

Pathophysiology and hemodynamic of venous insufficiency

Assoc. Prof. Boonying Siribumrungwong, M.D., PhD.





Perforator veins



Incompetent perforators or **pathologic** perforators

- Outward flow > 500 ms <u>AND</u>
- Diameter > 3.5 mm (fascial level)
- Considered treatment in C5 and C6

Gloviczki et al. J Vasc Surg 2011





May-Thurner syndrome, Iliofemoral, femoropopliteal vein thrombosis, external compression

เพยาบาลธรรมศาสต

าอลิมเมระเดียรติ



Old CVA, paralysis, localized deformity

Theories of primary varicose vein

Congenital or acquired valvular dysfunction

-Valve leaflet shortening by inflammation process (leukocyte infiltration at valvular sinus
-Widening of valve annulus with medial hypoplasia

Reduction in elasticity Endothelial activation



Primary venous dilatation leading to secondary valvular incompetence

-Structural weakness of the vein wall -- > abnormalities in the structural protein (collagen)

- Impaired venous tone

Conclusion –

abnormality in venous wall – endothelial cell , smooth muscle cell , extracellular matrix

J. Colledge et al. EJEVS 2003

Theories of primary varicose vein

Congenital or acquired valvular dysfunction

-Valve leaflet shortening by inflammation process (leukocyte infiltration at valvular sinus

-Widening of hypoplasia

Best is to precisely localized and determine extension of reflux site

valvular incompetence

- Impaired venous tone

the structural protein (collagen)

Reduction in elasticity Endothelial activation



wall – endothelial cell , smooth muscle cell , extracellular matrix

J. Colledge et al. EJEVS 2003

Primary venous dilatation leading to secondary

-Structural weakness of the vein wall -- > abnormalities in

Ambulatory venous pressure hypertension



Target disease = skin and subcutaneous tissue



Dilated and tortuous vein

Chronic endothelial injury - > Macromolecular leakage: leukocyte, RBC, fibrinogen Inflammatory response (increase cytokines at surrounding tissue)

Management



Compression therapy

- Decrease ambulatory venous hypertension
 - ✓ Increase ejection fraction
 - ✓ Narrowing superficial vein -- > decrease reflux
 - ✓ Decrease residual venous volume of leg
- ✓ Raise interstitial tissue pressure, reduce edema
 Correct cause of venous hypertension



Thank you