



Controversies & Updates In Vascular Surgery



Cyclists with iliac endofibrosis: How to help them to win the Tour de France?

P Feugier, O Rouviere, X Escriva

Department of Vascular Surgery
Departement of Vascular Radiology
LMFA

Claude Bernard Lyon1 University-France

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- **No disclosure**



When should it be considered?

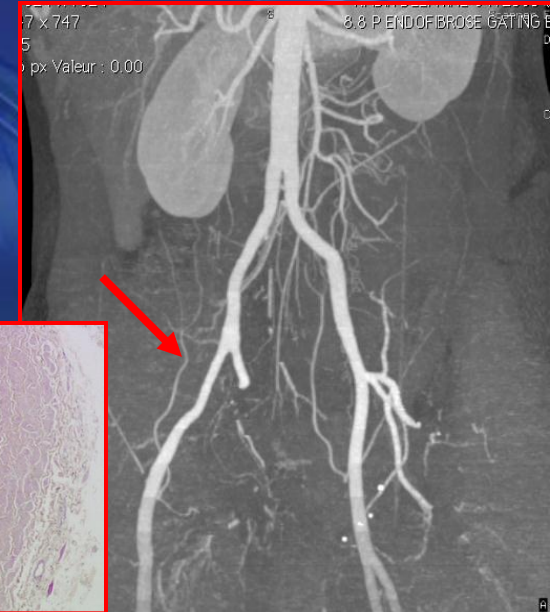
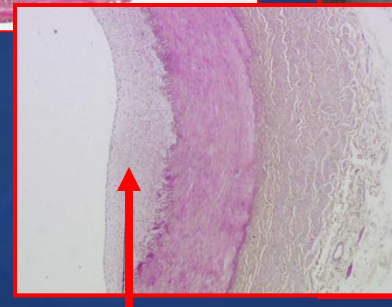
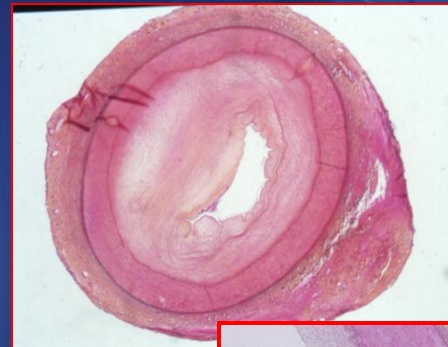


- High level endurance athletes
- Thigh claudication
- Supra-maximal efforts

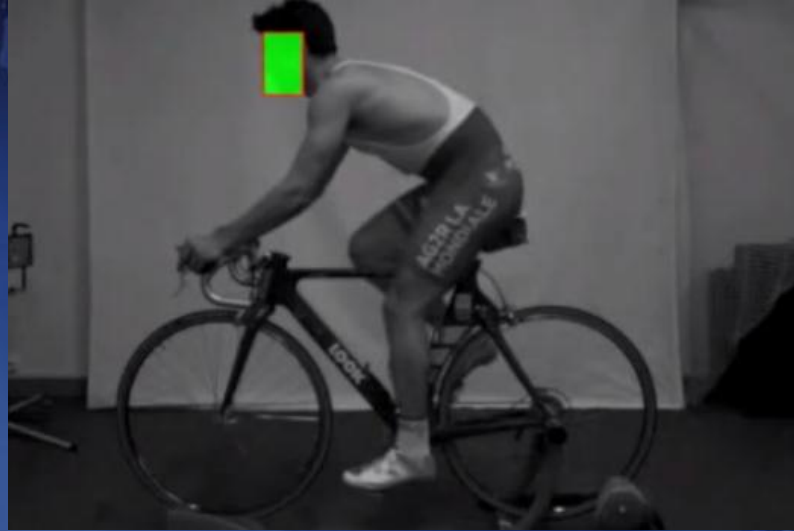
Arterial Endofibrosis

Arterial Endofibrosis: what is it?

- **Non-atheromatous stenotic arterial disease**
- **External iliac artery (90%)**
- **Athletes - Cycling
Endurance sports**
- **Subendothelial, collagenous,
paucicellular fibrosis**

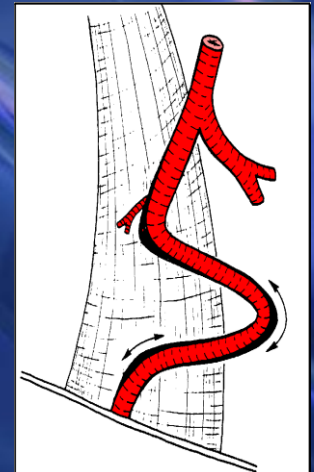
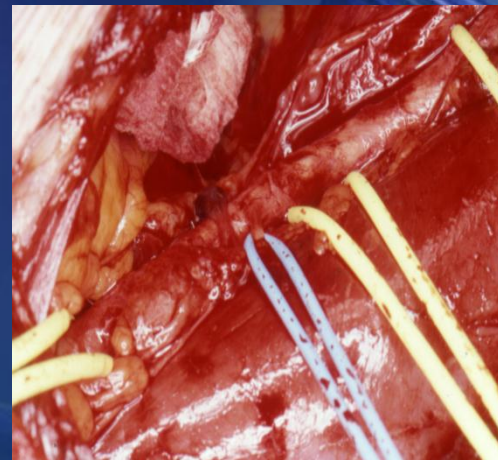


Pathophysiology 1

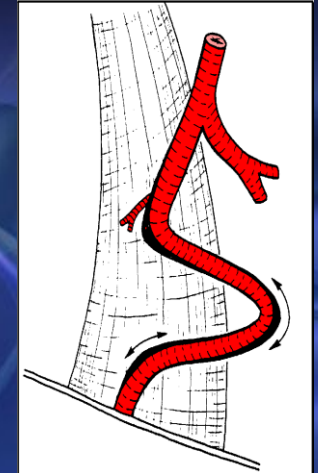
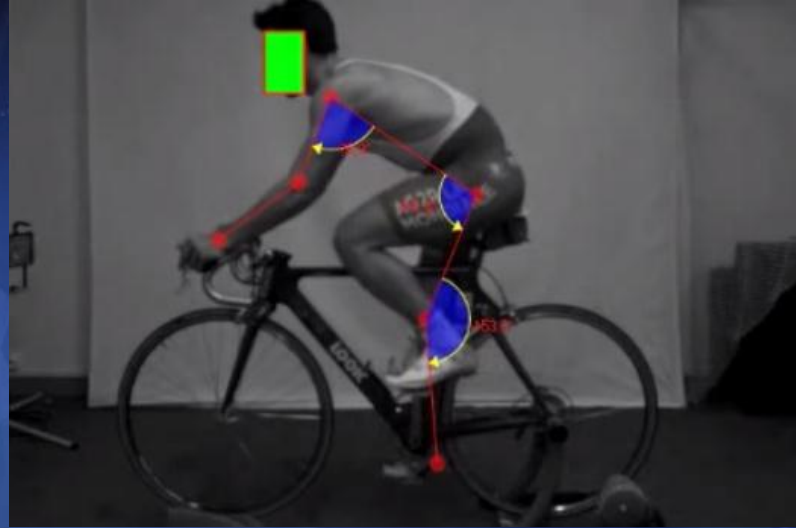


Anatomical Factors

- psoas muscle artery (64%)
- high aortic bifurcation (9%)
- hypertrophic psoas muscle

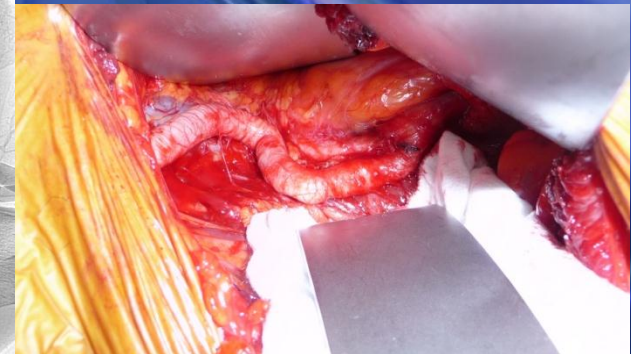


Pathophysiology 2

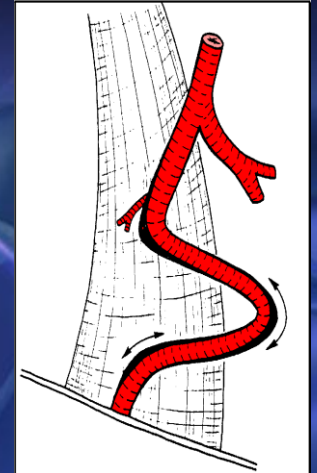
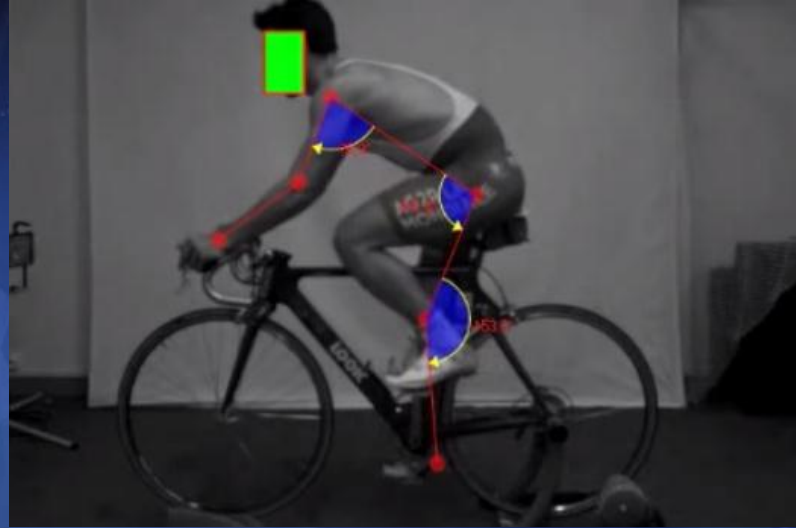


Mechanical factors

- cyclist position
- hip hyperflexion
- excessive iliac length
- external iliac artery kinking
- pedaling movement

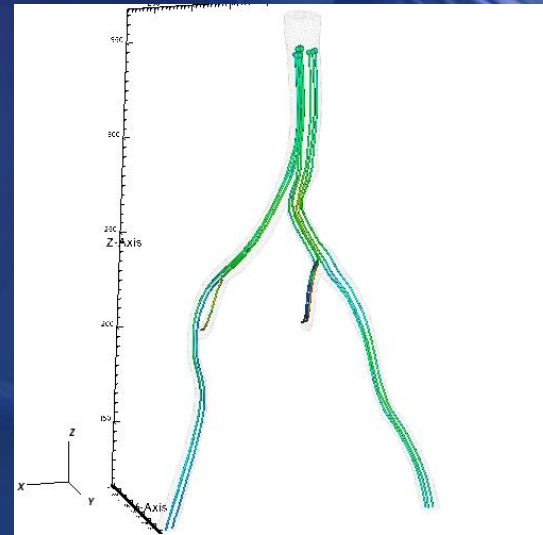


Pathophysiology 3



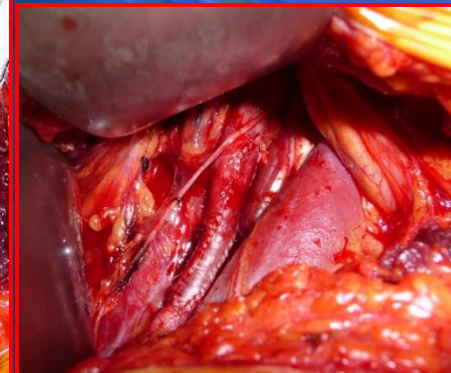
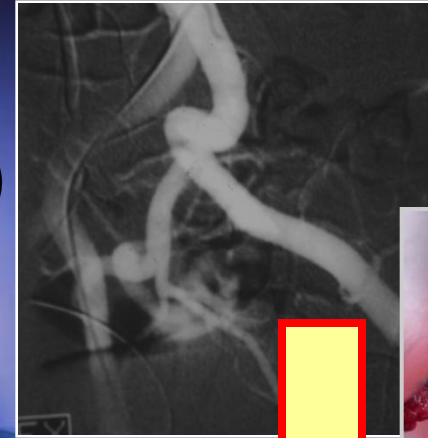
Hemodynamic Factors

- endurance sports
- high aortic flow
- shear stress, jet lesion



Surgical treatment

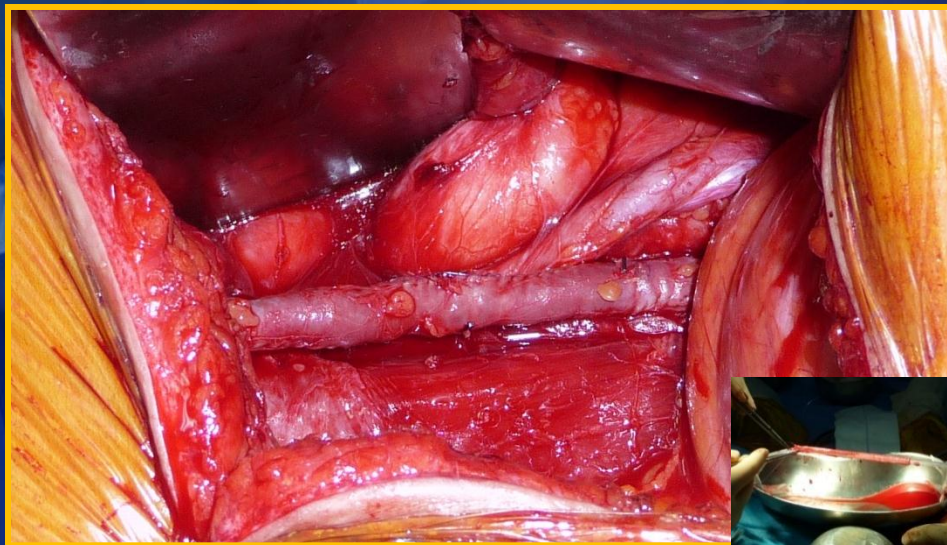
- **Conservative procedure (75%)**
 - endofibrosectomy
 - arterial shortening
 - Closing venous angioplasty
- **Iliac revascularization (25%)**
Calibrated saphenous graft



Surgical Treatment

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Calibrated saphenous graft



These surgical procedures are not recommended



Prosthetic Bypass

**Endovascular Treatment
PTA +/- stenting**



Lyonnaise experience

- **574 operated athletes (1991-2012)**
 - **Conservative surgery: 430 athletes (42W, 388M)**
 - **Venous bypass: 141 athletes (21W, 120M)**
 - **PTA without stent: 3 athletes (3M)**
- **Bilateral lesions: 40 (7%)**

Long term results

- Mean follow-up = 9.7 ± 3.2 years
- Sporting recovery = 3.7 ± 1 months
- Long-term athletic performance
 - improved: 500 (87%)
 - no change: 46 (8%)
 - worse or stop sport: 28 (5%)
 - reoperation: 16 (2.7%)

Conclusion

- **Specific management**
 - **Specific indications / multidisciplinary team**
 - **Early and secure athletic recovery**
 - **Long-term advantages:**
 - good resistance to repeated stretching
 - good resistance to high-flow conditions
 - good patency
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