



# Clinical Guidelines: Arterial Leg Ulcers

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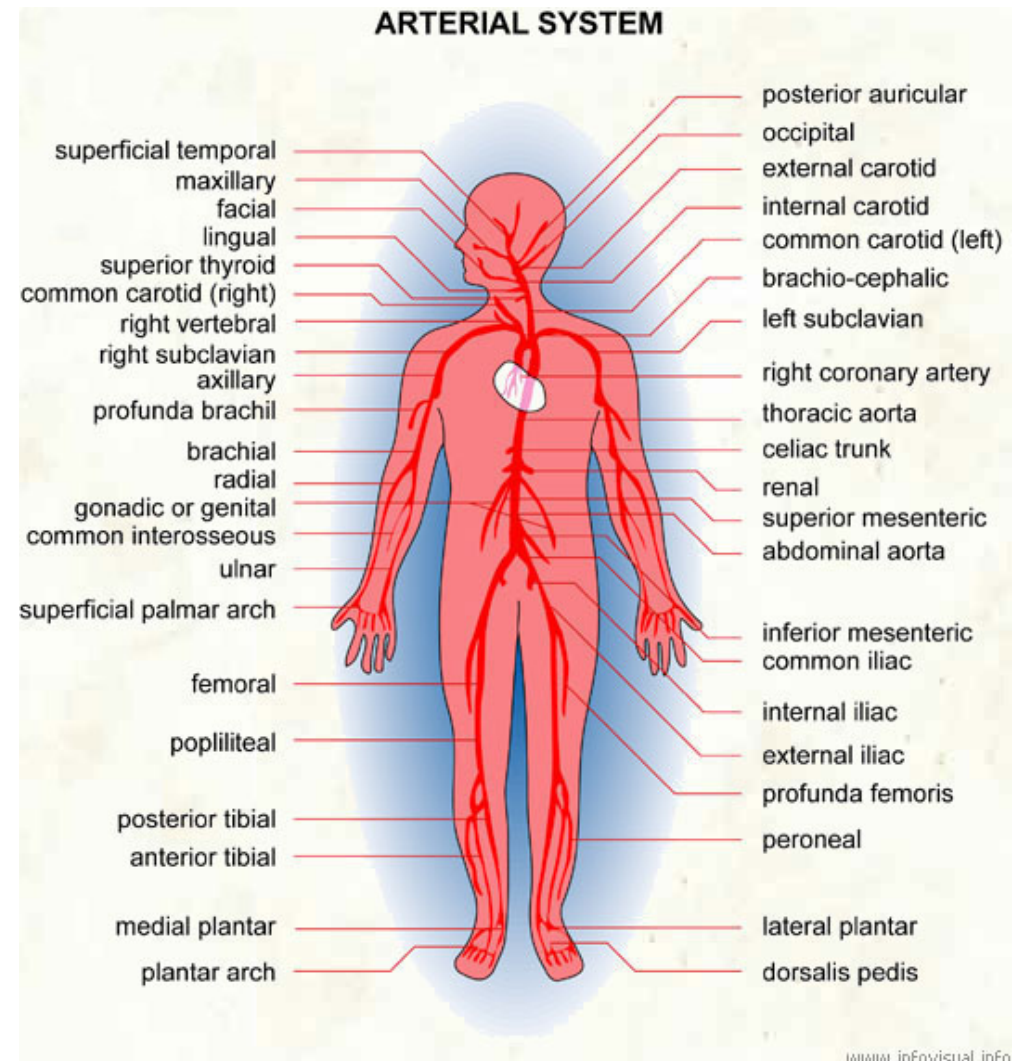
# Arterial Leg Ulcer (ALU)/Ischemic Ulcers

An Arterial Ulcer is due to poor blood perfusion to the lower extremities. The lack of oxygen to areas of the skin causes breakdown, and ultimately, open wounds.



# What is your arterial system?

- The **arterial system** is extremely important in delivering oxygen and nutrients to all cells and tissues, as well as removing carbon dioxide and waste products.



# Examples of Arterial Ulcer Locations

Arterial ulcers tend to occur over the distal part of the leg, especially the lateral malleoli, dorsum of the feet, and the toes.



<https://www.bmj.com/content/332/7537/347>



[https://www.vascularsociety.org.uk/patients/conditions/12/arterial\\_ulcer](https://www.vascularsociety.org.uk/patients/conditions/12/arterial_ulcer)



<https://www.angiologist.com/uniquely-vascular-medicine/leg-ulcers-in-unusual-locations/>

# Characterizations & Symptoms of an Arterial Ulcer

- Found between and on top of toes, heels, and outer ankles
- Well-defined wound margins
- Increasing pain
- Round in shape
- Usually brown, black or yellow in color
- Limb is cold to touch, no distinguishable pulse
- Skin and nails will show atrophy, with hair loss
- Delayed capillary return in affected extremity

# Arterial vs. Venous

## Lesions (location & appearance)?

Arterial system

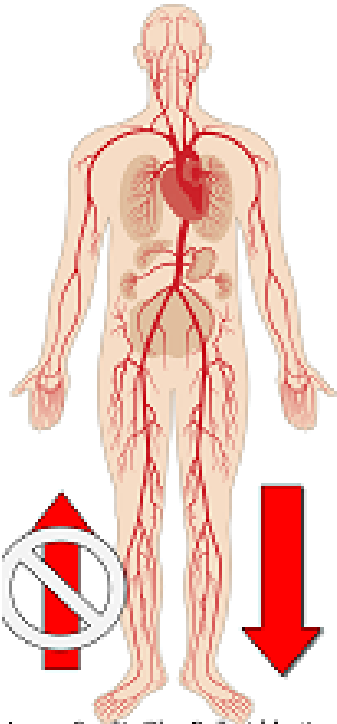


Image Credit: Olga Balbob/shutterstock.com

### Location

- End of toes
- Top of feet (**dorsum**)
- Lateral ankle region (**malleolus**)

### Ulcer's Appearance?

- Very little drainage
- Little tissue granulation (**pale/very light pink**)  
or  
**(necrotic/black)**
- Deep "**punched out**" w/ noticeable margins/edges that gives it a round appearance.

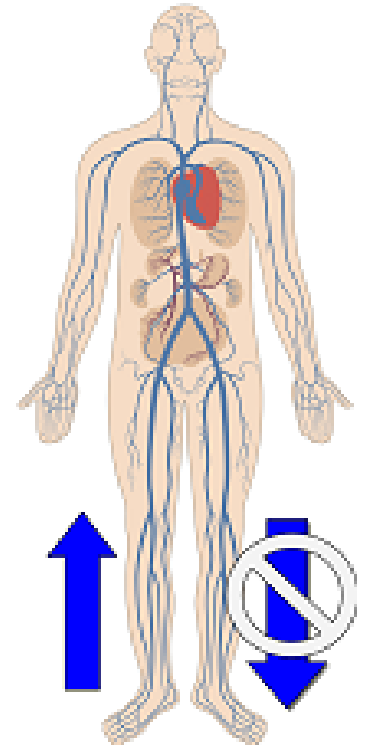
### Location

- Medial parts of lower legs
- Medial ankle region

### Ulcer's Appearance?

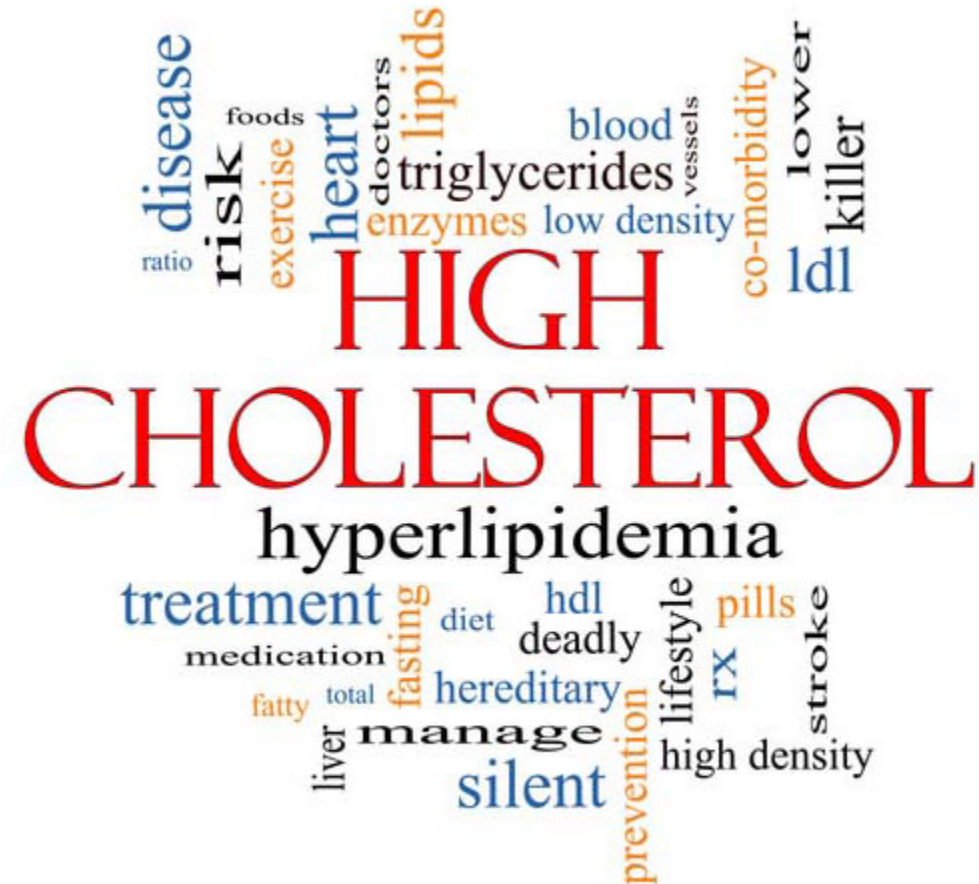
- Swollen w/ drainage
- Granulation present (**deep pink to red**)
- Edges irregular
- Shallow

Venous system



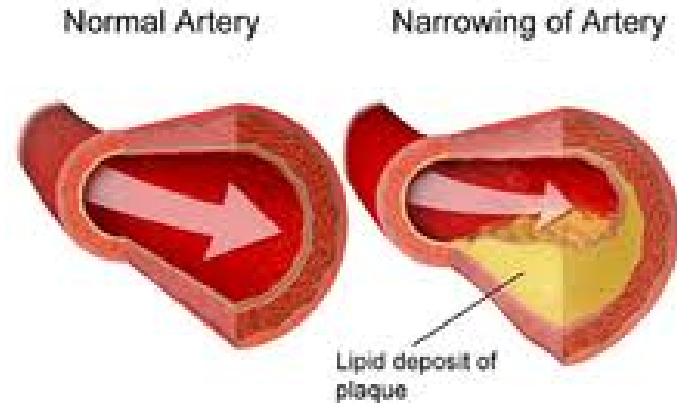
# Risk Factors

- Hypercholesterolemia
- Cigarette Smoking
- Hypertension
- Diabetes Mellitus
- Advanced Age
- Male Gender
- Hypertriglyceridemia
- Sedentary Lifestyle
- Family History

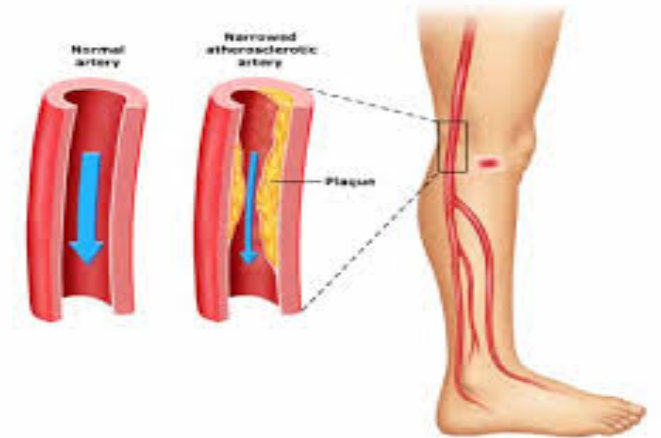


# Artery Conditions

- **Atherosclerosis:** buildup of cholesterol in the artery wall
- **Vasculitis:** Inflammation of the arteries
- **Peripheral Artery Disease:** atherosclerosis that causes narrowing of the arteries in the legs or groin
- **Myocardial Infarction:** blood clot in the artery
- **Coronary Artery Disease:** Atherosclerosis with narrowing of the arteries supplying blood to the heart muscle.



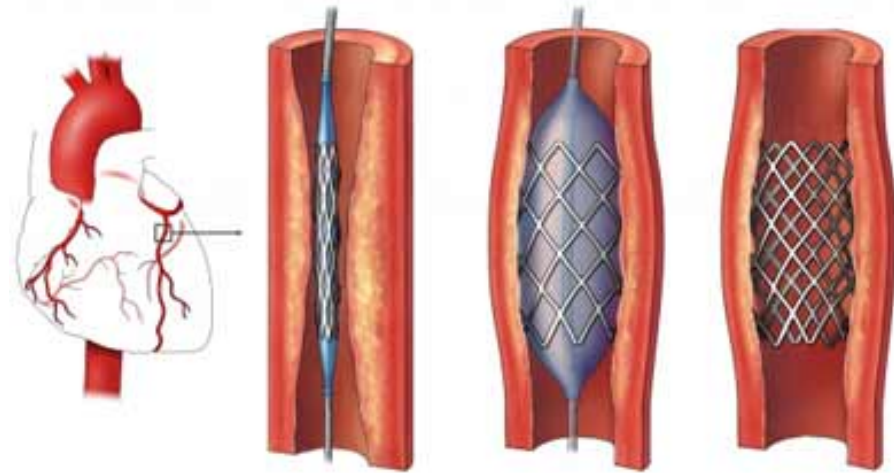
Coronary Artery Disease



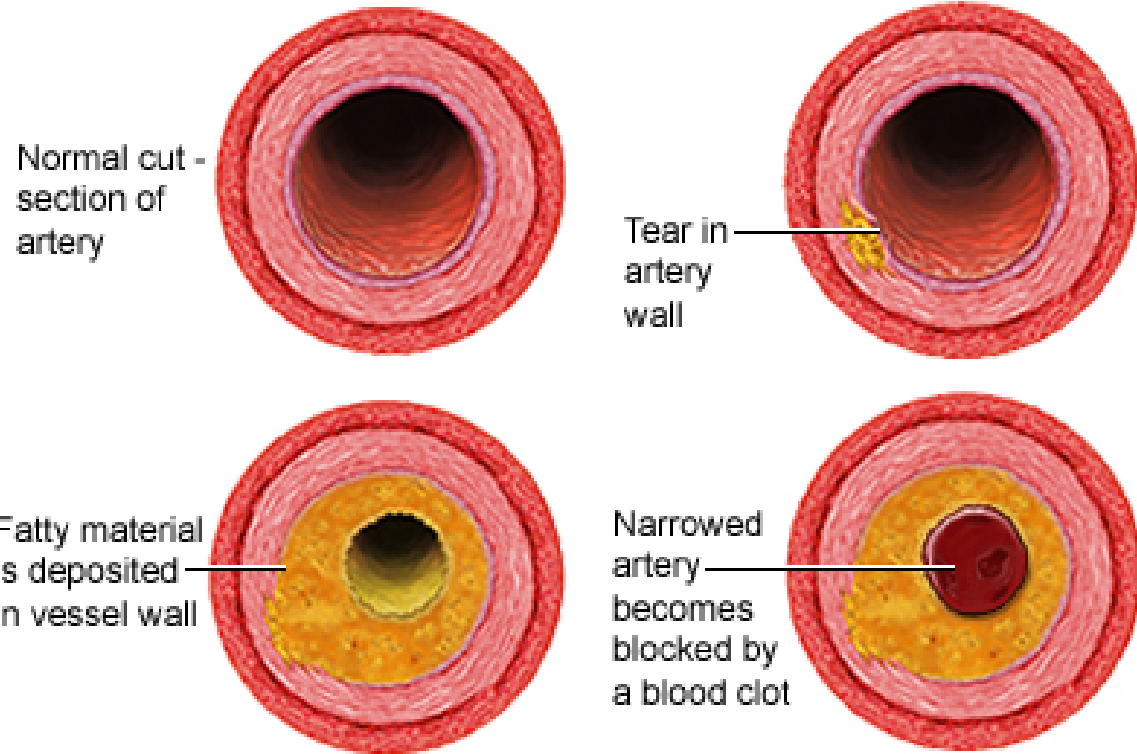


# Arterial Treatment

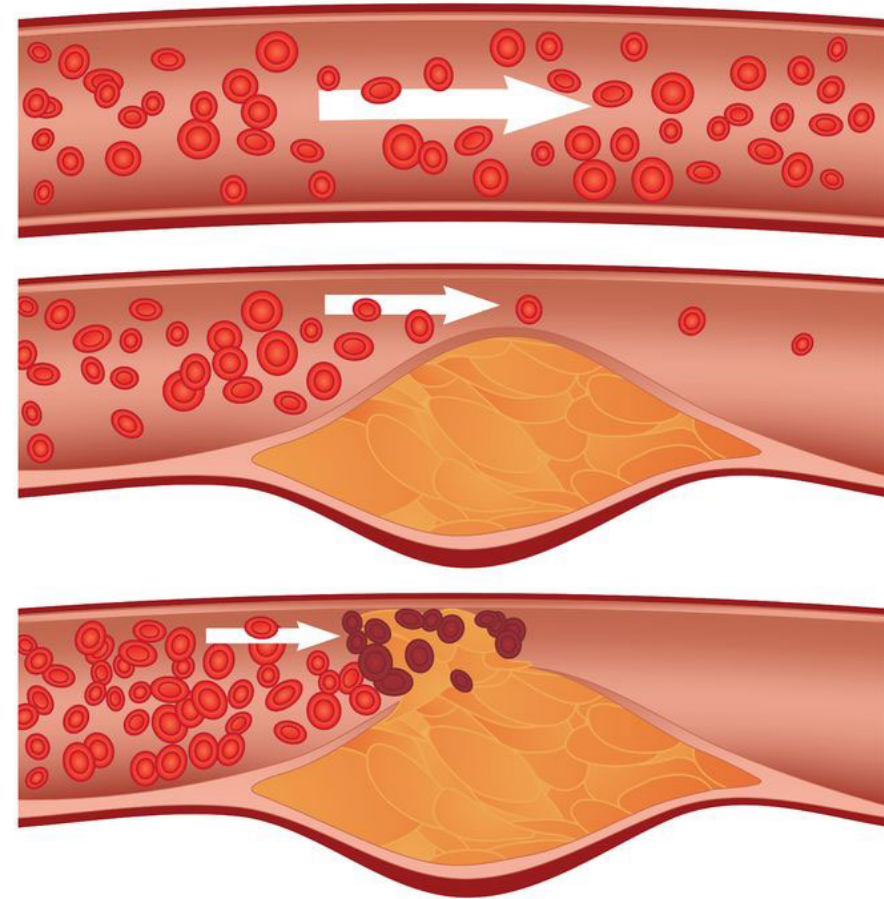
- **Aspirin:** to help reduce blood clotting
- **Angioplasty:** catheterization to place a balloon to open artery
- **Stenting:** mesh tube placed in artery to hold it open
- **Steroids:** anti-inflammatory medications
- **Statins:** cholesterol medications to lower risk of heart attack or stroke



# Examples of Atherosclerosis

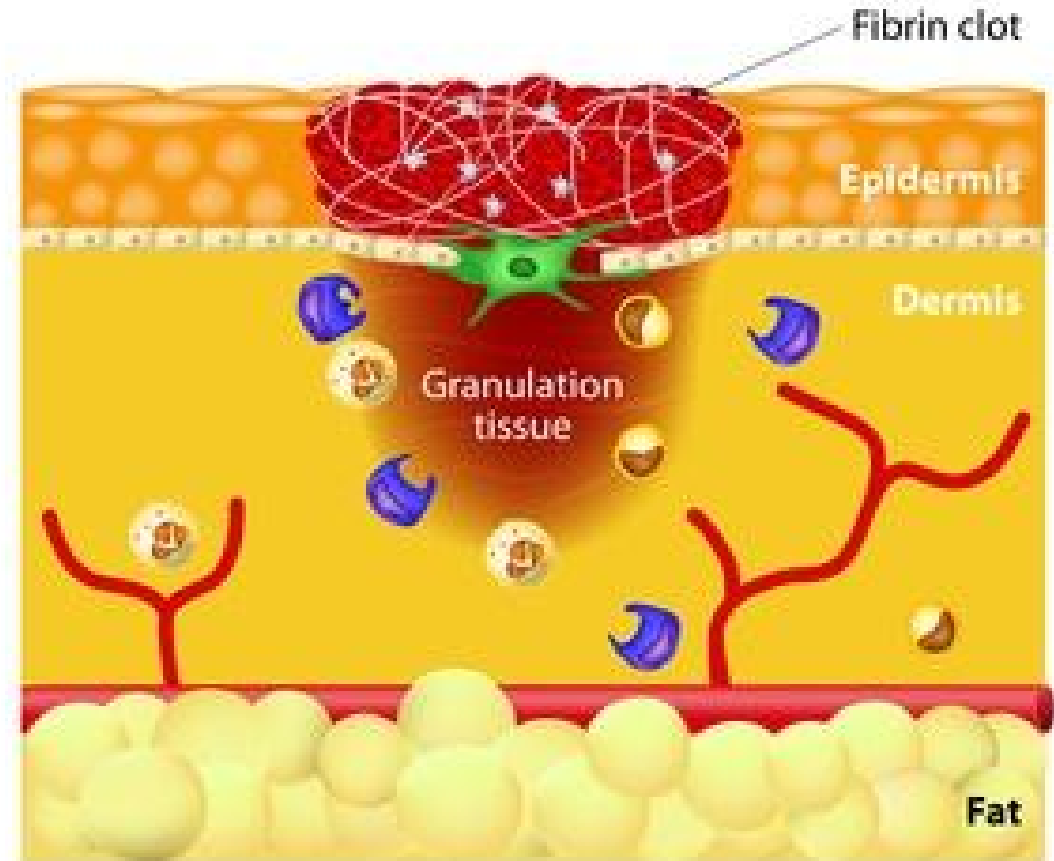


ADAM.



# Goals of Arterial Ulcer Treatment

- Increase circulation
- Relieve pain
- Conservative debridement
- Prevent infection
- Maintain moist healing environment



# Standard Treatment

- **Diagnose Arterial Insufficiency**
  - Non-invasive studies
  - ABI (Ankle Brachial Index) & TBI (Toe Brachial Index)
  - Buerger's Test
  - Arteriography
  - Angioplasty
- **Medication Management**
- **Surgical Intervention**
  - Surgical bypass
  - Revascularization

# Standard Treatment cont..

- **Wound Care**

- Minimal debridement
- Pressure relief
- No ointments or creams
- Infection Control
- Keep wound dry

- **Dressing Selection**

- Alginate dressings
- Hydrogels/hydrocolloids
- Antimicrobial dressings
- For guidance on dressing selection, please reference wound source.  
<https://www.woundsource.com/product-category/dressings>

# Debridement/Infection Management

- Remove necrotic, devitalized tissue by sharp, enzymatic, mechanical, biological or autolytic debridement.
  - Evidence shows that weekly debridement results in faster wound healing time with less complications
- If infection is suspected in a debrided ulcer, or if epithelialization from the margin is not progressing within two weeks of debridement, determine the type and level of infection in the debrided ulcer by tissue biopsy or by a validated quantitative swab technique.

# Arterial Ulcer Wound Documentation

- Date of onset and site of ulcer
- History of previous ulcers
- Prior treatments and time to heal
- Prior surgeries, specifically vascular procedures
- Ulcer documentation: size, wound base, drainage, pain, mobility

# What Can the Patient Do?

- **QUIT** Smoking
- Examine legs and feet daily for changes in color or open wounds
- Exercise regularly
- Protect legs and feet from injury, avoid crossing legs
- Manage blood pressure and cholesterol levels
- Wear proper footwear





# Quiz

## 1. Arterial Ulcers are:

- a) Often very painful
- b) Located above the knee
- c) Acute ulcers
- d) Prone to infection and require antibiotics

## 2. Goals of Arterial Ulcer treatment:

- a) Increase circulation
- b) Relieve pain
- c) Aggressive debridement

Name \_\_\_\_\_ Date \_\_\_\_\_

**3. Which is NOT the goal for at-home patient care?**

- a) Quit smoking
- b) Exercise regularly
- c) Increase pain medication
- d) Wear proper footwear

**4. What are some methods for arterial treatment?**

- a) Stenting
- b) Aspirin
- c) Increased exercise

**5. The arterial system is extremely important in delivering oxygen and nutrients to all cells and tissues**

- a) True
- b) False

**6. All are true of arterial/ischemic ulcers except:**

- a) Increasing pain
- b) Round in shape
- c) Usually black in color
- d) Cold to touch