



RAYNAUD'S DISEASE

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Epidemiology

- # 5-10% of US population
- # Mostly women
- # Between Ages of 15-20 (always before age of 40)
- # More prevalent in colder climate

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Definition of Raynaud's Phenomenon

- # Exposed to cold temperatures have transient digital ischemia secondary to exaggerated response of CNS
- # Term is used to represent these episodic events that represent vasoconstriction of the digital arteries, precapillary arterioles and cutaneous arteriovenous shunts

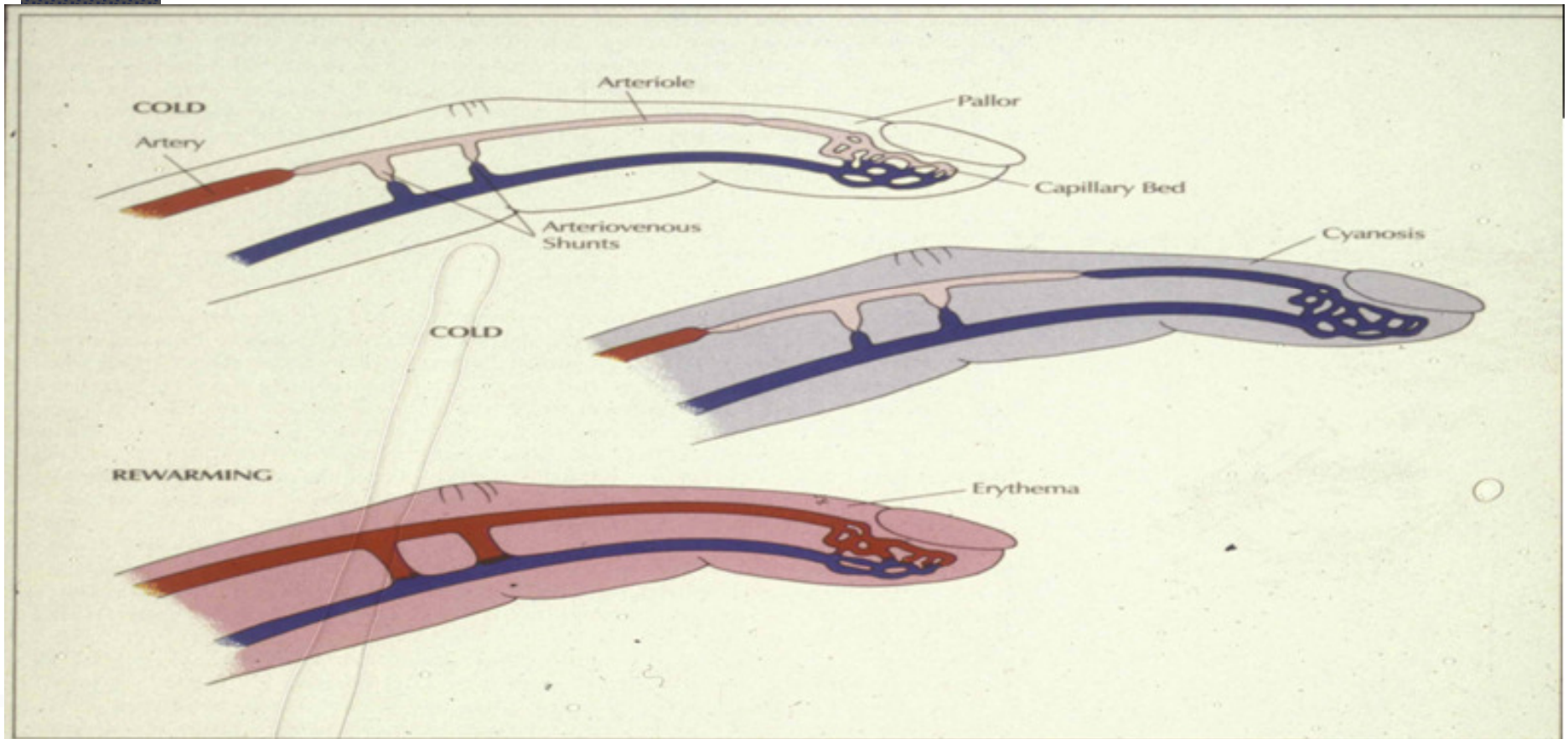
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Pathogenesis

- Episodic events of vasoconstriction of
 - Digital arteries
 - Precapillary arterioles
 - Cutaneous arteriovenous shunts
 - Starts in one or Several digits after exposure to the cold or a stressful situation
 - Then spreads symmetrically to all fingers of both hands
 - Ischemia
 - Demarcated pale or cyanotic skin on the digits.
 - Ends with rapid reflow of blood into the digits, shown as erythematous skin (reactive hyperemia)
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Mechanism of Color changes in Raynaud's Phenomenon



Mechanism of Color changes in Raynaud's Phenomenon





Diagnosis of Raynaud's Disease

- # History of sensitivity to the cold
- # History of Episodic pallor or cyanosis of the distal portions of the digits (or both) after exposure to the cold

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Etiology of Raynaud's disease

- # Primary Raynaud's disease
- # Second Raynaud's disease

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Primary Raynaud's disease

- ✦ Vasospastic attacks precipitated by cold or emotional stress
 - ✦ Symmetric attacks involving both hands
 - ✦ Absence of Tissue necrosis, Ulceration or Gangrene
 - ✦ No Evidence of microvascular damage in nail-fold capillaries
 - ✦ Normal ESR
 - ✦ Negative serologic findings,
 - Particularly Negative ANA
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Secondary Raynaud's disease

- # Age more than 30 years
- # Episodes
 - Intense
 - Painful
 - Asymmetric Skin Lesions
- # Specific Auto-Antibodies
- # Evidence of microvascular disease on microscopy of nail-fold capillaries

Cause of Secondary Raynaud's disease

Connective tissue disorders:

- SLE
- Rheumatoid arthritis
- Ehlers-Danlos Syndrome

Obstructive disorders

- Atherosclerosis
- Buerger's disease
- Subclavian aneurysms
- Thoracic outlet syndrome

Occupation

- Vibration , Drilling
- Exposure to the cold

Eating disorders

- Anorexia nervosa

Drugs

- Beta-blockers
- Chemotherapeutics
- Ergotamine
- Sulfasalazine

Others

- Hypothyroidism
 - Malignancy
 - Carpal tunnel syndrome
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Nail-Fold Capillaries

Capillaries are dilated and enlarged
Some areas are devoid of normal capillaries



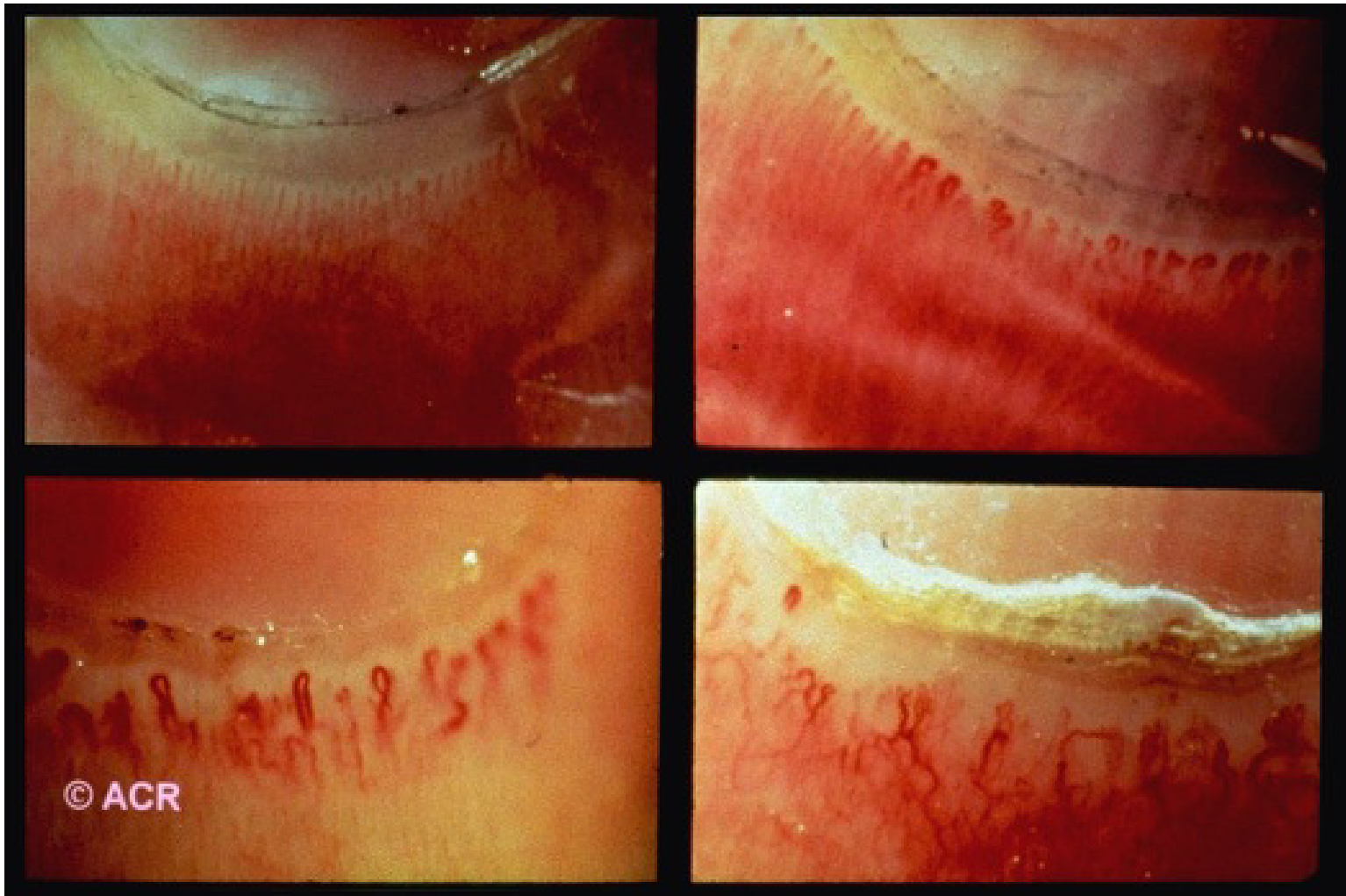
Nailfold capillaroscopy



Nailfold capillary abnormalities

Normal

Abnormal





Investigation

Blood Investigation

Complete Blood Count

ESR

Lipid Profile

Thyroid Function Test

ANA (Auto-antibodies)

Rheumatoid Factor

Imaginary Study

Angiography

Arterial Doppler

Ultrasonography – Chest & Abdomen

Digital plethysmography

Management

Life style Modification

Avoid Smoking

- Nicotine cause vasoconstriction
- Nicotine causes skin temperature to drop

Control Stress

- Emotional – Stress increase adrenaline – cause vasostriction.

Keep Warm Body Temperature

- Avoid cold temperatures
 - Dress warm: Gloves, layers
 - Air conditioning can trigger attacks
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Management

Medical Management

- ⌘ **Calcium channel blocker**
 - **Amlodipin**
 - **Nifedipin**
- ⌘ **Alpha receptor blocker**
 - **Prazosin**
- ⌘ **Angiotensine Receptor Blocker**
 - **Losartan**
- ⌘ **Vasodilator**
 - **Nitroglycerin**
- ⌘ **Serotonine Uptake Inhibitor**
 - **Fluoxetine**



Surgical Management

- # Sympathectomy
- # Microvascular surgery.

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