VARICOSE VEINS

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LEARNING OUTCOMES

At the end of this lecture, you will be able to

- Define and describe varicose veins.
- Describe the prevalence and risk factors of varicose veins.
- Discuss the clinical picture and diagnosis of varicose veins.
- Describe the medical and surgical management of varicose veins.

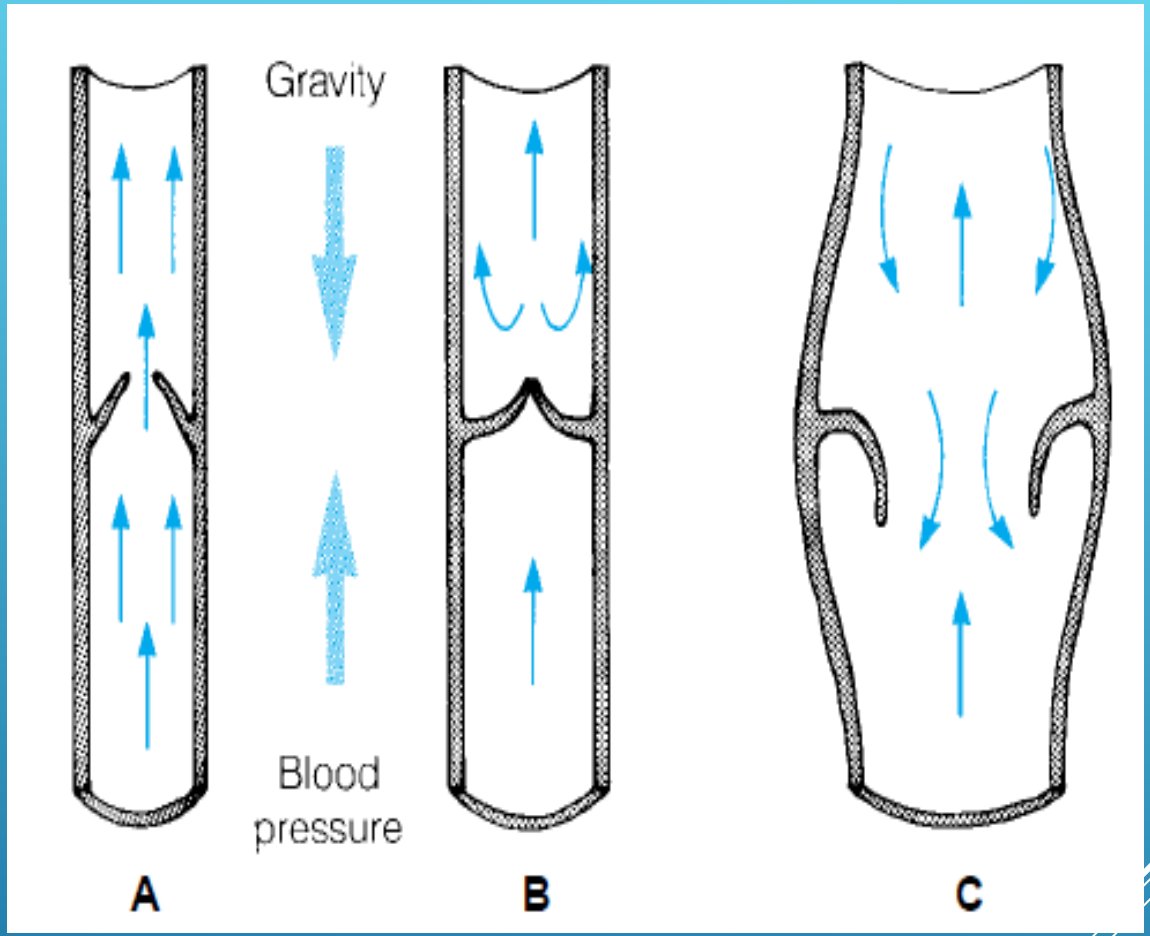
Varicose Veins

Definition:

Varicose veins are veins that have become distended over time. Long, **tortuous** and **dilated** veins of the superficial venous system due to the pooling of blood in the lower extremities.

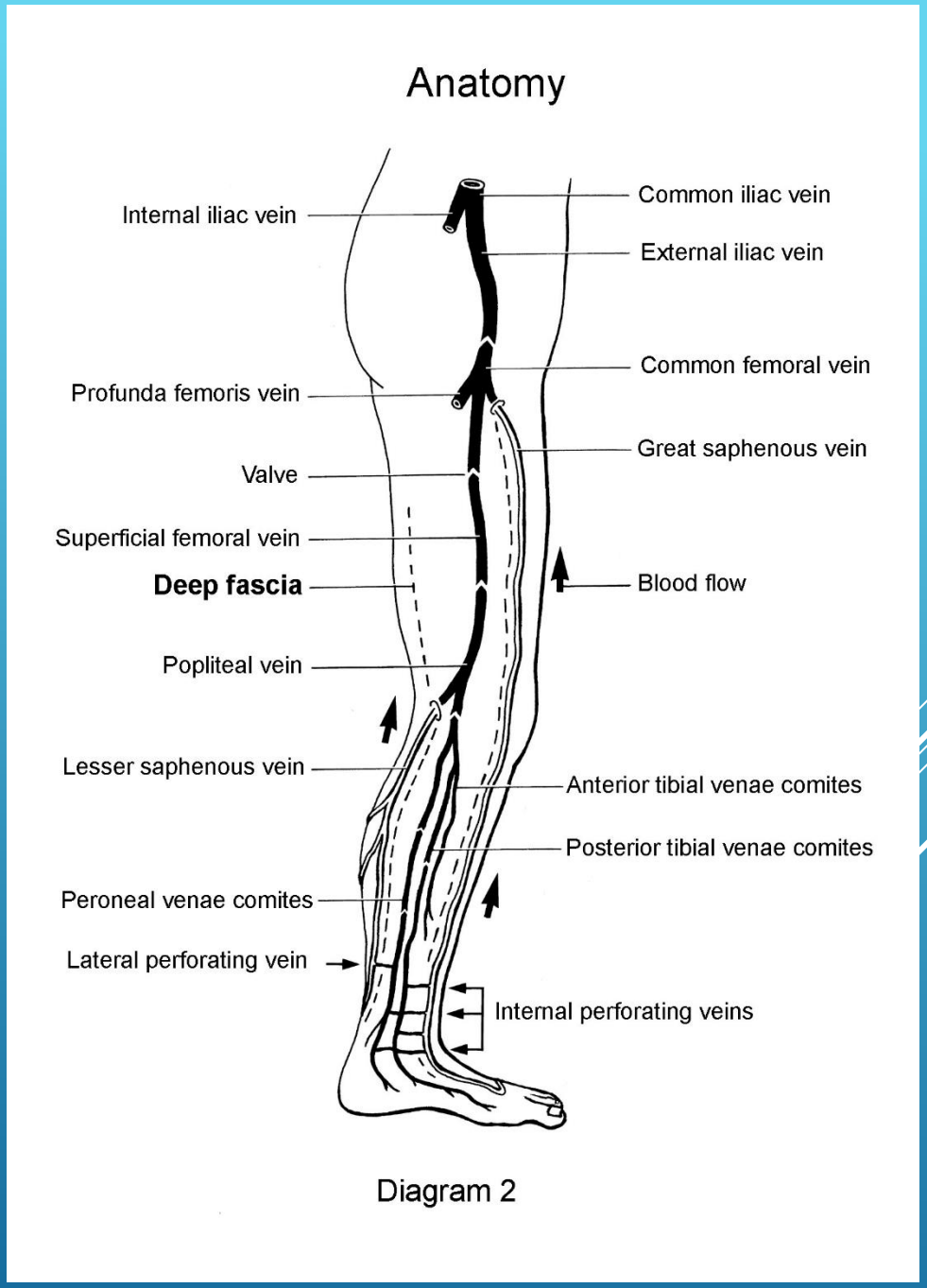
DEFINITION

- Varicose veins are abnormally dilated, tortuous, superficial veins caused by incompetent venous valves. Most commonly, this condition affects the lower extremities, the saphenous veins (Slide 2), and may occur in the esophagus.



Competent valves showing blood flow patterns when the valve is open (**A**) and closed (**B**), allowing blood to flow against gravity. (**C**) With faulty or incompetent valves, the blood is unable to move toward the heart.

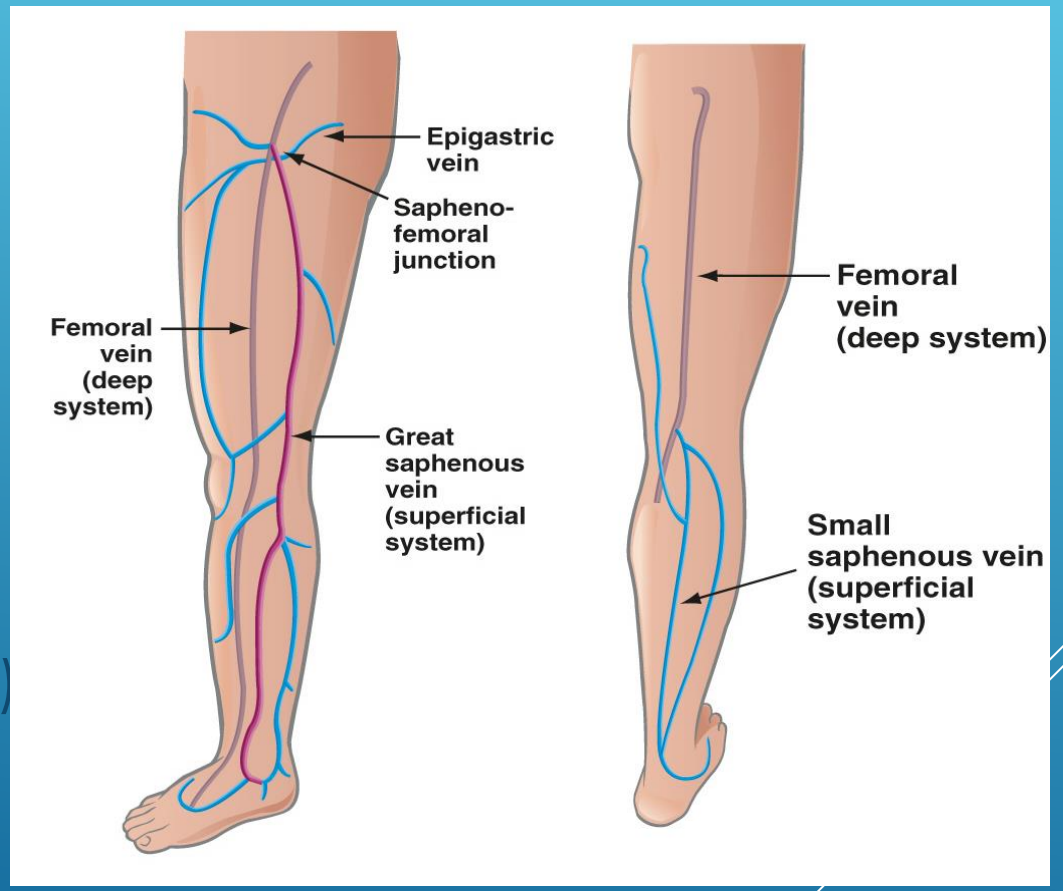
- Veins:
  - Hold 75% of the blood volume
  - Are organized into superficial and deep veins connected by perforating veins
  - Have valves for unidirectional flow
  - Are low pressure systems (10-15mmHg)
  - Have thin walls (superficial veins have thicker walls than deep veins.)



http://www.wsiat.on.ca/english/wsiatDocs/mlo/venous_screen.htm

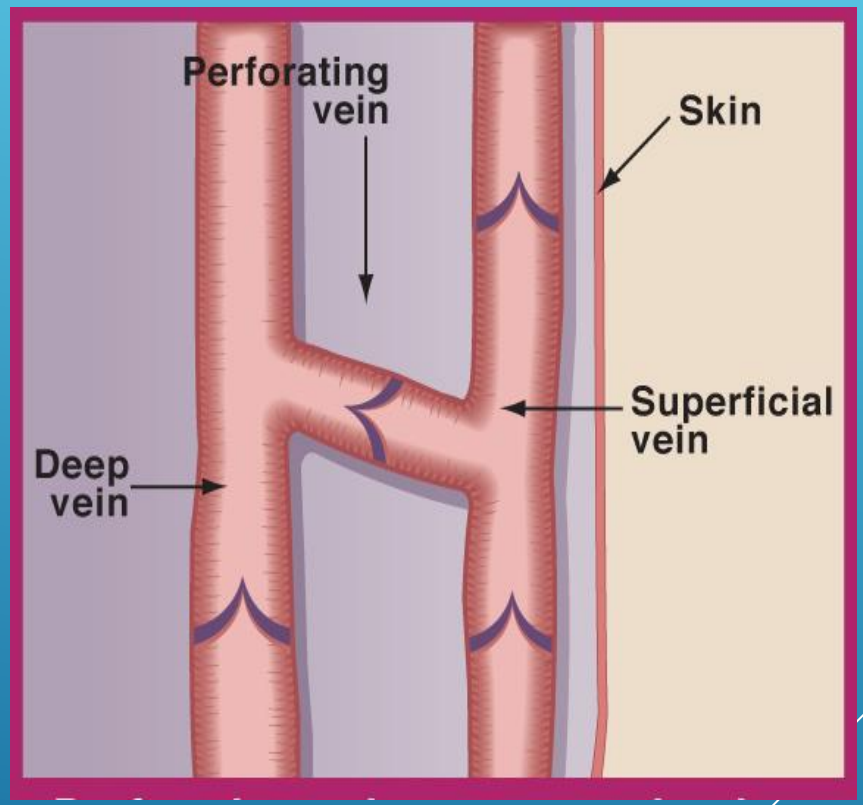
LEG VEIN ANATOMY

- Your legs are made up of a network of veins and vessels that carry blood back to the heart
- The venous system is comprised of:
  - Deep veins
  - Veins closer to the skin (superficial veins)



LEG VEIN ANATOMY

- Perforating veins connect the deep system with the superficial system
- They pass through the deep layer of muscular fascia tissue at mid-thigh, knee and ankle



Causes

Primary

- Congenital abnormality, most common cause (weak mesenchymal tissue)

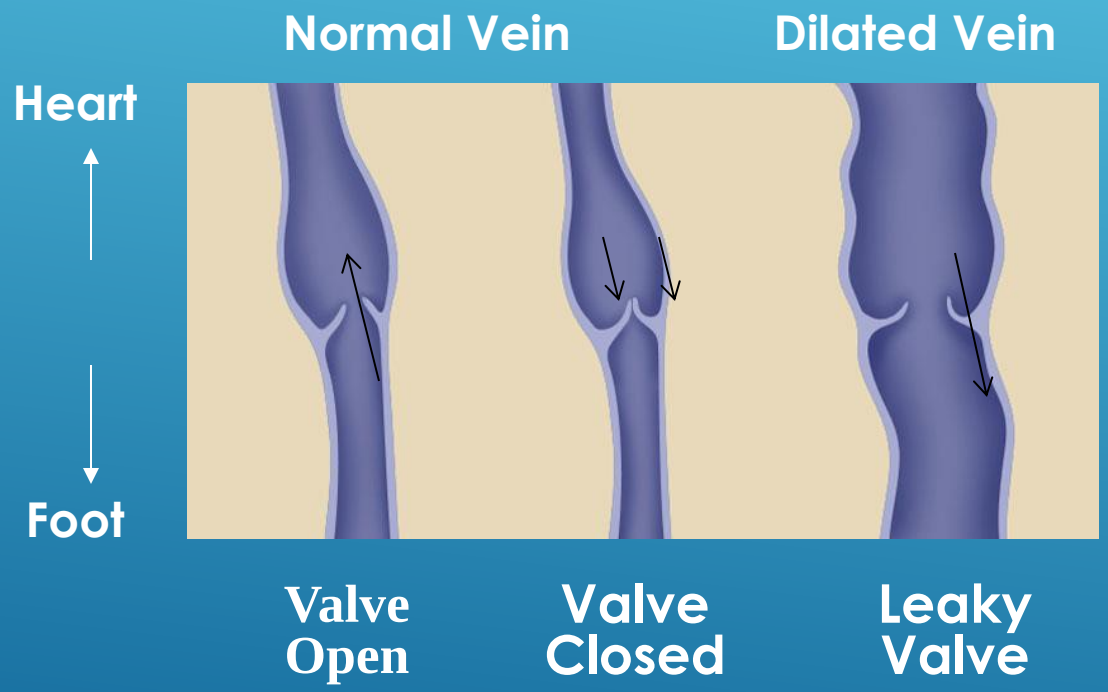
Secondary

- Anything that raises intra-abdominal pressure or raises pressure in superficial/deep venous system
- so…:
  - Pregnancy
  - Abdominal/pelvic mass
  - Ascites
  - obesity
  - constipation
  - thrombosis of leg veins
  - spend long periods of time standing (barbers, for example)

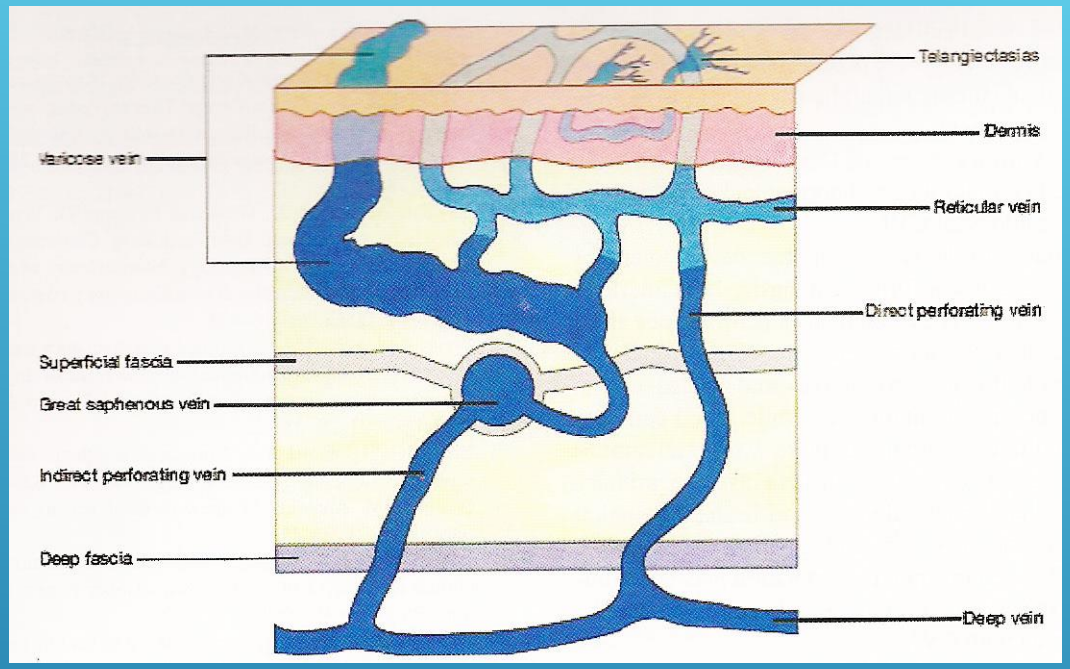
RISK FACTORS?

- Age
- Obesity
- Family history
- Pregnancy
- Female Gender
- Heart failure, hypertension, renal disease
- H/o Leg injury (fx, burn, crush, penetrating injury), phlebitis, DVT
- Previous varicose vein surgery
- Long hours standing, or sitting.

VENOUS REFLUX DISEASE



1. Vein valves become damaged or diseased, resulting in vein valve failure
2. Reflux or backward flow in the veins occurs
3. Pooling of blood causes pressure in leg veins
4. Increased pressure may cause surface veins to become dilated (varicose)



IMPORTANT ANATOMICAL DETAILS

VARICOSE VEINS

The most common manifestations are :

1. Aching and edema
2. Their appearance through the skin is unsightly.
3. May be associated with varicocele or inguinal hernia.

Treatment often involves:

1. The use of support stockings to prevent venous pooling.
2. Surgical interventions may also be used to improve appearance and reduce discomfort.

Varicose Veins

SYMPTOMS

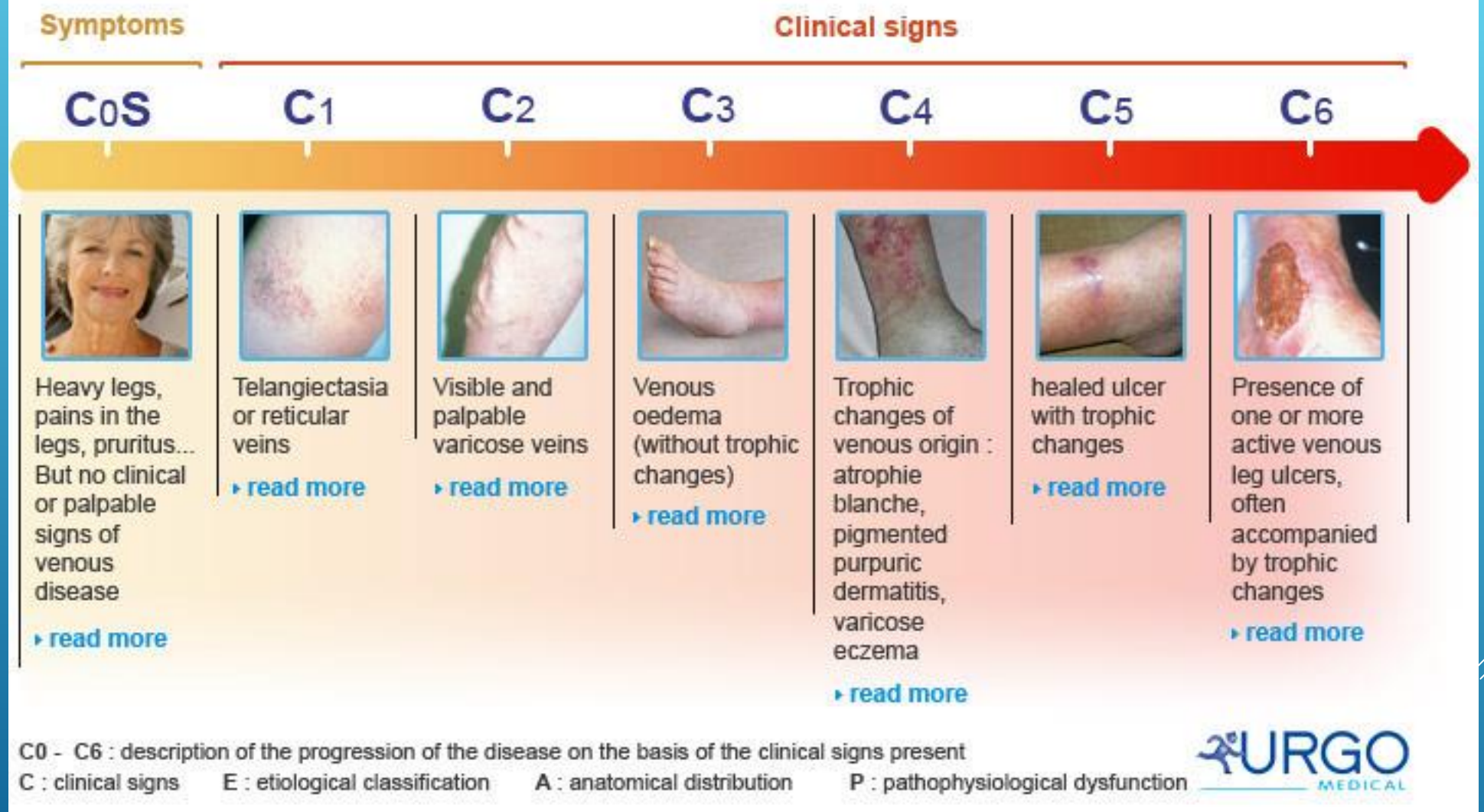
- Approximately 24 million Americans suffer from venous reflux
- Common symptoms of this progressive condition include:
  - Varicose veins
  - Pain
  - Swollen limbs
  - Leg heaviness and fatigue
  - Skin changes and skin ulcers

Swelling

Ulcers

Skin Changes

International Consensus
CEAP



http://www.urgomedical.com/uploaded-files/img/images/schema-ceap-02.jpg

CEAP CLINICAL CLASSIFICATIONS
CLINICAL ETIOLOGY ANATOMY PATHOPHYSIOLOGY

Varicose Veins
CEAP 2

Swelling
CEAP 3

Skin Changes
CEAP 4

Skin Ulcer
CEAP 6

Clinical Examination

The patient should be standing

Look for: The extent and distribution of VV

Long saphenous VV

Antro-lat. tributary of LSV

Short saphenous VV

Communicating vein varicosity

Venous Stasis Dermatitis

http://www.dukehealth.mobi/Services/VeinClinic/About/WhatIsVenousDisease

Is pre-op duplex assessment important for varicose vein surgery?

CONSERVATIVE TREATMENTS

- Leg elevation
- Compression stockings
- Conservative treatments often have poor patient compliance because they:
  - are difficult for patients to integrate into daily routine
  - are uncomfortable
  - require lengthy (lifelong) treatment
  - do not cure the underlying problem (pathology)

TREATMENT

- Compression is the cornerstone of treatment.
- At least 40mmHg at the ankle is the goal.
- Range of 10-60mmHg (TED hose 18mmHg)
- Knee-High as good as Thigh-High.
- Open or closed toe per pt preference.
- Either graduated stockings and wraps
- Caution with CHF, invasive infection, arterial insufficiency.
- Compliance very difficult.
- Replace every 6 months.
- Size S, M, L, XL based on ankle, calf circum.

VEIN DEPTH FROM THE SKIN: WHY IS SO IMPORTANT?

The aim of ablation procedures is to damage the inner vein wall without causing a full-thickness burn, which could lead to perforation of the vein resulting in bruising or haematoma formation

If vein lies superficially, close to skin the ablation may cause burn

RELATED AND COMPLEMENTARY PROCEDURES

- Sclerotherapy
- External lasers and intense pulsed light
- Used to treat small superficial or "spider" veins

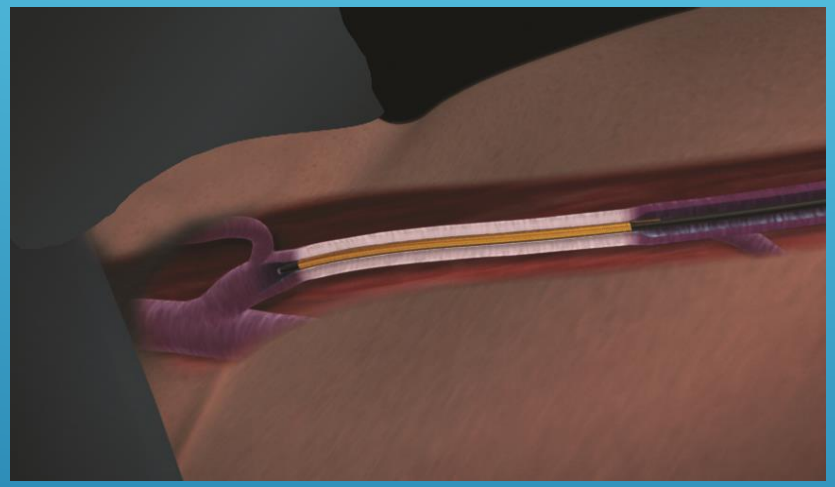
RELATED AND COMPLEMENTARY PROCEDURES

- Phlebectomy
  - Removal of diseased veins through a series of small incisions and use of specialized hooks to treat visible varicose veins

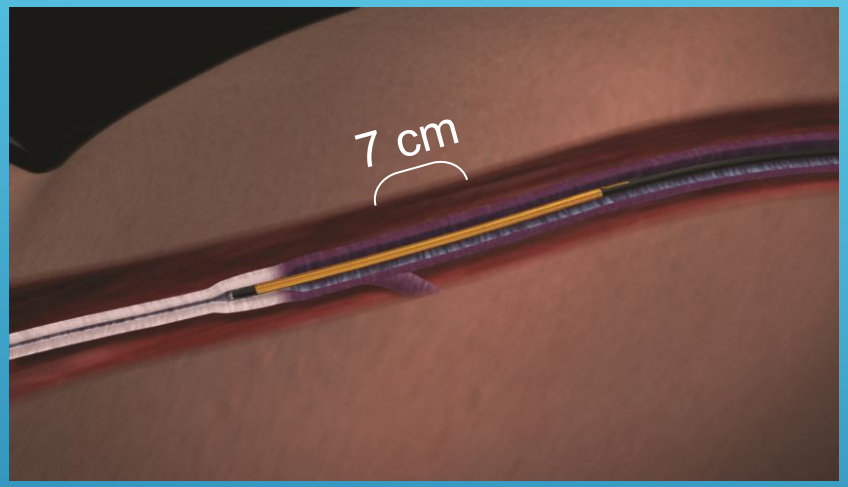
CONTRAINDICATIONS FOR ENDOVENOUS ABLATION

- ✓ Identification of all refluxing venous segments and their ablation is the key to minimise recurrence
- ✓ Diametre of central GSV > 15 mm may be associated with thrombus extension to CFV
- ✓ Uncorrectable coagulopathy
- ✓ Liver dysfunction limiting local anaesthetic use
- ✓ Immobility
- ✓ Pregnancy
- ✓ Breastfeeding
- ✓ Thrombus in the vein segment to be treated

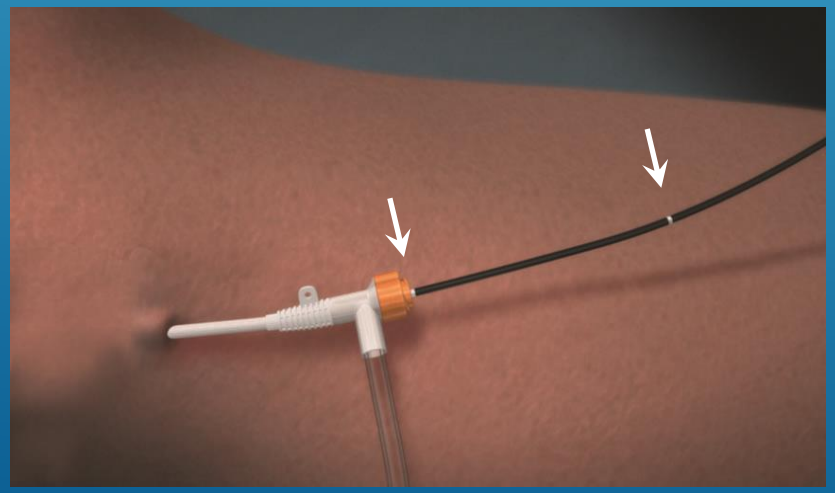
Catheter positioned at highest treatment point



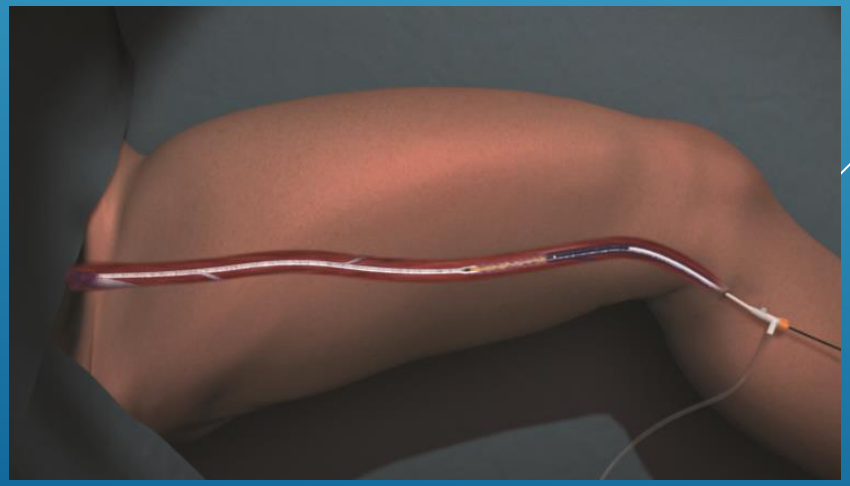
Vein treated in 7cm vein segments



Catheter withdrawn from marker to marker..



Until entire length of vein is treated



PROCEDURE HIGHLIGHTS

- Relief of symptoms
- Most patients resume normal activities within 1-2 days
- Outpatient procedure
- Local or general anesthesia
- Good cosmetic outcome with minimal to no scarring, bruising or swelling
- The procedure is covered by most insurance providers

PREVENTION OF VARICOSE VEINS

- Activities that cause venous stasis should be avoided. These include wearing tight socks or a constricting panty girdle (Rt. Figure), crossing the legs, and sitting or standing for long periods.
- Changing position frequently, elevating the legs when tired, and walking (if not contraindicated), rather than using an elevator, promote circulation. Swimming is also good exercise for the legs. Patients should use knee-high stockings (Middle Figure) than thigh-high stockings (Lt. Figure). The overweight patient should reduce his weight.

THANK YOU