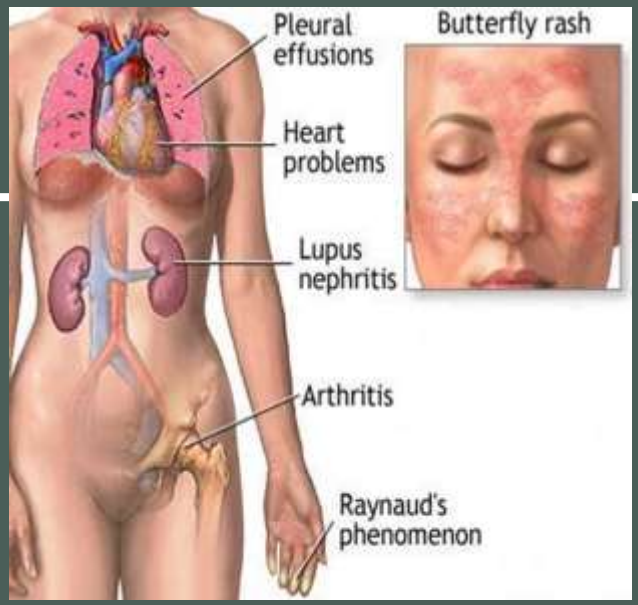

بسم الله الرحمن الرحیم

.

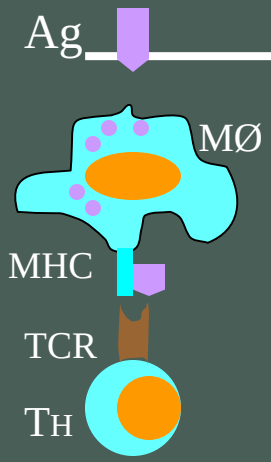
# Systemic lupus erythematosus




- An inflammatory multi-system disease
- unknown cause
- Prevalance 20-150 per100,000
- Onset age 16-55 in 65%
- Excessive auto-antibody production
- Tissue damage results from immune complex deposition
- Characterized by remission and exacerbation
- resemble other autoimmune, infectious, or hematologic diseases

# Triggering factors

(Probably environmental)




**INVIROMENTAL FACTORS**
**Sex hormon**

**Susceptibility genes**

**Abnormal Immune Responses**

Hyperactive **T-cells**

**Cytokines**

Hyperactive **B-cells**

Inadequate **regulatory** mechanisms

Persistent pathogenic autoantibodies and IC

**Complement** activation

**Chemokines**

Cytokines

**Adhesion** molecules activation

**INFLAMMATION**
**TISSUE DAMAGE**

# clinical manifestations

- Constitutional symptoms
- Cutaneous
- Serositis (Pleuritis or ericarditis)
- Musculoskeletal
- Renal
- Hematologic
- Gastrointestinal
- Coronary heart disease
- Neuropsychiatric
- Neurologic manifestations
- Eye
- Laboratory

# Hematologic abnormalities

are common in SLE, and

all three blood cell lines can be affected.

Anemia of chronic disease is the most common type of anemia

Leukopenia:

- is common in SLE patients, (50%)
- can be due to lymphopenia and/or secondary neutropenia
- generally correlates with clinically active disease.
- may also result from toxicity due to immunosuppressive medications

Mild thrombocytopenia is also a common

Rarely, severe thrombocytopenia can occur and requires treatment.

Autoimmune hemolytic anemia is also relatively rare but can be severe, requiring immediate therapy

# Hematologic abnormalities

**Lymph node enlargement commonly occurs in association with active cervical, axillary, and inguinal regions.**

**Splenomegaly can also be observed among SLE particularly with active disease.**

# Constitutional symptoms

— Constitutional symptoms such as

- fatigue,
- Fever
- weight loss

during the course of the disease.

●Fatigue

- most common complaint, 80 to 100 %
- be disabling.
- associated with depression, sleep disturbances, and concomitant fibromyalgia

## Constitutional symptoms

- **Fever :**

- can be a manifestation of active SLE
- over 50 percent
- associated with a lupus flare

- other causes of fever, such as infection, a drug reaction, or malignancy,

- no specific features fever due to SLE from fever due to other causes.

- Fever that does not respond NSAIDs, acetaminophen, and/or low to moderate doses of glucocorticoids ,suspicion of an infectious or drug-related etiology,

- most fevers due to active SLE will remit with use of these agents

# Constitutional symptoms

- **Myalgia –**

**common among patients with SLE,**

**whereas severe muscle weakness or myositis is relatively uncommon..**

**Weight change –**

- **may be related to the disease or to its treatment**
- **Weight loss often occurs prior to the diagnosis of SLE**
- **weight loss may be due to decreased appetite,**
- **side effects of medications (diuretics ,hydroxychloroquine),**
- **gastrointestinal disease (eg, gastroesophageal reflux, abdominal pain, peptic ulcer disease, or pancreatitis)**

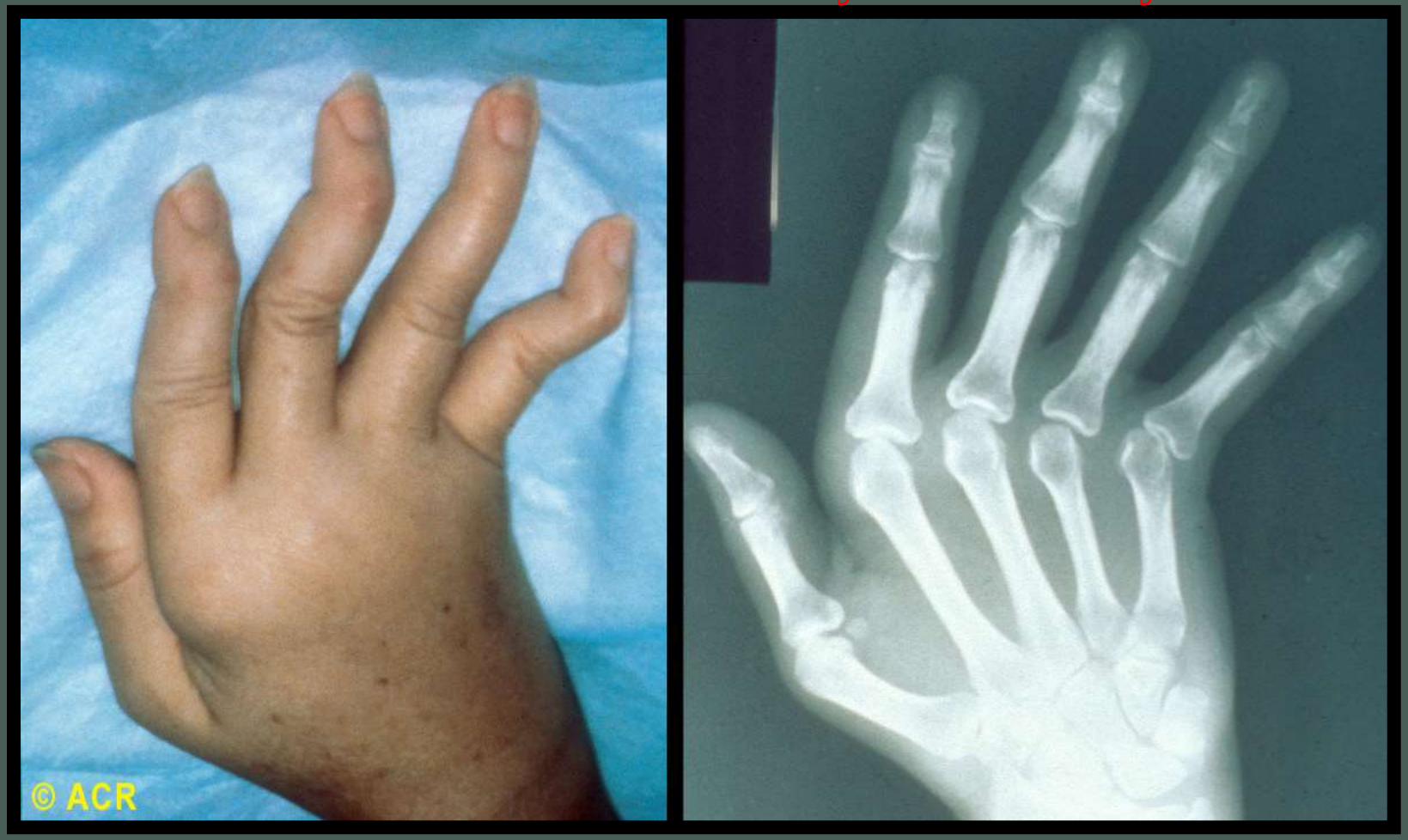
# Arthritis and arthralgias

**Arthritis**

- **inflammatory peripheral joints**
- **occur in over 90 percent SLE**
- **often one of the earliest manifestations**
- **tends to be migratory, polyarticular, and symmetrical.**
- **not cause erosion, and is rarely deforming**
- **occasionally patients with SLE also develop a deforming erosive arthritis, which is similar to that of rheumatoid arthritis (RA)**

# Systemic lupus erythematosus: Jaccoud's arthropathy (clinical and radiograph)

reducible and is caused by tendon laxity

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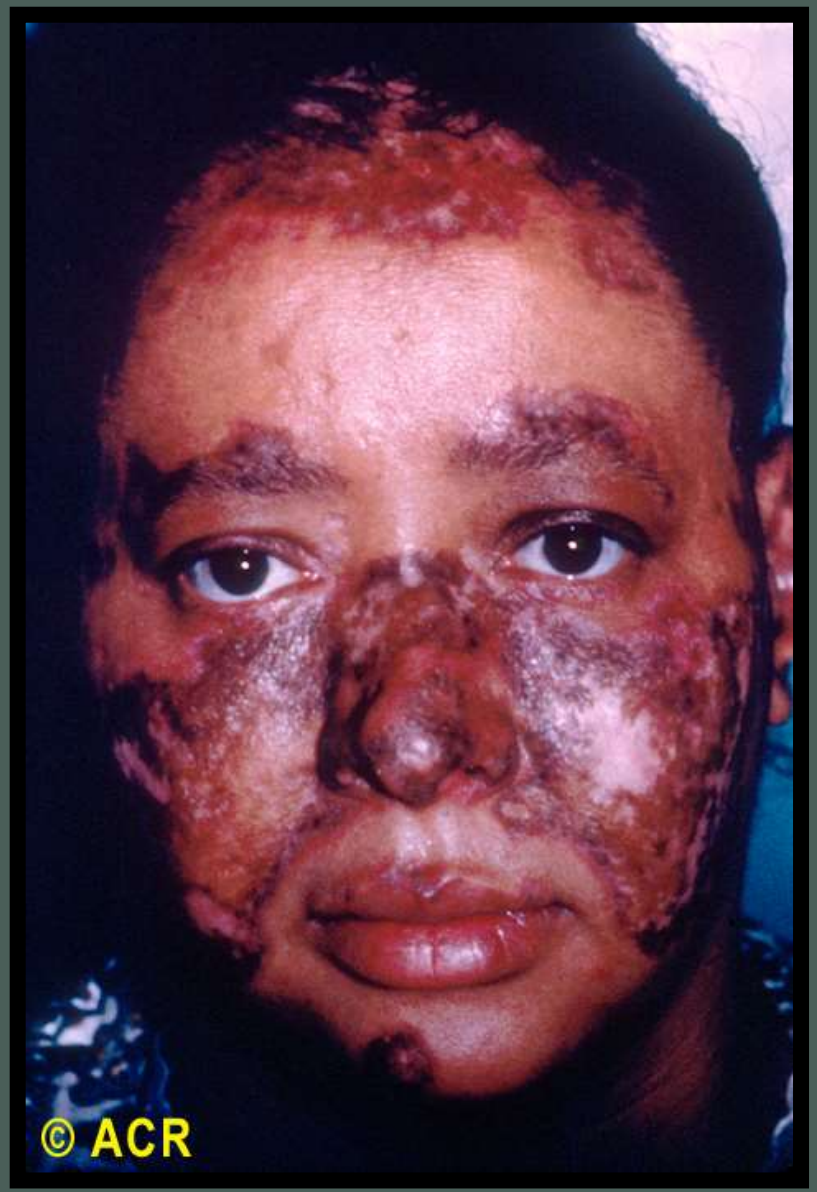
# Mucocutaneous involvement

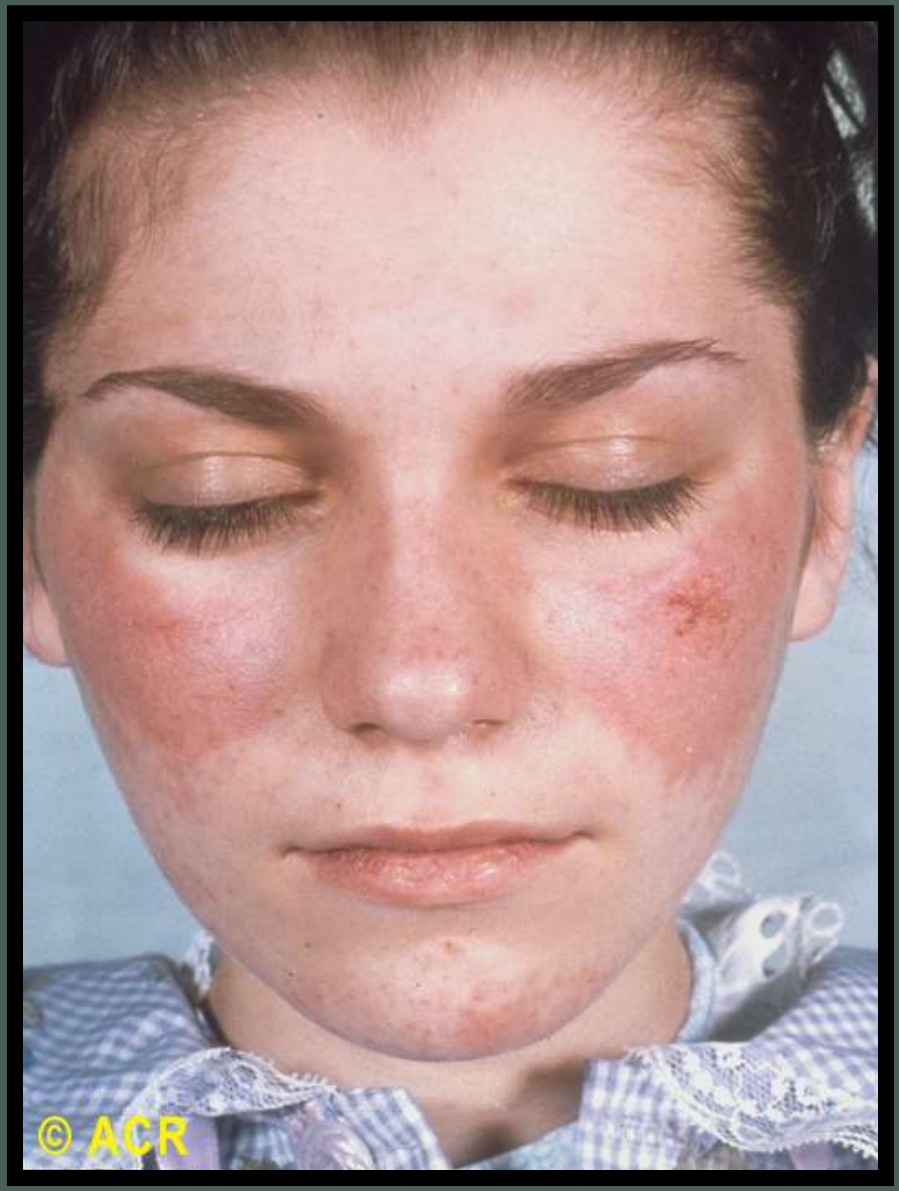
- Most lesions at some point during the course disease
- tremendous variability in the type of skin involvement
- The most common lesion is a facial eruption (butterfly rash")
- appears after sun exposure
- Many patients develop oral and/or nasal ulcers, which are usually painless in contrast to herpetic chancre blisters.

# Systemic lupus erythematosus: butterfly rash, discoid type

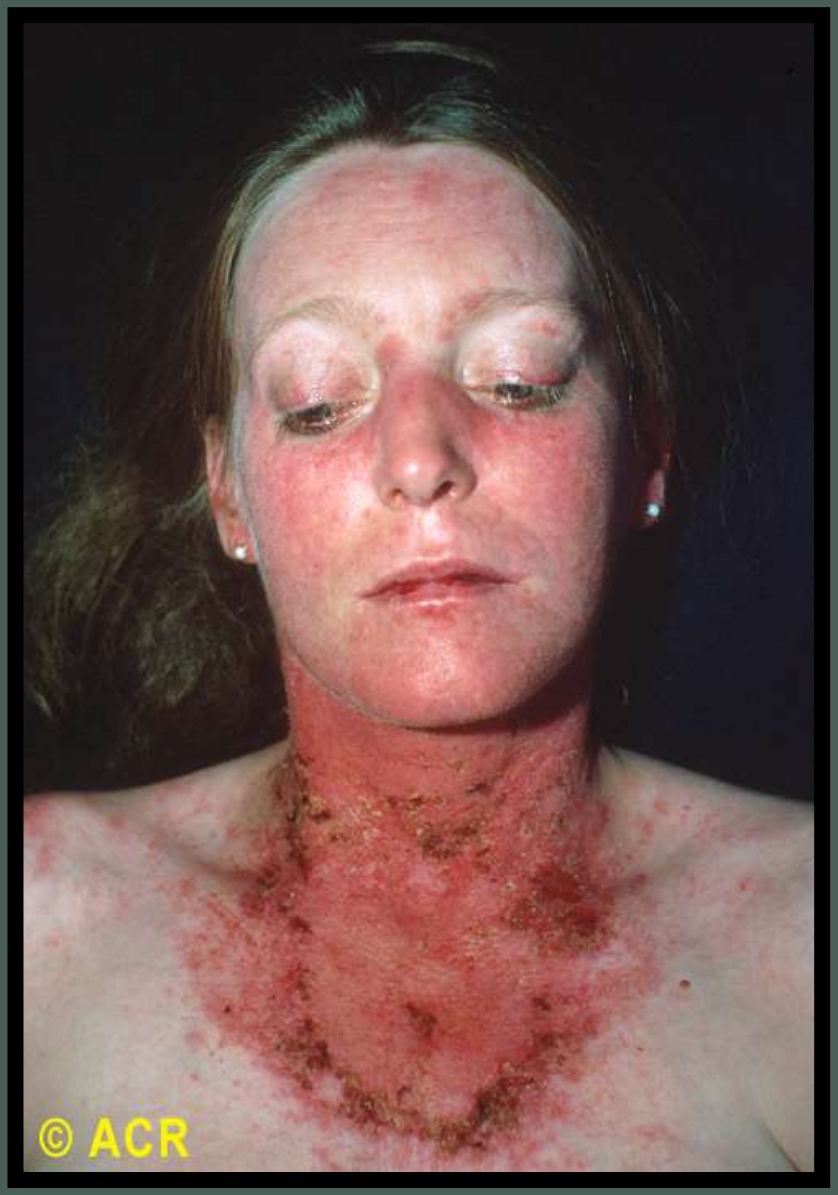
erythematous and hyperpigmented margins and flattened, scarred central



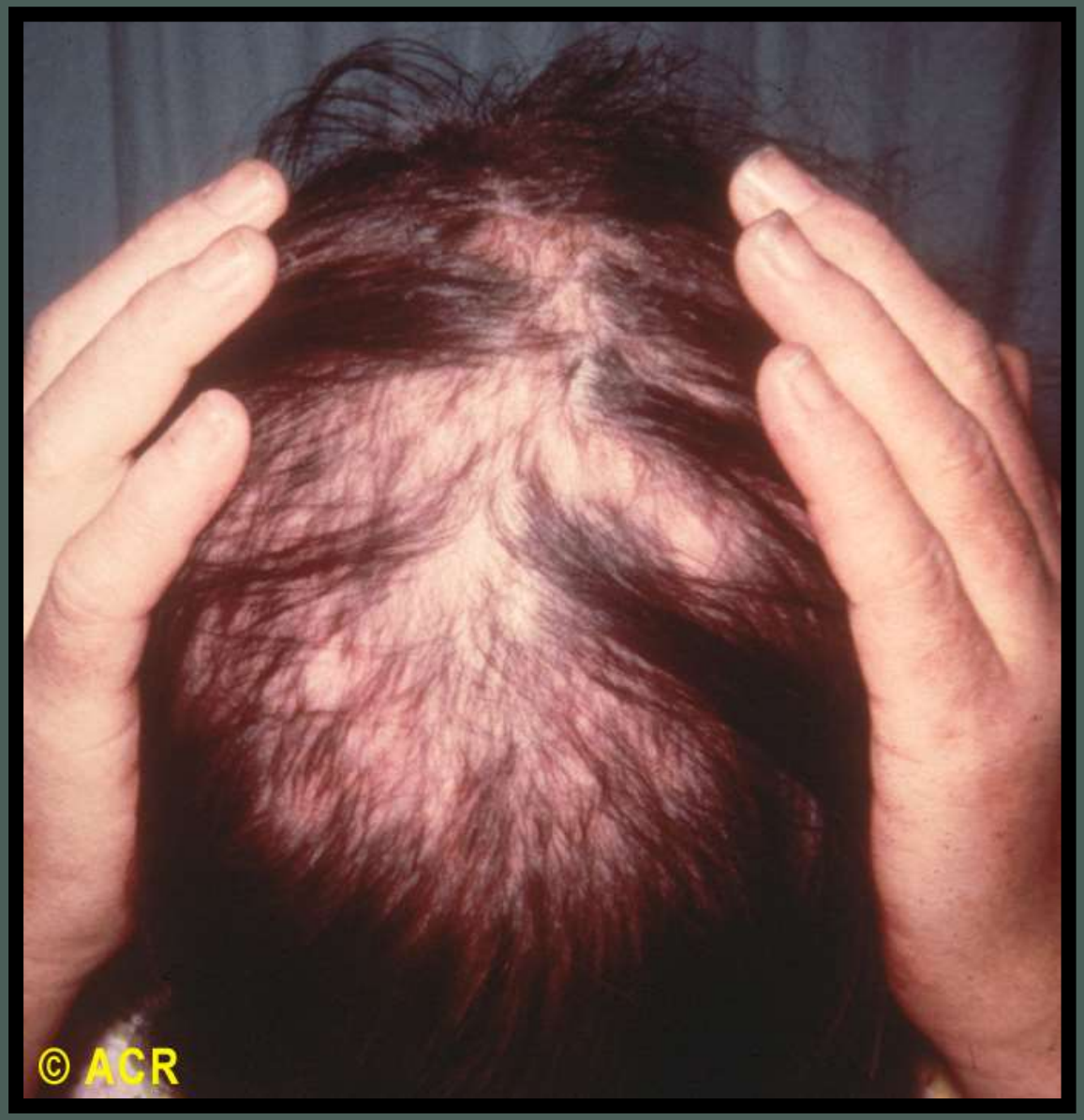
# Systemic lupus erythematosus: rash and erythema, face



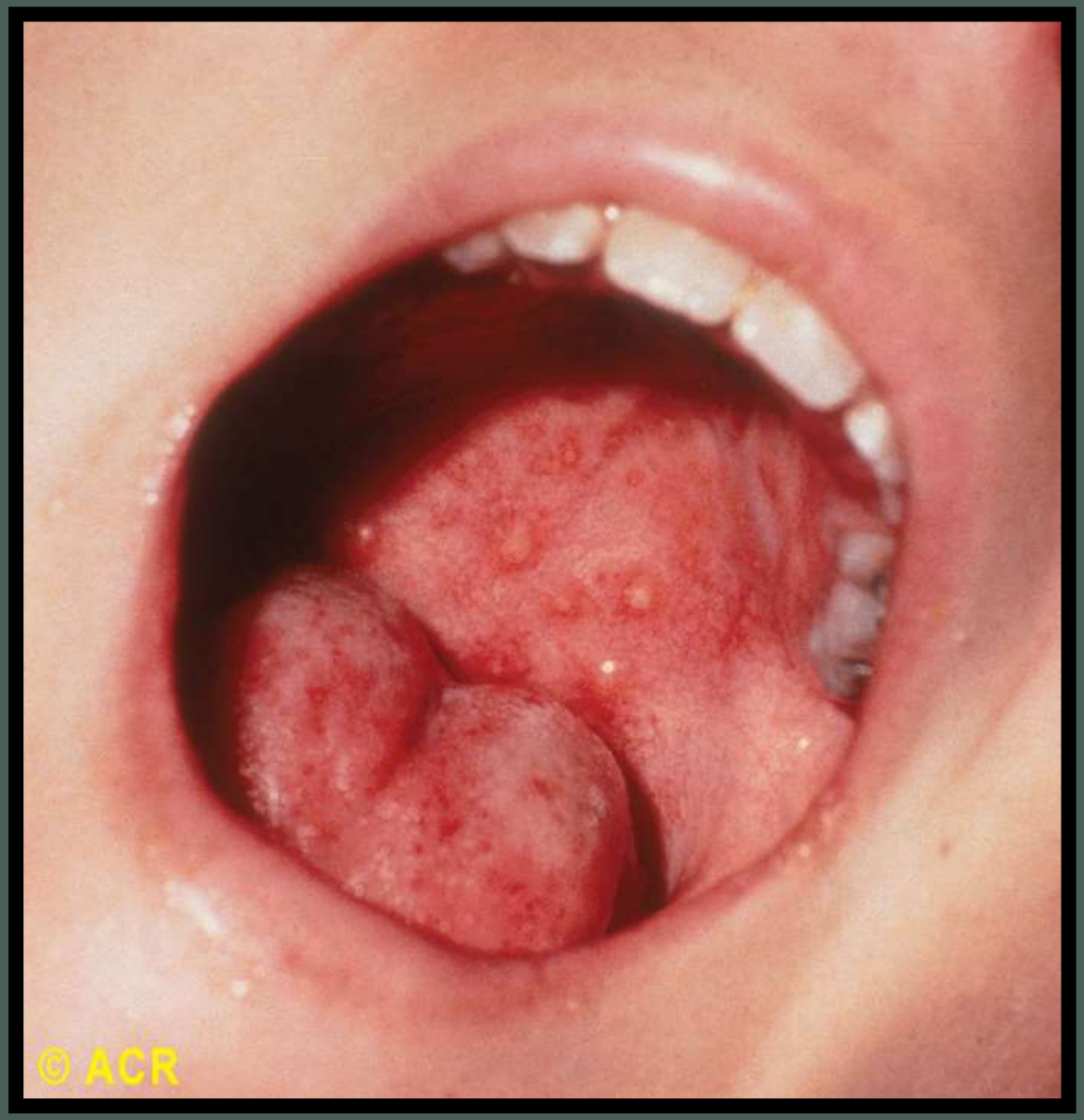
# Systemic lupus erythematosus: photosensitivity, face and neck



# Systemic lupus erythematosus: alopecia, scalp



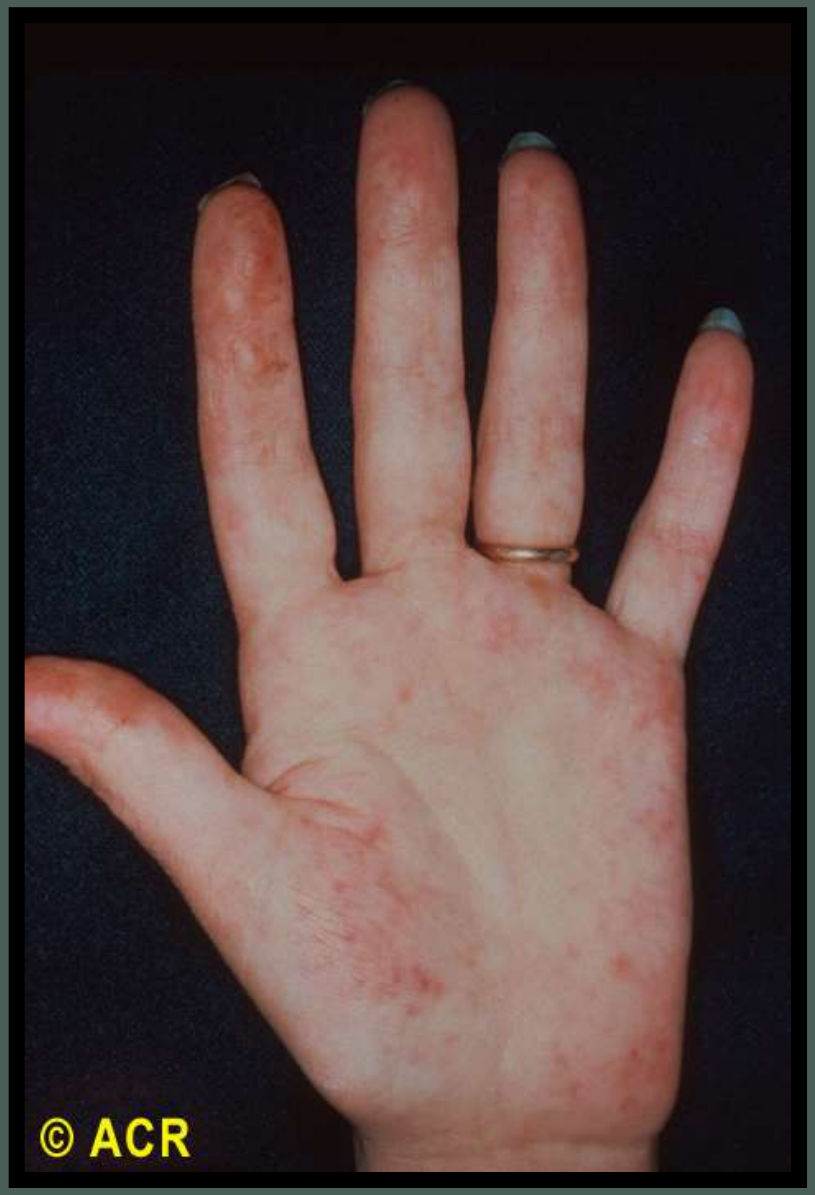
# Systemic lupus erythematosus: bullous lesions, palate



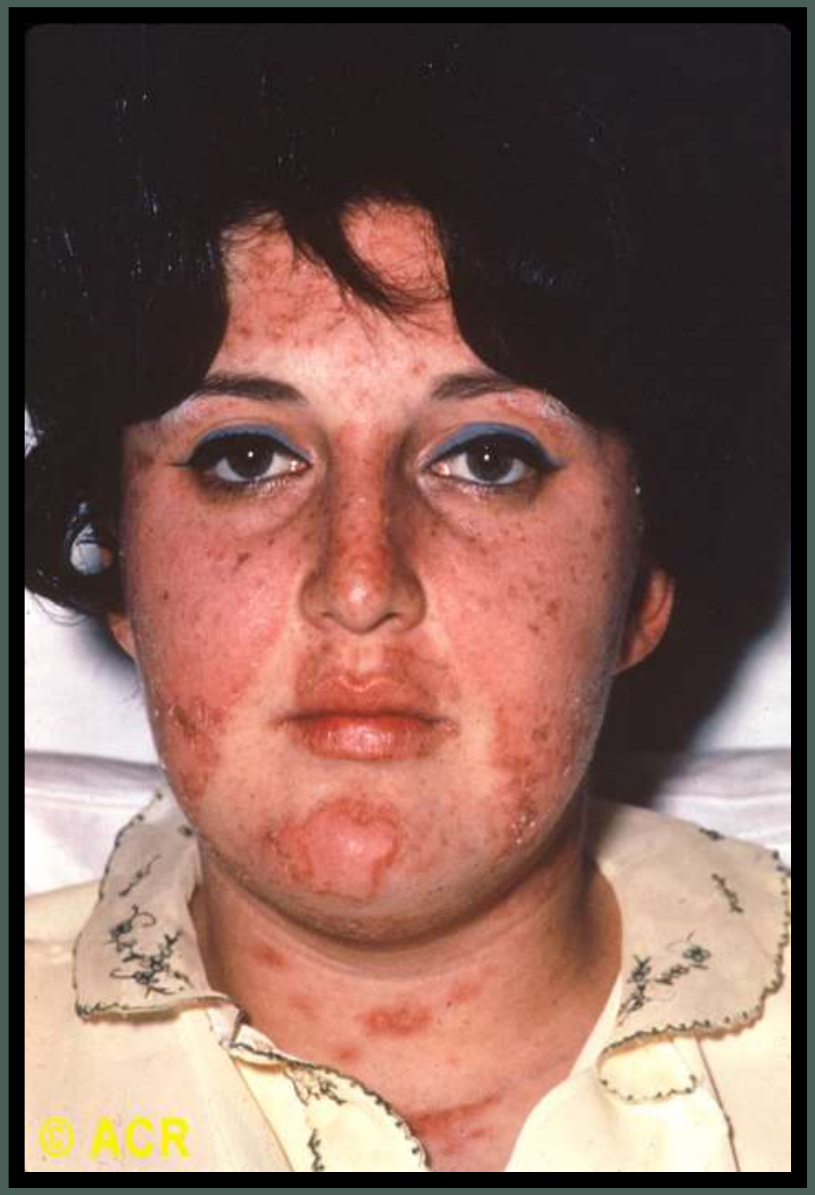
# Mixed connective tissue disease: nasal septal perforation


Wegener's granulomatosis, syphilis, other systemic diseases, and after trauma or nasal surgery

# Systemic lupus erythematosus: cutaneous lesions, hand



# Systemic lupus erythematosus: rash, face and neck

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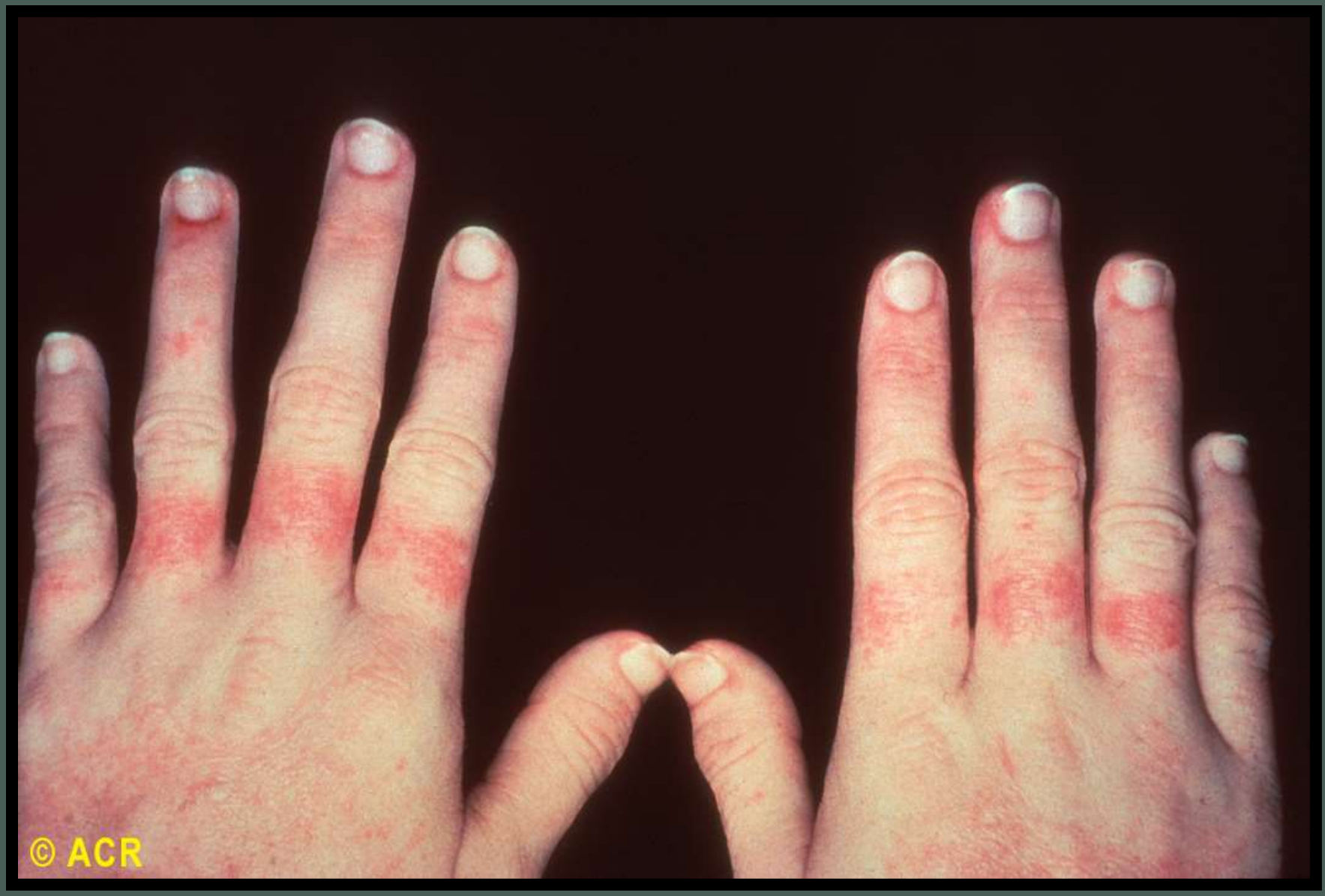
# Systemic lupus erythematosus: interarticular dermatitis, hands

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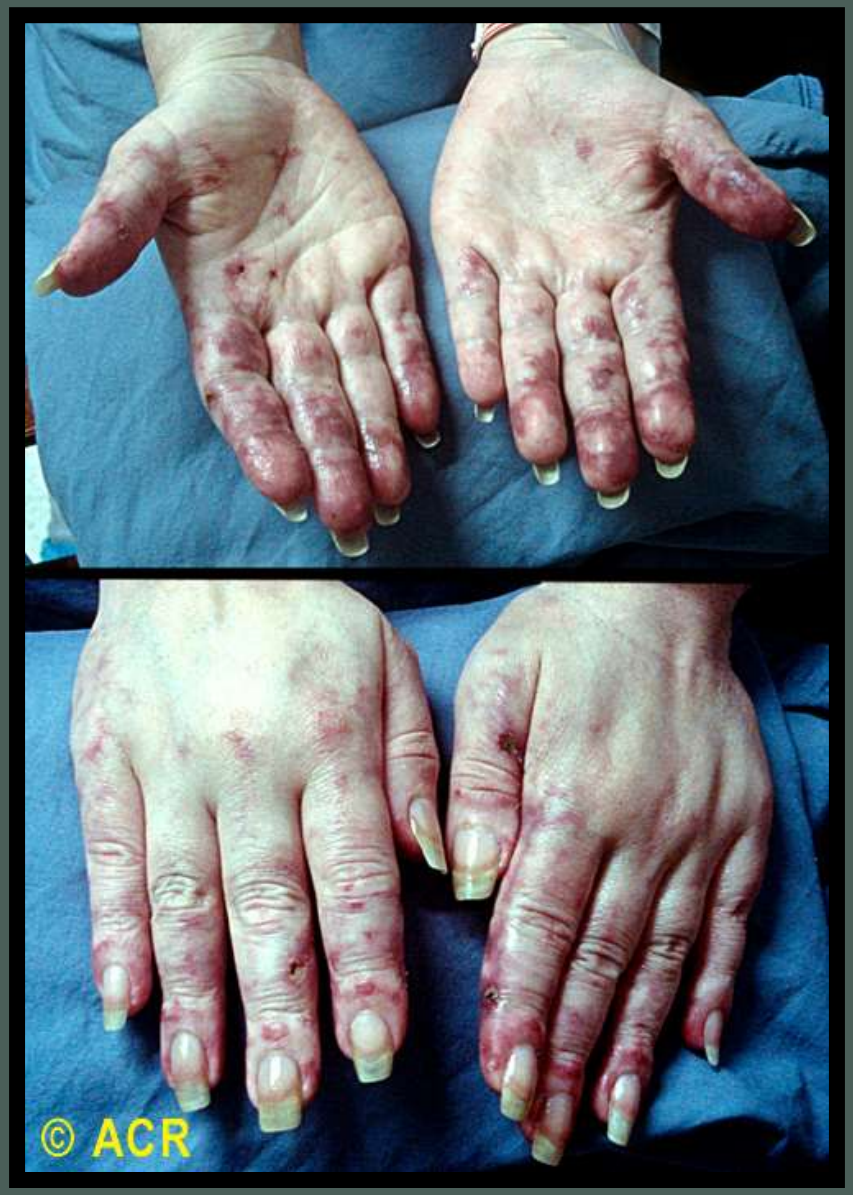
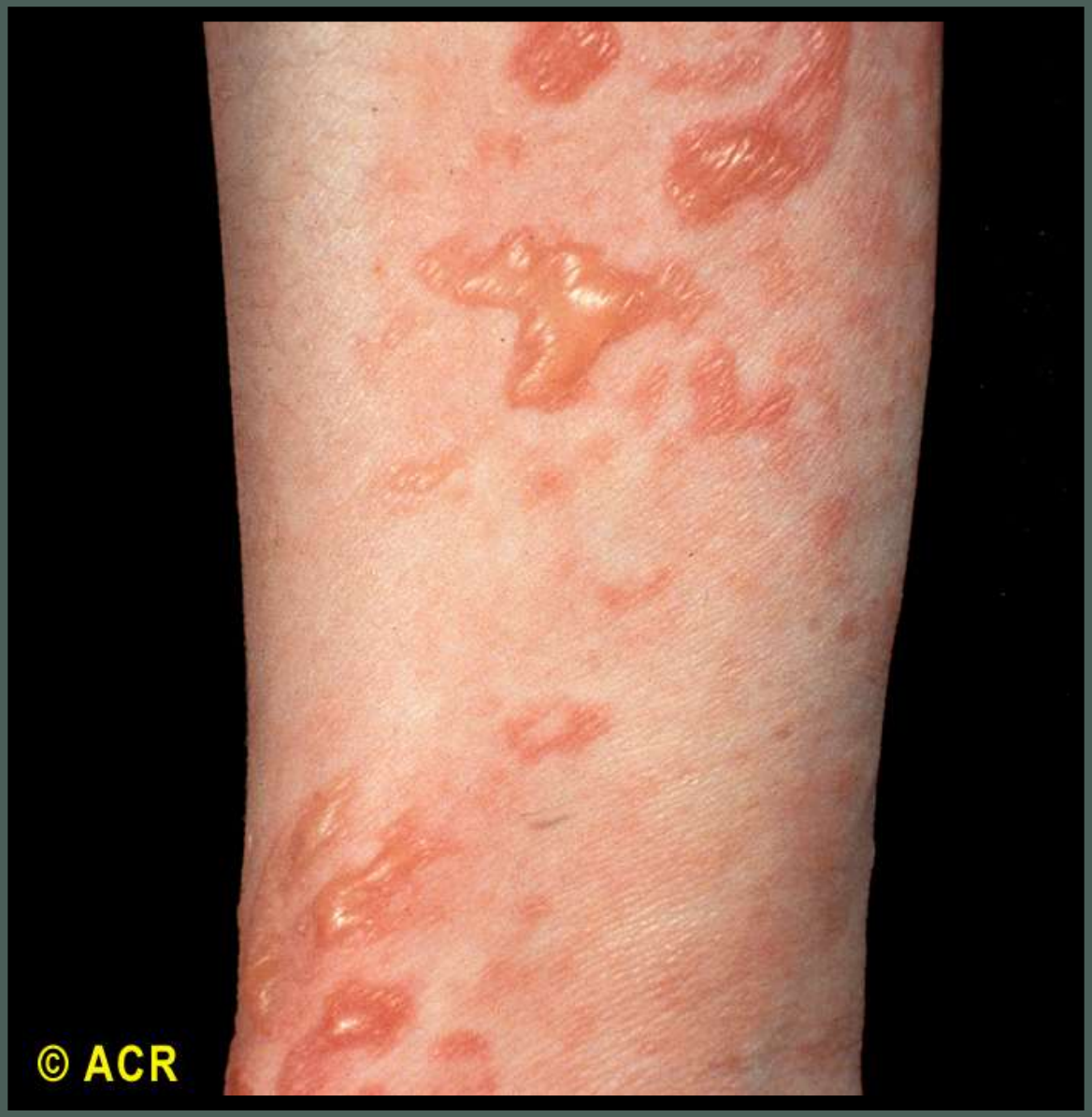
# Systemic lupus erythematosis: vasculitis, hands



# Systemic lupus erythematosus: bullous rash

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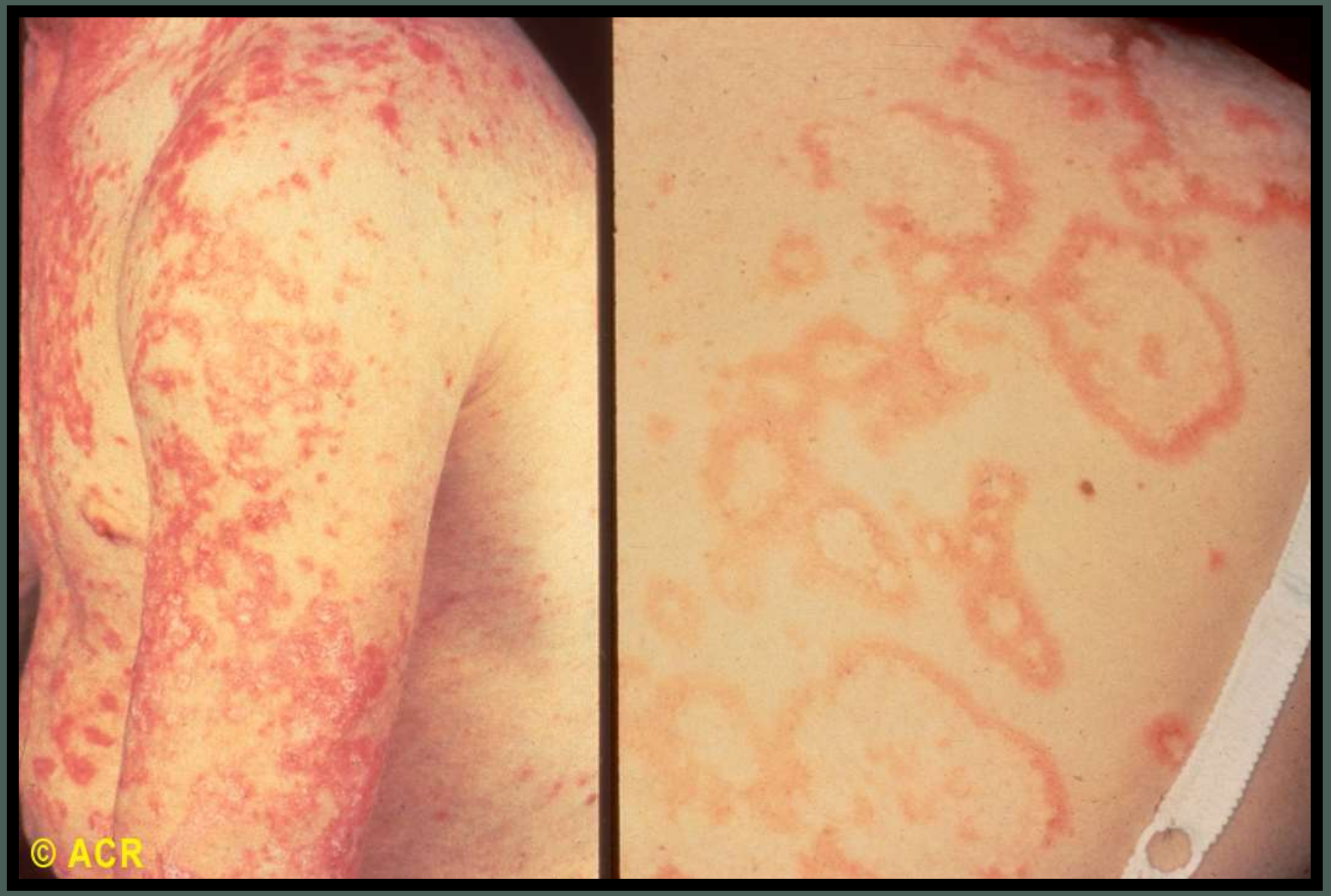
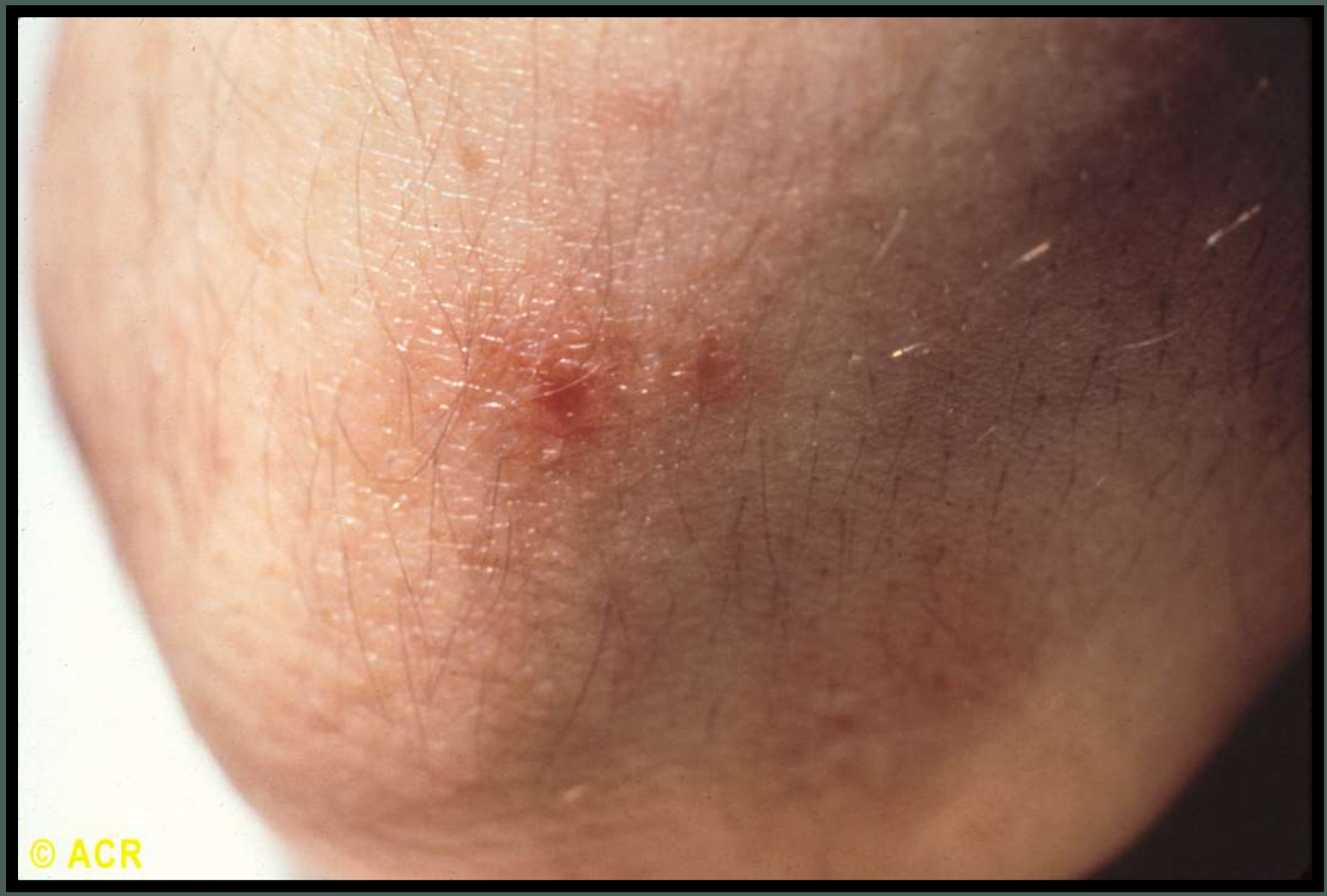
# Subacute cutaneous lupus erythematosus



# Systemic lupus erythematosus: vasculitic papule, elbow



# Cardiac involvement and vascular manifestations

variety of cardiac and vascular abnormalities can occur

can involve the pericardium, myocardium, valves, conduction system, and coronary arteries.

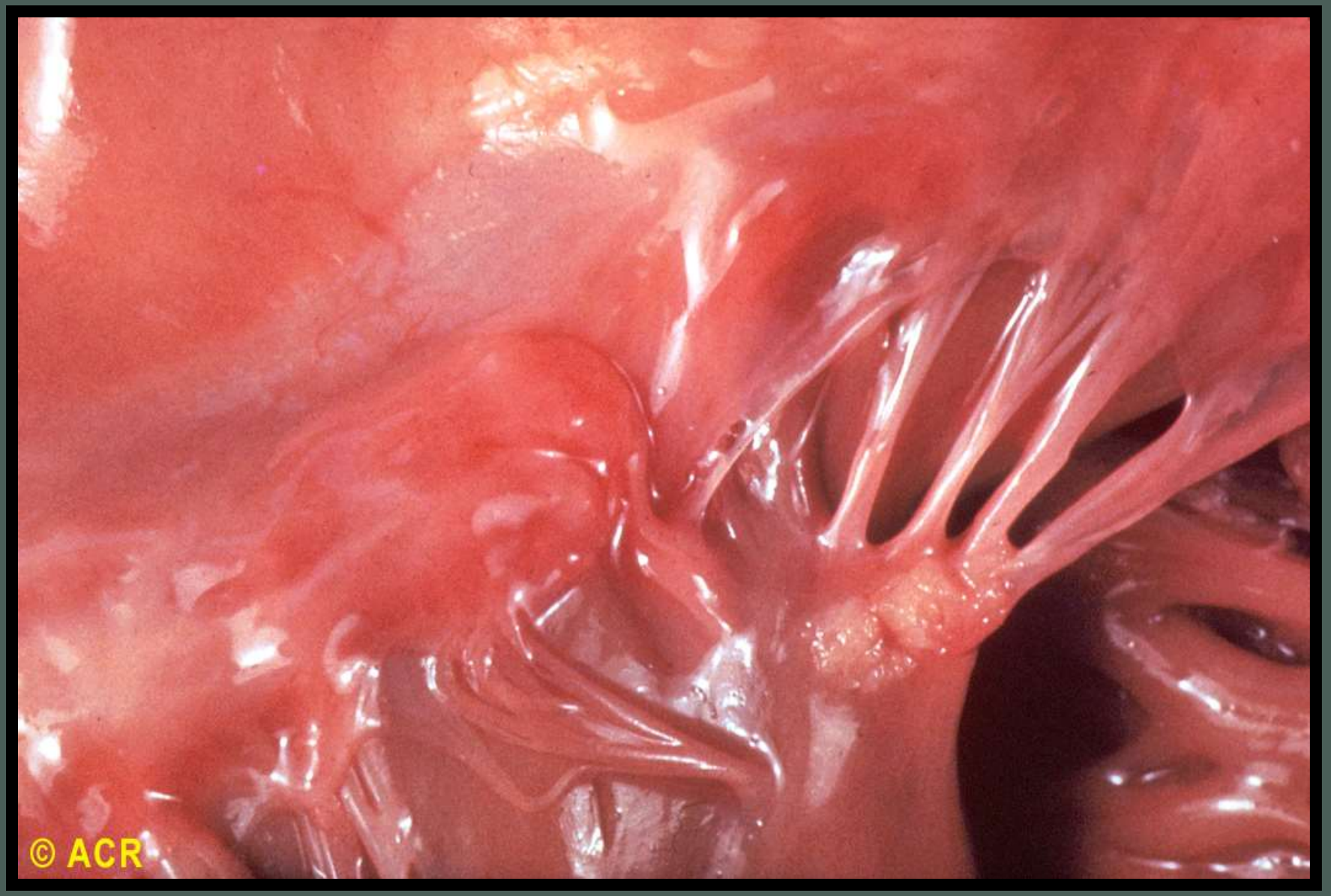
Pericarditis, with or without an effusion, is the most common cardiac manifestation of SLE, (25%)

Verrucous (Libman-Sacks) endocarditis is usually clinically silent, but it can produce valvular insufficiency and can serve as a source of emboli

Myocarditis is uncommon but may be severe.

Patients with SLE also have an increased risk of coronary artery disease.

# Systemic lupus erythematosus: Libman-Sacks endocarditis (gross specimen)



# Cardiac involvement and vascular manifestations

**Raynaud phenomenon –**

**a vasospastic process induced by cold that occurs in up to 50 percent of patients with SLE**

**characterized by intermittent acral pallor followed by cyanosis and erythroderma**

**Thromboembolic disease –**

**can complicate SLE, particularly in the context of antiphospholipid antibodies.**

**can affect both the venous and arterial circulations**

# Cardiac involvement and vascular manifestations

- **Vasculitis –**

**The clinical spectrum of vasculitis**

**involvement of vessels of all sizes.**

**Small vessel involvement is the most common, often manifesting as cutaneous lesions**

- **Cutaneous small-vessel vasculitis can manifest as**

**palpable purpura,**

**petechiae,**

**papulonodular lesions,**

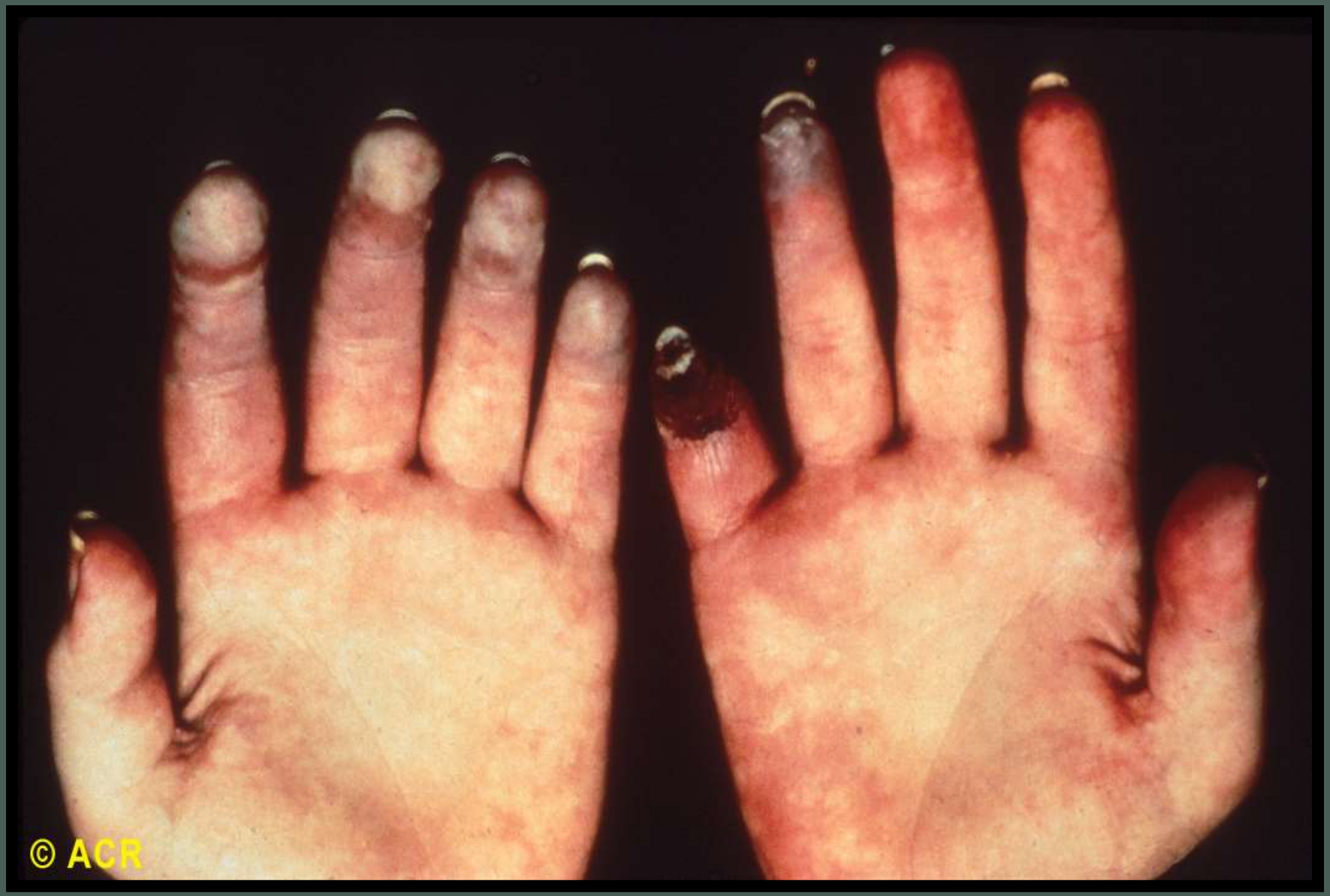
**livedo reticularis,**

**panniculitis,**

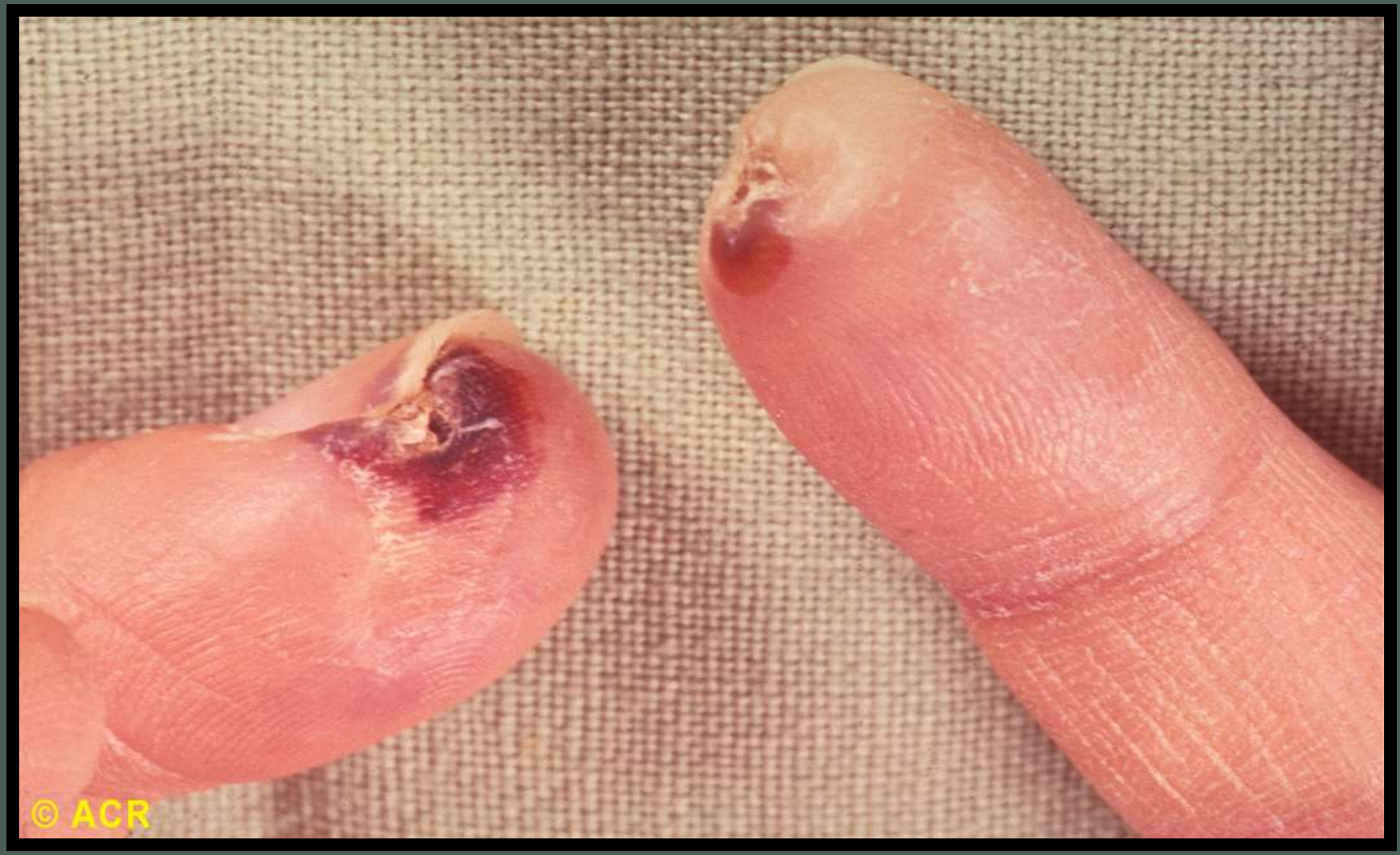
**splinter hemorrhages, and**

**superficial ulcerations**

# Systemic lupus erythematosus: digital gangrene, hands



# Vasculitis: fingers




Necrotic lesions due to vasculitis are seen on the fingertips

**Other specific types of vasculitic involvement in SLE include**

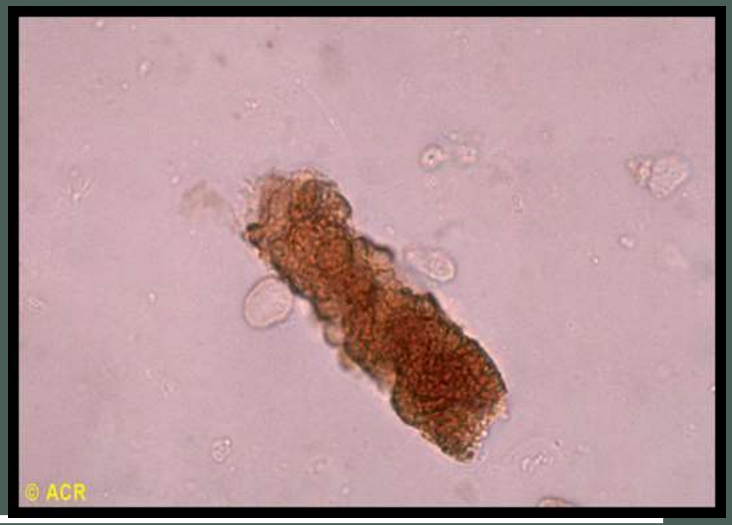
- **mesenteric vasculitis,**
- **hepatic vasculitis,**
- **pancreatic vasculitis,**
- **coronary vasculitis,**
- **pulmonary vasculitis,**
- **retinal vasculitis,**
- **vasculitis of the peripheral or central nervous system.**

# Renal involvement

**approximately 50 percent of SLE patients**
**a significant cause of morbidity and mortality**

**periodic screening for lupus nephritis (ongoing management ) with:**

- **urinalyses,**
- **quantitation of proteinuria, and**
- **estimation of the glomerular filtration rate**




red blood cell cast, urine

# Renal involvement

clinical presentation of lupus nephritis is highly variable, ranging from

- asymptomatic hematuria and/or
- proteinuria to nephrotic syndrome and
- rapidly progressive glomerulonephritis with loss of renal function.
- Some patients with lupus nephritis also have hypertension

Several forms of glomerulonephritis can occur,
renal biopsy is useful to define the type and extent of renal involvement.

# Gastrointestinal involvement

- Gastrointestinal symptoms are common
- occurring in up to 40 percent of patients.
- majority caused by adverse medication reactions and viral or bacterial infections

any organ along the gastrointestinal tract and include

- esophagitis,
- intestinal pseudo-obstruction,
- protein-losing enteropathy,
- lupus hepatitis,
- acute pancreatitis,
- mesenteric vasculitis or ischemia,
- peritonitis..

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# Pulmonary involvement

— During the course of their disease, many patients develop symptoms secondary to pulmonary involvement of SLE.

Pulmonary manifestations of SLE include

- pleuritis (with or without effusion),
- pneumonitis,
- interstitial lung disease,
- pulmonary hypertension,
- shrinking lung syndrome,
- alveolar hemorrhage.

Respiratory symptoms must also be distinguished from infection

The risk of thromboembolic involvement is increased in those with antiphospholipid antibodies or with lupus anticoagulant

# Neuropsychiatric involvement

**Broad range of neurologic and psychiatric manifestations, including**

- **cognitive dysfunction,**
- **organic brain syndromes,**
- **delirium,**
- **psychosis,**
- **seizures,**
- **headache, and/or**
- **peripheral neuropathies.**

**Other less common : cranial neuropathies, myelitis, and meningitis.**

**Psychosis, which may be due to SLE or to glucocorticoid treatment depression, anxiety, and mania.**

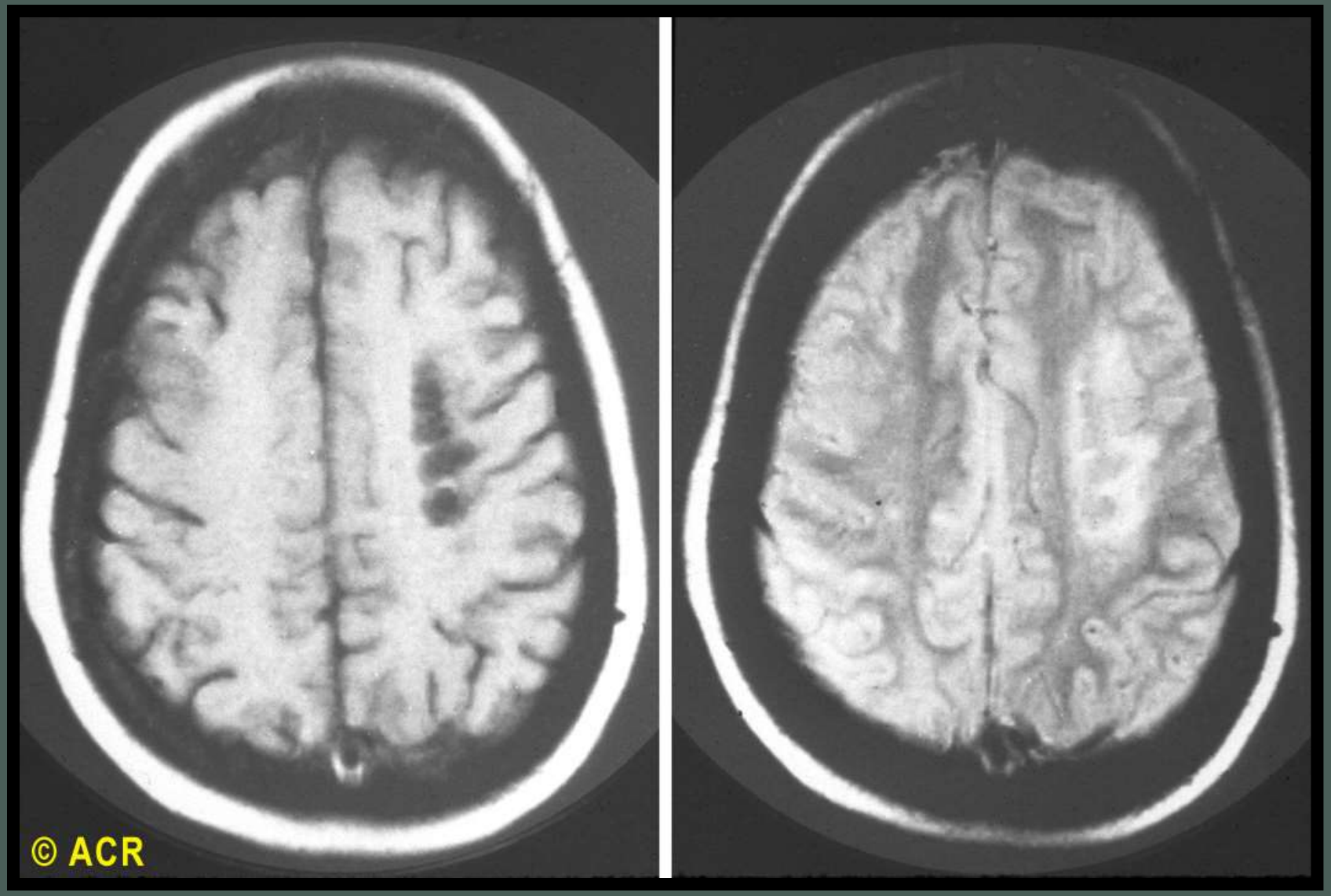
# Neuropsychiatric involvement

**Thromboembolic events,**

- **Often in association with antiphospholipid antibodies or with lupus anticoagulant,**

- **Arterial thromboemboli may cause focal neurologic problems, such as stroke or seizures and/or more diffuse cognitive defects**

# Systemic lupus erythematosus: brain (MRI) infarct secondary to vasculitis



# Ophthalmologic involvement

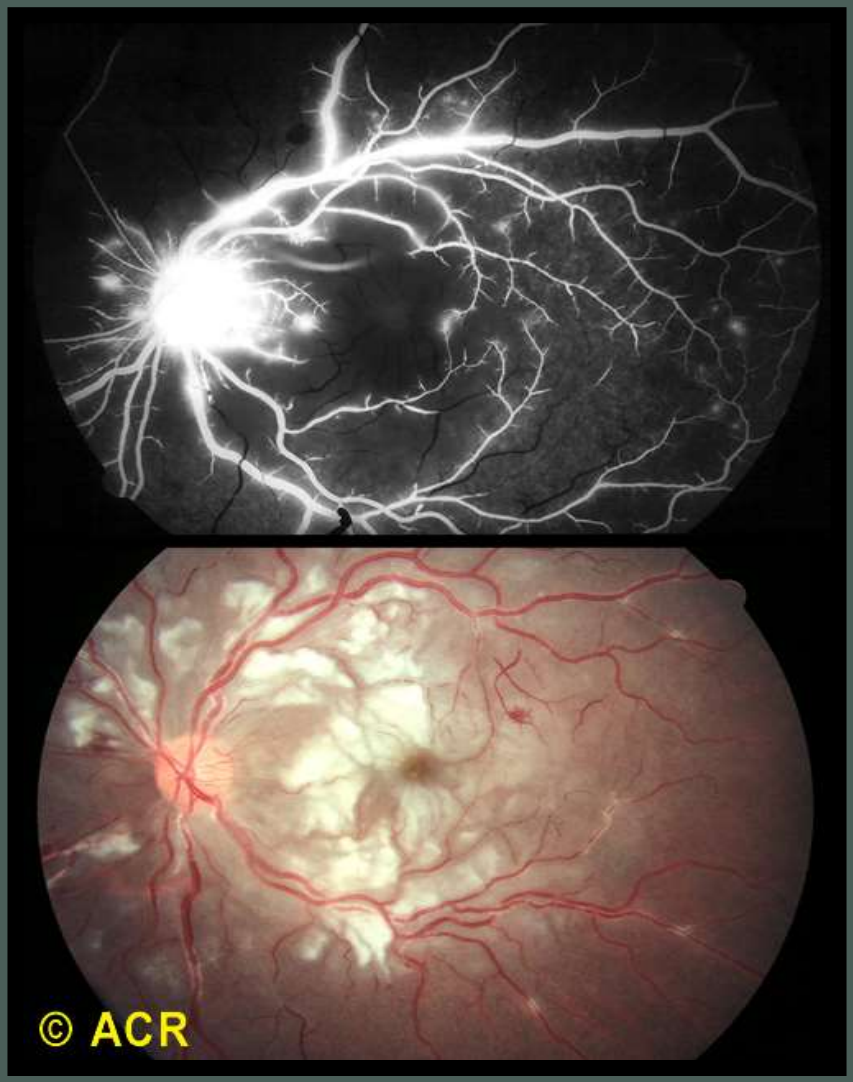
Any structure of the eye can be involved in SLE, keratoconjunctivitis sicca being the most common manifestation as a result of secondary Sjögren's

"Clinical manifestations of Sjögren's syndrome: Exocrine gland isease")

most common pathologic condition involving the eye in lupus patients is retinal vasculopathy in the form of cotton wool spots.

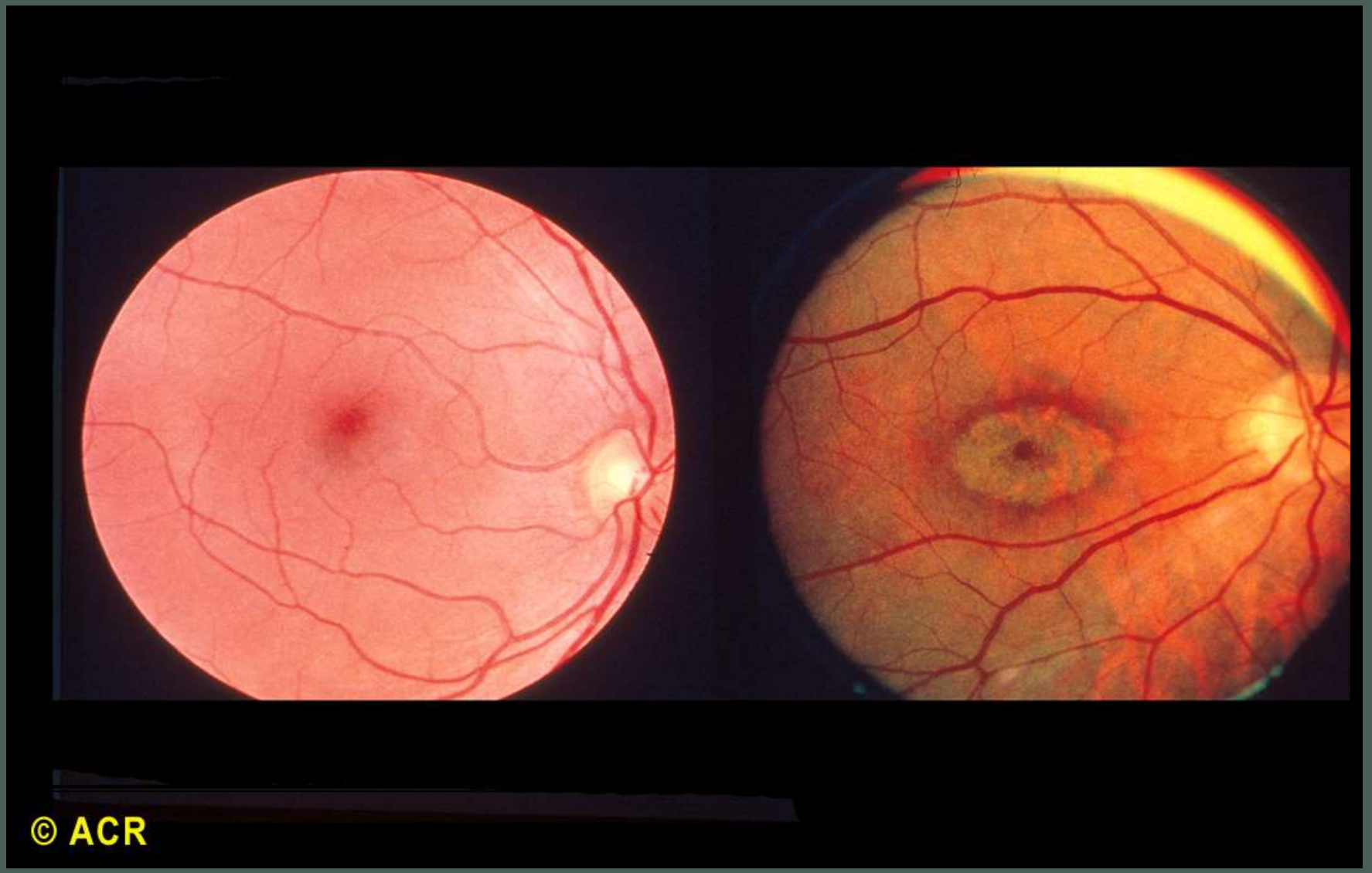
Other less common ophthalmologic manifestations of SLE include optic neuropathy, choroidopathy, episcleritis, scleritis, and anterior uveitis (iritis, iridocyclitis).

# Systemic lupus erythematosus: retinal vasculitis (fluorescein angiography and funduscopic photo)




Upper, non-perfused retinal arterioles (black lines)
Lower, Scattered intraretinal hemorrhages

# Systemic lupus erythematosus: hydroxychloroquine toxicity, eye




bull's-eye" lesion resulted from hydroxychloroquine therapy

# Drug-induced lupus: drug associations

| | |
|---|---|
| Hydralazine | Anticonvulsants |
| Procainamide | Quinidine |
| Minocycline | Propylthiouracil |
| Chlorpromazine | Sulfonamides |
| Isoniazid | Lithium |
| Penicillamine | Beta-blockers |
| Methyldopa | Nitrofurantoin |
| Interferon-alpha | Sulfasalazine |
| | Diltiazem |
| | Hydrazine,Interferon-gamma,TNF inhibitors |

# Autoantibody-disease associations

| Disease | Autoantibody target | Frequency (%) |
|---|---|---|
| Systemic lupus erythematosus (SLE) | ANA* | 90–95 |
| | dsDNA* | 65–75 |
| | RF | 15–35 |
| | Sm* | 20 |
| | RNP | 25–30 |
| | Ro/SSA | 30–40 |
| | La/SSB | 10–15 |
| | Ribosomal P | 10–20 |
| | Phospholipid* | 30–50 |
| | Ku | 10 |
| | Calreticulin | 35 |
| Subacute cutaneous | ANA | 70 |
| LE (SCLE) | Ro/SSA | >80 |
| Neonatal lupus erythematosus (NLE) | ANA | 30 |
| | Ro/SSA | 100 |
| | La/SSB | 60 |
| Drug induced LE | ANA | >90 |
| | Histone | 95–100 |

# Other associated conditions and complications

Antiphospholipid syndrome – Antiphospholipid antibodies, 40 %SLE

Immunodeficiencies – Hereditary angioedema

Fibromyalgia

Osteonecrosis

Osteoporosis

Infection

Other autoimmune diseases