

CEAP Classification  
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Why do we want to classify venous disease?

To CEAP or not to CEAP that is the question?

Classification of diseases is a basic instrument for the UNIFORM diagnosis and for the meaningful COMMUNICATION about the disease no matter where a doctor has been trained.

Brief History of venous classification

- 1978- WIDMER-proposed a classification mainly related to clinical appearance.
- 1979-HACH-proposed a classification according to the degree of GSV reflux.
- 1980-PARTSCH-proposed a classification based on anatomical involvement of the superficial, perforating and deep veins BUT relating this to reproducible objective measurements to help select and distinguish the patients that can best be treated.
- 1985-SYTCHER-proposed a classification with considerations similar to the current CEAP.

With CVD the reliance for too long had been placed on clinical appearance only without relating this appearance to an accurate diagnosis of the underlying venous pathology and reflux.

### **CEAP Classification**

- C- Clinical Manifestations
- E-Etiologic Factors
- A-Anatomical Consideration
- P-Pathophysiology

## **TERMINOLOGY and DEFINITIONS**

•The committee quickly established that to develop a UNIVERSAL classification system for CVD **also** required a consensus on the **definitions** of the words used in the classification.

•**CVD** – including the full spectrum of morphological and functional abnormalities of the venous system from telangiectasias to venous ulcers.

•**Telangiectasias** – a confluence of dilated intradermal venules of <1mm in diameter. Synonyms include spider veins, hyphen webs and thread veins.

•**Reticular veins** – dilated bluish subdermal veins usually between 1mm -3mm in diameter. Synonyms include blue veins, subdermal varices and venulectasias.

•**Varicose veins** – subcutaneous dilated veins greater than or equal to 3mm in diameter as measured in the upright position. Synonyms include varix, varices and varicosities.

•**Corona Phlebectatica** – a fan shaped pattern of numerous intradermal veins on the medial or lateral aspects of the ankle and foot. Synonyms include malleolar flare and ankle flare.

•**Oedema** – a perceptible increase in volume of fluid in the skin and subcutaneous tissue characteristically indenting with pressure. Usually located in the ankle but also can extend to the leg and foot.

•**Pigmentation** – a brownish darkening of the skin resulting from extravasated blood, which usually occurs in the ankle region but may extend to the leg and foot. A sign of increasing venous pressure due to CVD.

•**Eczema** – an erythematous dermatitis which may progress to blistering, weeping, or scaly eruption of the skin of the leg. Commonly located near varicose veins but can be localised anywhere on the leg and reflects uncontrolled CVD.

•**Lipodermatosclerosis** – localised chronic inflammation and fibrosis of the skin and subcutaneous tissue of the lower leg and suggests severe CVD.

•**Atrophie Blanche** – localised whitish and atrophic skin areas surrounded by dilated capillaries and sometimes hyperpigmentation and is a sign of severe CVD.

•**Venous Ulcer** – full thickness defect of the skin most frequently seen in the ankle region that fails to heal spontaneously and is sustained by CVD.

### **CEAP- Clinical Classification**

- C0 – No visible or palpable signs of venous disease.
- C1 - Telangiectasia or reticular veins.
- C2 – Varicose veins.
- C3 – Oedema.
- C4a – Pigmentation and /or eczema.

- C4b – Lipodermatosclerosis and /or atrophie blanche.
- C5 – Healed venous ulcer.
- C6 - Active venous ulcer.
- S - Symptomatic-including ache, pain, tightness, skin irritation, heaviness, muscle cramps, burning as well as other complaints due to venous dysfunction.
- A – Asymptomatic.

#### CEAP – Etiologic Classification

- Ec – Congenital
- Ep – Primary
- Es – Secondary ( post thrombotic)
- En – No venous etiology identified

#### CEAP – Anatomic Classification

- As – Superficial veins
- Ap – Perforator veins
- Ad – Deep veins
- An – No venous location identified

#### CEAP – Pathophysiologic Classification

- Pr – Reflux
- Po - Obstruction
- Pr,o – Reflux and Obstruction
- Pn – No venous pathophysiology identified

#### **Basic CEAP classification - example**

•Painful swelling of the leg and varicose veins plus lipodermatosclerosis and active ulceration where duplex scan on May 17, 2007 demonstrated axial reflux of the GSV above and below the knee, incompetent perforators and axial reflux in the femoral and popliteal veins.

•Basic CEAP- C6,S,Ep,As,p,d,Pr

#### **Additions to Basic CEAP**

##### Date of Classification

•As venous disease is not static it is recommended that any CEAP classification be followed by a date that that classification was made.

##### Level of Investigation

•As a precise diagnosis of the underlying venous pathology is the basis for a correct classification it is recommended that the level of investigation utilised be included in any CEAP classification.

- Level 1- office visit with history and examination and/ or use of HHD.
- Level 11- non invasive – Duplex scan and /or PPG.
- Level 111 – Invasive – varicography, ascending and descending venography, venous pressure measurements, spiral CT scan or MRI.

#### Anatomical locations

- Same as basic CEAP with the addition of 18 named and numbered venous segments used to localise the venous pathology.

#### **SUPERFICIAL VEINS**

- 1) telangiectasias/ reticular veins.
- 2) great saphenous vein reflux above knee.
- 3) great saphenous vein below knee.
- 4) small saphenous vein.
- 5) nonsaphenous veins.

#### **DEEP VEINS**

- 6) inferior vena cava.
- 7) common iliac vein.
- 8) internal iliac vein.
- 9) external iliac vein.
- 10) pelvic-gonadal, broad ligament veins, other.
- 11) common femoral vein.
- 12) deep femoral vein.
- 13) femoral vein.
- 14) popliteal vein.
- 15) crural-anterior tibial, posterior tibial, peroneal veins ( all paired).
- 16) muscular-gastrocnemial, soleal veins , other.
- 17) perforating veins, thigh.
- 18) perforating veins, calf

#### **Advanced CEAP classification example.**

•Painful swelling of the leg and varicose veins plus lipodermatosclerosis and active ulceration where duplex scan on May 17, 2007 demonstrated axial reflux of the GSV above and below the knee, incompetent calf perforators and axial reflux in the femoral and popliteal veins. No obstruction.

•Basic CEAP- C6,S,Ep,As,p,d,Pr

•Advanced CEAP-C2,3,4b,6,S,Ep,As,p,d,Pr 2,3,18,13,14 (2007-05-17, L11)