclerosis lesions, scleroderactyly on fingers and toes, telangiectasias in the region of the antebraclii and cruris. Laboratory examination: CRP quantitative 0.7, ANA test (+) 10.7 Anti-DS DNA 123. Results of histopathological examination of the skin: from skin tissue preparations with chisel-lined epithelium lining the experience hyperkeratosis with shortening reteridge, subepidermis was thickened fibrous connective tissue that contains collagen and consists of the core fibrocyte and fibroblasts, it is also evident exocrine glands and hair follicles, with the conclusion: scleroderma. Thorax x-ray, ECG, echocardiography is within normal limits.

In 2013, a revised classification criteria — the American College of Rheumatology (ACR)–European League Against Rheumatism (EULAR) criteria — were proposed to address some of the difficulties in classification and diagnosing scleroderma (Table 1).[5,6] In this case, the patient had skin thickening of the fingers of both hands extending proximal to the metacarpophalangeal joints, scleroderactyly of the fingers, telangiectasia, and the score was 15. The patient is then diagnosed with scleroderma.

**Table 1. The ACR–EULAR criteria for classification of systemic sclerosis [5].**

| Items | Sub-items | Weight / Score |
|-------|-----------|---------------|
| Skin thickening of the fingers of both hands extending proximal to the metacarpophalangeal joints | Puffy fingers | 2 |
| Skin thickening of the fingers (only count the highest score) | Whole Finger, distal to MCP | 4 |
| Finger tip lesions (only count the highest score) | Digital Tip Ulcers | 2 |
| | Pitting Scars | 3 |
| Telangiectasia | 2 |
| Abnormal nailfold capillaries | 2 |
| Pulmonary arterial hypertension and/or interstitial lung disease | 2 |
| Raynaud’s phenomenon | 3 |
| Scleroderma related antibodies (any of anti-centromere, anti-topoisomerase I [anti-Scl 70], anti-RNA polymerase III) | 3 |

**TOTAL SCORE**: Patients having a total score of 9 or more are being classified as having definite systemic sclerosis. ^ Add the maximum weight (score) in each category to calculate the total score.
The management for systemic scleroderma consists of 1) Counseling and psychological support; 2) Management of the skin and joints; 3) Management of Raynaud’s Phenomenon; 4) Drug therapy; 5) Immunotherapy; and 6) Management of complication. Counseling and psychological support are needed to alleviate the burden of the disease and in increasing the quality of life for the patient. Problems in the patients such as the skin and joints must be cared for treating. The skin of scleroderma patients often dry and itchy. The patient should be advised not to scratch, do not wear tight shoes and easily cause irritation. Lanolin soap oily and very useful as well as an ointment to soften the skin. Avoid smoking and keeping the limb warm can accelerate the healing of Raynaud’s phenomenon. Arthralgia/arthritis and tenosynovitis can be treated by giving non-steroidal anti-inflammatory drugs (NSAIDs). If pain persists, it can be considered local steroid injections or small doses of systemic steroids (prednisone <10 mg/day) for a short time. Other drugs such as antifibrotics (penicillamine) can be given tackle skin disorders although the treatment is long term. Interferon-γ can inhibit fibroblast proliferation and collagen production. Immunotherapy also plays important roles in treating scleroderma. Activation of the immune system plays a role in the onset of disease and organ damage. Immunotherapy in scleroderma includes the use of nonselective immunosuppressive drugs (methotrexate (MTX), MMF, azathioprine, cyclophosphamide). As well as selective immunosuppressive drugs such as immunotherapy by targeting the T cells such as cyclosporine A, sirolimus (rapamycin), anti-thymocyte globulin (ATG), basiliximab, abatacept, and extracorporeal alafaceptphotoimmunotherapy or photopheresis (ECP). Methotrexate (dose: 10-15 mg/week) can reduce the spread of damage to the skin, in the case of scleroderma-myositis and inflammatory arthritis. If the response is not adequate therapy within 3-6 months, then consider replacing treatment with MMF (2-3 g/day).[12-14] In this case patient treated with porridge foods, intravenous fluid drips of NaCl 0.9% 20 gtt/min, methotrexate 7.5 mg/week, Cyclosporin 2x100 mg/day, omeprazole 2x20mg.

4. Conclusions
We reported a case of scleroderma (systemic sclerosis) in a female, 54 years old based on clinical features and investigation. The patient is with immunosuppressant therapy, proton pump inhibitors, then it is recommended for outpatient treatment.

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