Rokitanski Stenosis

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Disclosures
- Stock in Veniti inc.
- US Patent: IVUS diagnostics in CVD
- Stent usage in iliac-femoral veins is currently off label.

Karl Von Rokitanski 1804-1878
- Austrian pathologist
- Performed about 100000 autopsies, 30000 of them himself.
- Established pathological anatomy as cornerstone of modern medicine elevating Vienna as an eminent medical center.
- Numerous important pathological discoveries such as bacterial endocarditis, lobar and bronchial pneumonia; acute yellow atrophy of liver; spondylolisthesis.
- Described an unique form of postthrombotic iliac vein stenosis where a perivenous fibrous envelope constricts the vein: a long diffuse stenosis.
- Early surgical attempts to remove the fibrous envelope for correction of the stenosis.

Rokitanski Stenosis: note size difference CFV vs Iliac

Diffuse (Rokitanski) Stenosis

- Rokitanski stenosis
ROKITANSKI STENOSIS: Long diffuse lesion, often with no focal cues. Common in the iliacs. Not apparent in venograms. IVUS definitive. This means stenosis% cannot be calculated based on comparison with adjacent segment as in arterial stenosis.

Normal venogram but IVUS stenosis (PTS). Note trabaculae and perivenous fibrosis on IVUS but not seen on venogram. IVUS area 72 sq mm. Difficult to tell position of iliac confluence in venograms (understenting). Easy with IVUS.

Rokitanski stenosis: Incidence

- Without focal stenosis: 38/2534 (1.5%)
- With adjacent focal stenosis: ≈ 10-20%
- In either case, adjacent segment cannot be used as the base for calculation of % stenosis; area should be measured (IVUS planimetry) and stenosis calculated using expected physiologic norms as the base for comparison.

Arterial stenosis criteria not appropriate for venous stenoses

- Critical element in arterial stenosis is downstream perfusion.
- Critical element in veins is upstream pressure (Peripheral venous pressure) which is related to symptoms.

Basis of Area Method: Absolute outlet area rather than % stenosis is determinative

Cardiac Output
5 Liters Per Minute

Venous Capillary Pressure 17mmHg
Pressure < 11mmHg
Outlet Area

Outlet Area
IVUS planimetry is crucial to estimate Iliac stenosis. This is based on anatomic minimal size required to keep peripheral pressure low. % stenosis not appropriate.

Minimal Normal Lumen Sizes

• CIV: 16 mm Diameter; 200 sq mm Area
• EIV: 14 mm Diameter; 150 sq mm Area
• CFV: 12 mm Diameter; 125 sq mm Area

The basis of symptoms in CVD is elevation of peripheral venous pressure.