

70 year old female with  
bilateral hand pain.

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A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

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# Scleroderma



Frontal radiographs of the hands show scattered subcutaneous and periarticular globular calcifications.



Lateral radiograph of the hands again shows globular and periarticular and subcutaneous calcifications.

# Scleroderma

## Imaging Features

- Punctate or globular calcinosis, most commonly in the hand.
  - Can lead to mechanical bony erosion
- Flexion contracture deformities
- Acroosteolysis
  - Resorption of tufts with eventual resorption of distal phalanx
- Arthritis late
  - Erosions and cartilage loss
  - 1<sup>st</sup> CMC subluxation
  - DIP erosions



# Scleroderma

## General Features

- Autoimmune disorder of unknown etiology that results in widespread angiopathy and fibrosis
  - Vascular endothelial damage leads intimal thickening with luminal narrowing resulting in an impaired angiogenic response
  - Increased collagen and fibrotic tissue within the dermis
- Female predominant, with up to 80% female in progressive systemic sclerosis and a 3:1 ratio in limited sclerosis (CREST).

# Scleroderma

## General Features

- Fibrotic tissue within dermis leads to flexion contracture and functional disability
- Amorphous calcification is very common, especially of the hand, where it is present in up to 85% of cases.
- Vascular injury results acro-osteolysis, tapering of skin at the ends distal digits, and calcinosis
- Subluxation at the first CMC joint is thought to be the hallmark of the disease.
  - Resorption of the trapezium and base of first metacarpal leads to proximal and radial subluxation of the thumb

# References

1. Avouac J, Guerini H, Wipff J, et al. Radiological hand involvement in systemic sclerosis. *Annals of the Rheumatic Diseases*. 2006;65(8):1088-1092. doi:10.1136/ard.2005.044602.
2. Bassett, L., Blocka, K., Furst, D., Clements, P., & Gold, R. (1981). Skeletal findings in progressive systemic sclerosis (scleroderma). *American Journal of Roentgenology*, 136(6), 1121-1126. doi:10.2214/ajr.136.6.1121