

SNS COLLEGE OF ALLIED HEALTH SCIENCE
Affiliated to The Tamil Nadu Dr. M.G.R Medical University, Chennai



DEPARTMENT OF PHYSICIAN ASSISTANT

COURSE NAME : SURGERY

UNIT : ARTERIES

TOPICS : RAYNAUD'S SYNDROME

FACULTY NAME : Ms. SINEKA M

INTRODUCTION (Define)

- Raynaud's syndrome, also known as Raynaud's phenomenon, involves **episodic vasospasm of peripheral blood vessels.**
- Mainly in **fingers and toes**, causing color changes (white, blue, red) triggered by cold or stress.



Raynaud's Syndrome



1. Skin turns white as
blood flow is restricted

2. Skin turns blue as
blood vessels react

3. Skin turns red as
blood flow returns

TYPES

PRIMARY RAYNAUD'S (RAYNAUD'S DISEASE):

- Idiopathic, no underlying cause.
- More common, benign, and typically symmetrical, affects both sides of the body equally.
- Usually begins in younger individuals, often women, between ages 15-30.



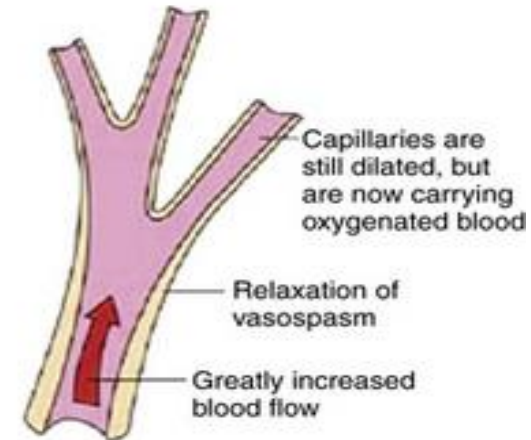
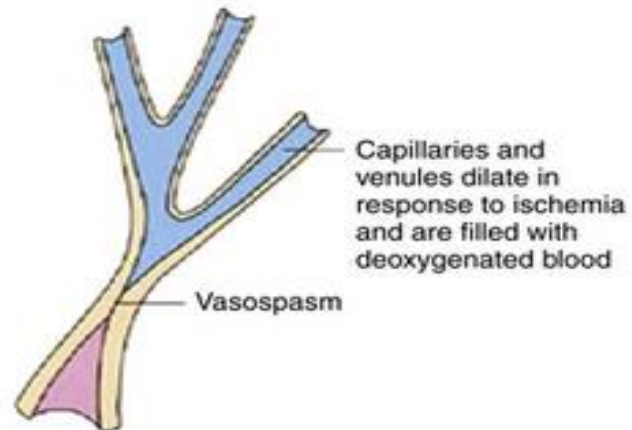
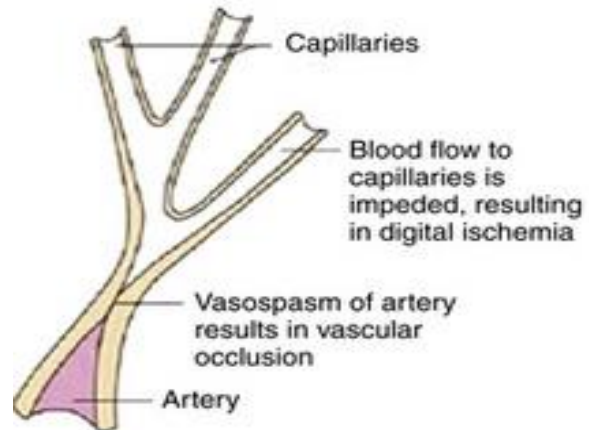
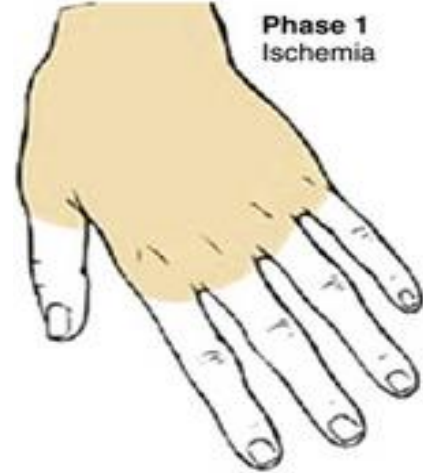
SECONDARY RAYNAUD'S (RAYNAUD'S PHENOMENON):

- Associated with an underlying condition, such as connective tissue diseases, vascular diseases, or external factors.
- Tends to be more severe, asymmetrical, and occurs later in life, often after age 30.



PATHOGENESIS

- **Vasospasm:** Over activation of the sympathetic nervous system or local vascular dysfunction causes constriction of small arteries and arterioles.
- **Endothelial Dysfunction:** Impaired nitric oxide production reduces vasodilation.
- **In Secondary Raynaud's:** Additional mechanisms include inflammation, fibrosis, or structural vessel damage due to underlying diseases.



The classic triphasic color change reflects:

- **Pallor (white)** - vasoconstriction and reduced blood flow;
- **Cyanosis (blue)** - deoxygenation of stagnant blood;
- **Rubor (red)** - reactive hyperemia upon rewarming.



CAUSES

Primary Raynaud's:

- Unknown etiology, likely a functional abnormality in vascular regulation
- Genetic predisposition may play a role

Secondary Raynaud's:

- Connective Tissue Diseases
- Vascular Diseases
- Occupational Factors
- Medications/Drugs



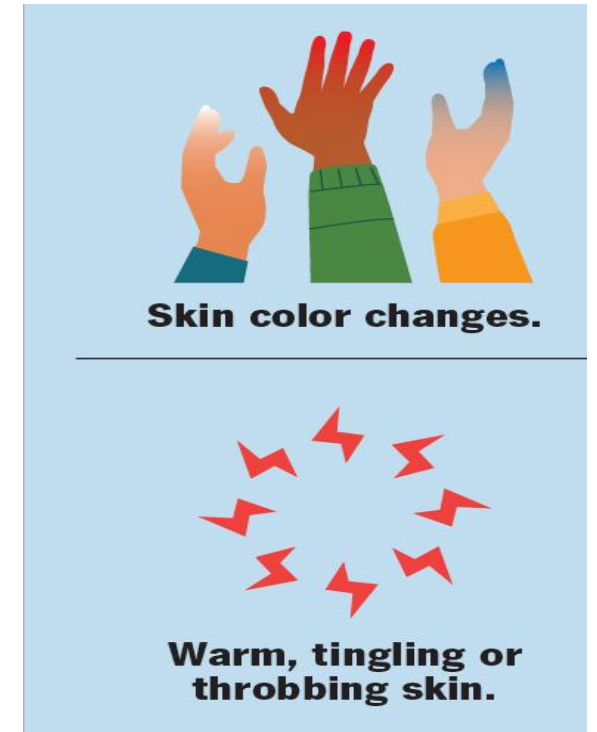
EPIDEMIOLOGY

- **Prevalence:** Approximately **3-5%** of the general population.
- **Age:** Primary Raynaud's typically onset in teens or 20s; secondary Raynaud's often later 30s-40s.
- **Sex:** More common in **women** than men.



CLINICAL PRESENTATION

- Episodic attacks triggered by cold or stress.
- Color changes in fingers, toes, ears, or nose (white, blue, red).
- Numbness, tingling, or pain during attacks, especially in rewarming phase.
- **Duration:** Attacks usually last **15-20 minutes** but can persist longer in severe cases.



- **Primary Raynaud's:** Symmetrical, no tissue damage, normal nailfold capillaroscopy.
- **Secondary Raynaud's:** May involve asymmetry, ulcers, gangrene, or digital pitting due to ischemia.



Cold or numb skin.



Painful sores on your fingers.

- **Vascular Studies:** Doppler ultrasound to assess blood flow or rule out occlusive disease.
- **Cold Stimulation Test:** Rarely used, monitors response to cold exposure.

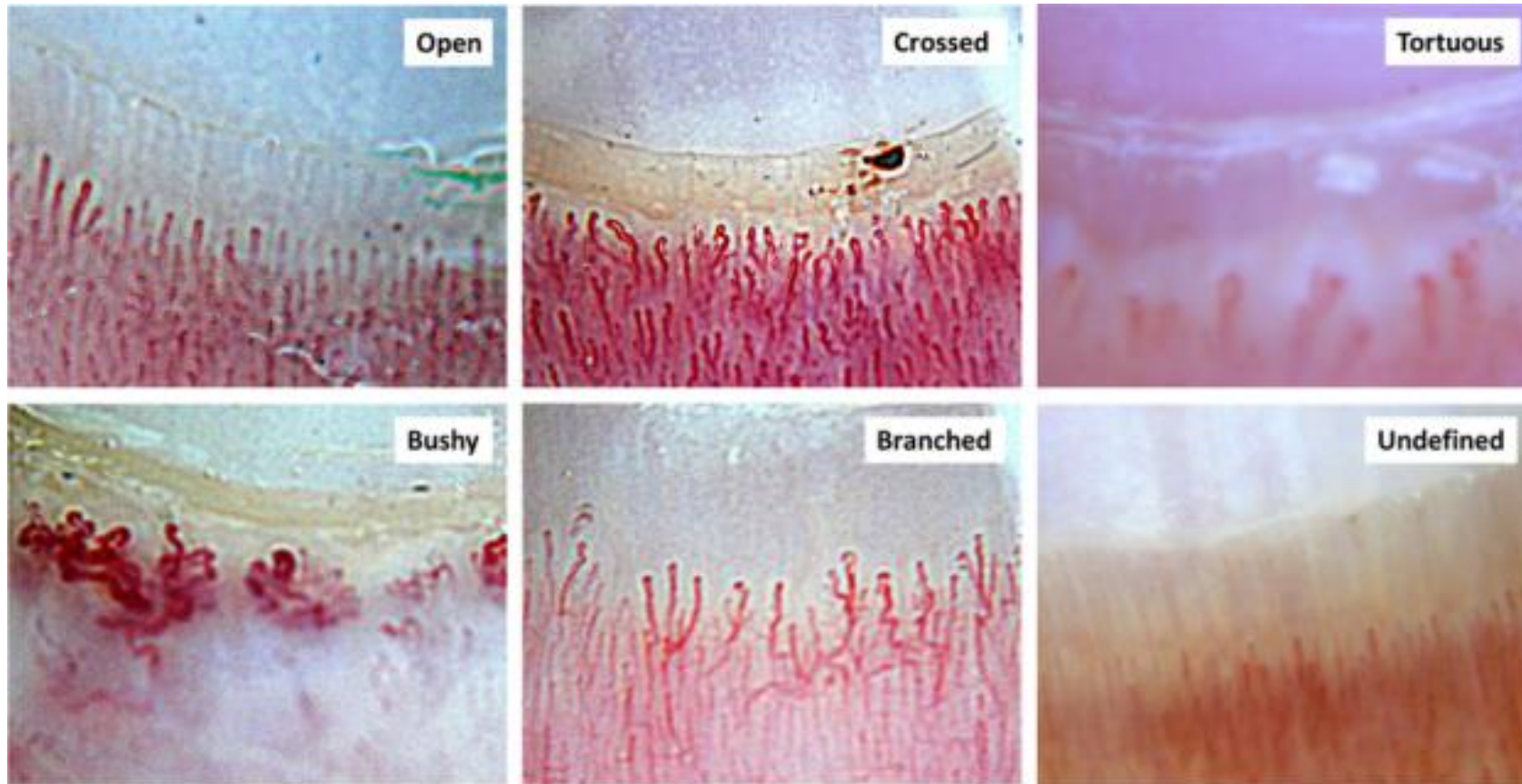
Cold stimulation test



(A) Cold stimulation test (CST) using an ice cube



(B) Ice cube test results



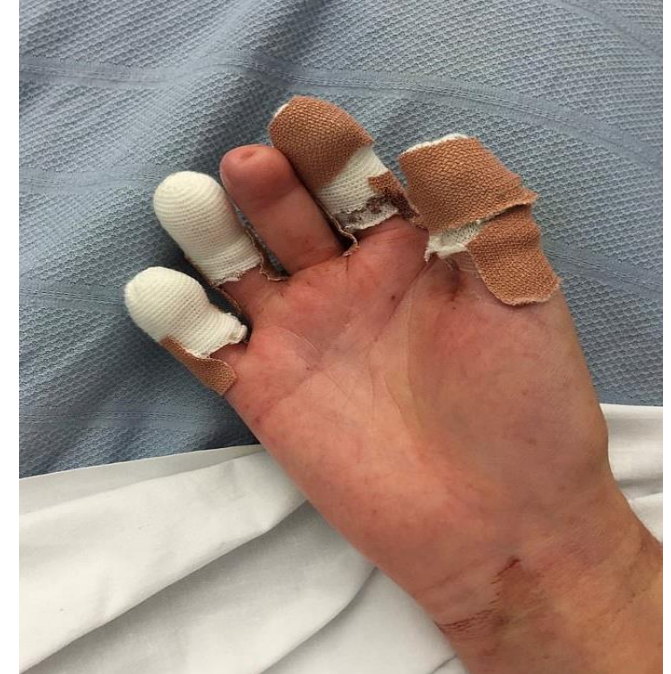
MANAGEMENT

➤ Sympathectomy:

- Cervical or Digital Sympathectomy cuts sympathetic nerves to reduce vasospasm.
- **Indications:** Persistent symptoms unresponsive to medical therapy, critical ischemia.
- **Outcomes:** Temporary relief (months to years), recurrence is common.

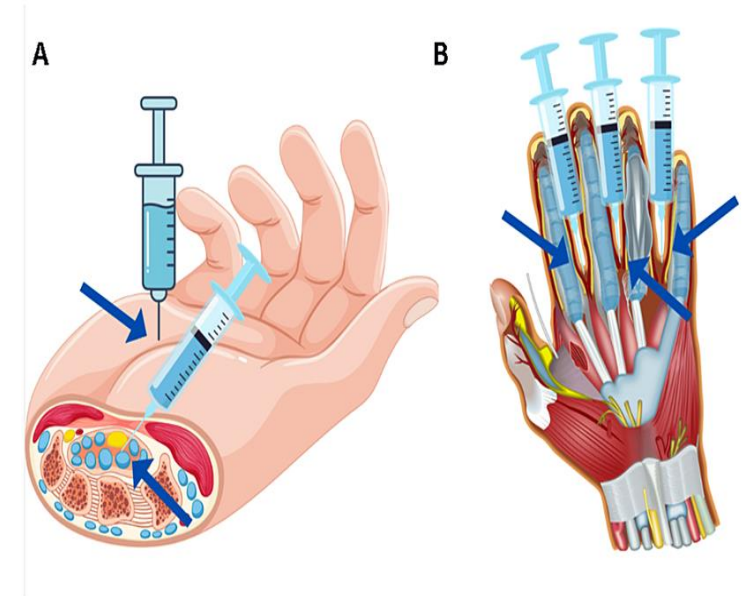


- **Microvascular Surgery:** Revascularization or arterial bypass for occlusive disease; limited applicability due to small vessel involvement.
- **Amputation:** Last resort for gangrene or non-healing ulcers causing severe tissue loss.

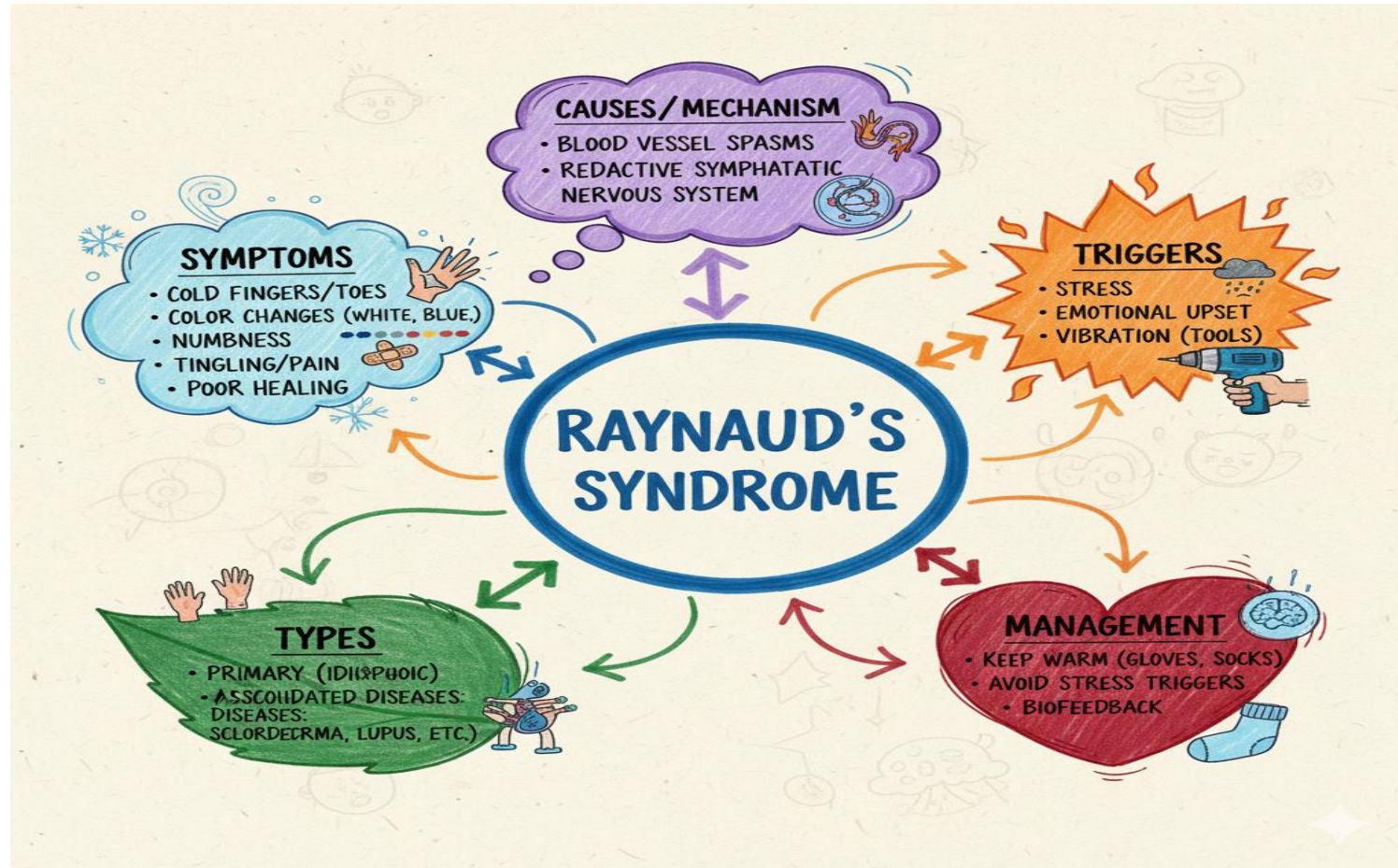


➤ Botulinum Toxin Injection:

- Injected into digital arteries to reduce vasospasm (not strictly surgical but invasive).
- Emerging evidence suggests benefit in severe cases



SUMMARY



References

- Textbook of Surgery – Kailash
- <https://my.clevelandclinic.org/health/diseases/9849-raynauds-phenomenon>
- <https://www.mayoclinic.org/diseases-conditions/raynauds-disease/symptoms-causes/syc-20363571>
- <https://www.hopkinsmedicine.org/health/conditions-and-diseases/raynauds-phenomenon>