Epidemiology

- 5-10% of US population
- Mostly women
- Between Ages of 15-20 (always before age of 40)
- More prevalent in colder climate
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
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)
Mechanism of Color changes in Raynaud’s Phenomenon
Mechanism of Color changes in Raynaud’s Phenomenon

1. Fingers become white due to lack of blood flow
2. Blue as vessels dilate to keep blood in tissues
3. Finally red as blood flow returns
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
Etiology of Raynaud’s disease

- Primary Raynaud’s disease
- Second Raynaud’s disease
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
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
Nail-Fold Capillaries

Capillaries are dilated and enlarged
Some areas are devoid of normal capillaries
Nailfold capillaroscopy
Nailfold capillary abnormalities
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
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.