

Review article on

Raynaud's phenomenon

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1 Introduction

Raynaud's disease is a rare disorder of the blood vessels, usually in the fingers and toes. It causes the blood vessels to narrow when cold or feeling overstressed. When this happens, blood can't get to the surface of the skin and the affected areas turn white and blue. When the blood flow returns, the skin turns red and throbs or tingles. In severe cases, loss of blood flow can cause sores or tissue death.

Definition:

Raynaud's phenomenon is an episodic vasospastic disorder of small cutaneous arteries, most frequently involving the fingers and toes. This phenomenon is characterized by vasospasm induced colour changes of the fingers, toes, ears and nose.

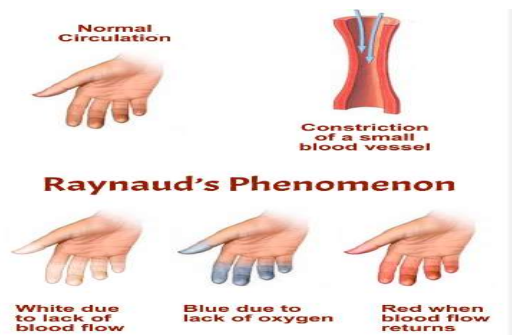
- A/c Lewis.

Raynaud's phenomenon is a form of intermittent arteriolar vasoconstriction that results in coldness, pain and pallor of the fingertips or toes

- A/c Brunner

Raynaud's disease refers to intermittent episodes during which small arteries or arterioles in extremities constrict, causing temporary pallor and cyanosis of the digits and changes in skin temperature. These episodes occur in response to cold temperature or strong emotion. As the episode passes, the colour changes give away to the redness. These local changes are not necessarily related to the status of the peripheral vascular system as a whole.

- A/c Suzanne E. Tatro



Incidence:

Primary Raynaud phenomenon occurs more frequently in women than in men. The prevalence by sex varies in different populations, ranging from 4.9%-20.1% in women to 3.8%-13.5% in men.

Primary Raynaud phenomenon usually occurs in the second or third decade of life.

Types of Raynaud's phenomenon:

There are two types of Raynaud's phenomenon.

- Primary Raynaud's phenomenon occurs on its own and not associated with unknown cause. It is the more common form of the condition. It can be so mild that many people with primary Raynaud's don't seek treatment. And it can go away on its own.
- Secondary Raynaud's phenomenon is associated with another problem, such as a rheumatic disease like lupus or scleroderma. Factors such as exposure to cold or certain chemicals may also underlie this Phenomenon. The secondary form is less common but typically more serious than the primary form due to damage that occurs to the blood vessels.

Causes:

For primary phenomenon:

Cold temperatures are the most likely cause of an attack. Examples are putting hands in cold water, taking something from a freezer or being in cold air. For some people, emotional stress can trigger an episode.

For secondary Raynaud's include:

- **Connective tissue diseases.** Most people who have a rare disease that leads to hardening and scarring of the skin, known as scleroderma, have Raynaud's. Other diseases that increase the risk of Raynaud's include lupus, rheumatoid arthritis and Sjogren's syndrome.
- **Diseases of the arteries.** These include a build-up of fatty deposits in blood vessels of heart and a disorder in which the blood vessels of the hands and feet become inflamed.
- **Carpal tunnel syndrome.** This condition involves pressure on a major nerve to the hand causes numbness and pain so that can make the hand react more to cold temperatures.
- **Repeated actions or vibration.** Typing, playing piano or doing movements like that for long periods can cause overuse injuries. So can using vibrating tools, such as jackhammers.
- **Smoking.** Smoking narrows blood vessels.
- **Injuries to the hands or feet.** Examples include a wrist fracture, surgery or frostbite.
- **Certain medicines.** These include beta blockers for high blood pressure, some migraine medicines, attention-deficit/hyperactivity disorder medicines,

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certain cancer medicines and some cold medicines.

Risk factors

Risk factors for primary Raynaud's include:

- **Sex.** The condition affects more women than men.
- **Age.** Although anyone can develop the primary Raynaud's often begins between the ages of 15 and 30.
- **Climate.** The illness also is more common in people who live in colder climates.
- **Family history.** Having a parent, sibling or child with the disease appears to increase the risk of primary Raynaud's.
- **Certain substances.** This includes smoking, taking medicines that affect the blood vessels and being around certain chemicals, such as vinyl chloride.

Symptoms:

Raynaud's most commonly affects fingers and toes. But it also can affect other areas of the body, such as nose, lips, ears and even nipples. After warming up, the return of blood flow to the area can take 15 minutes.

- Fingers and toes get cold easily.
- Hands or feet turn white or blue colour usually it occurs in either hands or both feet at the same time.
- Sensation of pins and needles, numbness. Possible clumsiness in hand, feet, fingers, or toes.
- Color changes may not be symmetrical—start in one finger, then spread to other fingers. This is more common in secondary Raynaud's.

If the Raynaud's worsens over time, you may develop ulcers (sores) on the tips of fingers or toes. This is more likely with secondary Raynaud's.



Diagnosis

- ❖ Health care provider collects a thorough history collection and do a physical exam.
- ❖ Cold stimulation test, temperature sensor are taped to the fingers of the hand. The hand is briefly exposed to the cold, usually by drinking it in the water
- ❖ A Nail fold capillaroscopy test is too performed to differentiate between primary and secondary Raynaud's. During the test, the provider uses a microscope or magnifier to look for anything unusual on the skin at the base of a fingernail. This might include swelling of the blood vessels.
- ❖ Blood tests include:
 - Antinuclear antibodies test, also called an ANA test. A positive test result often means that immune system is mistakenly attacking body tissue. This is called an autoimmune reaction. It is common in people with connective tissue diseases or autoimmune disorders.
 - Erythrocyte sedimentation rate.

2 Medical Management:

- Depending on the cause of symptoms, medicines might help. Medicines used to treat people with Raynaud's disease may include:
 - **Calcium channel blockers.** These drugs relax and open small blood vessels in the hands and feet. These drugs also can help heal sores on fingers or toes. Examples include nifedipine (Procardia), amlodipine (Norvasc), felodipine and isradipine.
 - **Alpha blockers** (eg: prazosin, doxazosin, reverse the effects of hormone, norepinephrine)
 - **Vasodilators.** These drugs relax blood vessels.
- Chemical injection.** Shots of numbing medicines or onabotulinum toxin A (Botox) can block nerves in affected hands or feet. Some people need to have this more than once if symptoms remain or return.

3 Surgical management:

- **Nerve surgery.** Nerves in the hands and feet control opening and narrowing of blood vessels in skin. Cutting these nerves stops those responses. Through small incisions in the affected hands or feet, a provider strips tiny nerves around the blood vessels.

4 Complications

If secondary Raynaud's is severe, reduced blood flow to fingers or toes could cause tissue damage. But that's rare, a completely blocked artery can lead to skin sores or dead tissue.

5 Nursing management:

- Educate the patient regarding life style modifications
 - ✚ Avoid the particular evoking stimuli like cold , tobacco and smoke , as they provoke vasoconstriction
 - ✚ **Encourage the person to do regular exercise**
 - ✚ **Manage stress.**
 - ✚ **Avoid rapidly changing temperatures.** Try not to go quickly from heat to air conditioning.
- Warm the hands, feet or other affected areas.
- Dressing for the cold in layers and wearing gloves or heavy socks usually can help mild symptoms of Raynaud's.
- Get indoors or to a warmer area.
- Wiggle fingers and toes.
- Place hands under armpits.
- Make wide circles with arms.
- Run warm — not hot — water over fingers and toes.
- Massage hands and feet.

If stress triggers an attack, get away from the stress and relax. Practice a stress-relieving technique that works for you. Warm hands or feet in water to help lessen the attack.

Alternative medicine

Certain practices and supplements that help blood flow better might help manage Raynaud's. However, alternative medicine practices need to know how much they can help Raynaud's.

- **Fish oil.** Taking fish oil supplements could increase blood flow.
- **Ginkgo.** Ginkgo supplements could help lessen the number of Raynaud's attacks.
- **Acupuncture.** This practice seems to improve blood flow.

Bio feedback. Biofeedback includes guided imagery to raise the temperature of hands and feet, deep breathing, and other exercises for relaxing.

6 Conclusion

Raynaud's disease is a very common condition. Its patients should be referred to a doctor as soon as possible to help differentiate between primary and secondary Raynaud's. Comprehensive history and physical exams can dictate the scope of the follow-up.

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