

## Uncommon Ischemic Wounds

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### 1. Raynaud's

**Definition:** ulcers due to Raynaud's

**Location, mechanism:**

- Raynaud's ulcers usually occur at the tip of digits, likely via at least two major mechanisms:
  - a. Initially arteriolar spasm leads to cyanosis and coldness, then
  - b. with advanced disease, consisting of fixed lumen obstruction, more tissue breakdown occurs.

**Types:**

- Raynaud's is traditionally classified as being:
  - a. primary, a.k.a., Raynaud's disease or idiopathic, where the underlying cause has not been determined, and
  - b. Raynaud's phenomenon, a.k.a., Raynaud's syndrome or secondary Raynaud's, where the underlying cause has been identified.

**Causes:**

- Ulcers in Raynaud's are understudied.
- Found in advanced cases of Raynaud's where, in addition to arteriolar spasm causing 'functional' stenosis, fixed digit artery obstruction also develops, from structural abnormalities, e.g., intimal layer proliferation, in the vessel wall.
- Raynaud's can have several causes, e.g., connective tissue disorders, drugs, occupational activities that cause hand vibration, often aggravated by cold exposure.

**Scope of Problem:** Raynaud's prevalence is about 8% of men and 11% of women. Ulcers due to Raynaud's are rare.

**Differential Diagnosis:** acute trauma; frostbite; chilblains.

**Diagnosis:**

History: chronic, recurrent color changes of distal digits, pallor, rubor and/or cyanosis, especially with cold exposure. Background of known causes of Raynaud's, e.g., lupus.

PE: distal digit skin breakdown accompanying cold cyanotic digit tissue.

Lab: positive ANA; cold agglutinin study; high erythrocyte sedimentation rate.

Imaging: decreased amplitude of pulse volume recording (PVR) of distal digit.

**Treatment**

Treat cause of Raynaud's, if found. Try hemorrheologic drugs (hydralazine, doxazosin, pentoxifylline, cilostazol). Try cardiosynchronous intermittent limb compression therapy (CSILC) (Circulator Boot®, ArtAssist® in the US; Vascupump® in Europe).

<b>2.Hypertensive ischemic (Martorell's) (rare):</b>
<b>Definition:</b> ulcers, usually at the leg, painful, reflecting underlying arteriolar degeneration in the dermis from uncontrolled hypertension.
<b>Causes:</b> uncontrolled hypertension.
<b>Scope of Problem:</b> rare.
<b>Differential Diagnosis:</b> venous stasis ulcers (usually painless); ischemic ulcers from large artery obstruction (usually at the end of the arterial tree – toes, foot).
<b>Diagnosis:</b> <u>History:</u> Painful wounds (likely via local tissue ischemia), usually on the leg, in hypertensives. <u>PE:</u> Skin breaks down, likely via arteriole degeneration in the dermis. <u>Labs:</u> not usually helpful. <u>Imaging:</u> Arterial Doppler determined ankle/arm index or arterial duplex ultrasound analysis can determine the uncommon concomitant presence of named artery obstruction.
<b>Treatment:</b> Treat hypertension; analgesics for pain; local wound care, e.g., collagenase (Santyl®).