

## Association of Musculoskeletal and Radiological Features with Clinical and Serological Findings in Systemic Sclerosis: A Single-Centre Registry Study

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**Abstract :** Aim: Systemic sclerosis (SSc) is a chronic connective tissue disease with the clinical hallmark of skin thickening and tethering. Correlation of musculoskeletal features with other parameters should be considered in SSc patients. Methods: We reviewed the records of all patients who had more than one visit and standard anteroposterior radiography of hand. We used univariate analysis, and factors with  $p < 0.05$  were included in logistic regression to find out dependent factors. Results: Overall, 180 SSc patients were enrolled in our study, 161 (89.4%) of whom were women. Median age (IQR) was 47.0 years (16), and 52% had diffuse subtype of the disease. In multivariate analysis, tendon friction rubs (TFRs) was associated with the presence of calcinosis, muscle tenderness, and flexion contracture (FC) on physical examination ( $p < 0.05$ ). Arthritis showed no differences in the two subtypes of the disease ( $p = 0.98$ ), and in multivariate analysis, there were no correlations between radiographic arthritis and serological and clinical features. The radiographic results indicated that disease duration correlated with joint erosion, acro-osteolysis, resorption of distal ulna, calcinosis and radiologic FC ( $p < 0.05$ ). Acro-osteolysis was more frequent in the dcSSc subtype, TFRs, and anti-TOPO I antibody. Radiologic FC showed an association with skin score, calcinosis and haematocrit  $< 30\%$  ( $p < 0.05$ ). Joint flexion on radiography was associated with disease duration, modified Rodnan skin score, calcinosis, and low haematocrit ( $P < 0.01$ ). Conclusion: Disease duration was a main dependent factor for developing joint erosion, acro-osteolysis, bone resorption, calcinosis, and flexion contracture on hand radiography. Acro-osteolysis presented in the severe form of the disease. Acro-osteolysis was the only dependent variable associated with bone demineralization.

**Keywords :** sclerosis, disease subsets, joint erosion, musculoskeletal

**Conference Title :** ICAAIR 2023 : International Conference on Allergy, Asthma, Immunology and Rheumatology

**Conference Location :** Vancouver, Canada

**Conference Dates :** September 25-26, 2023