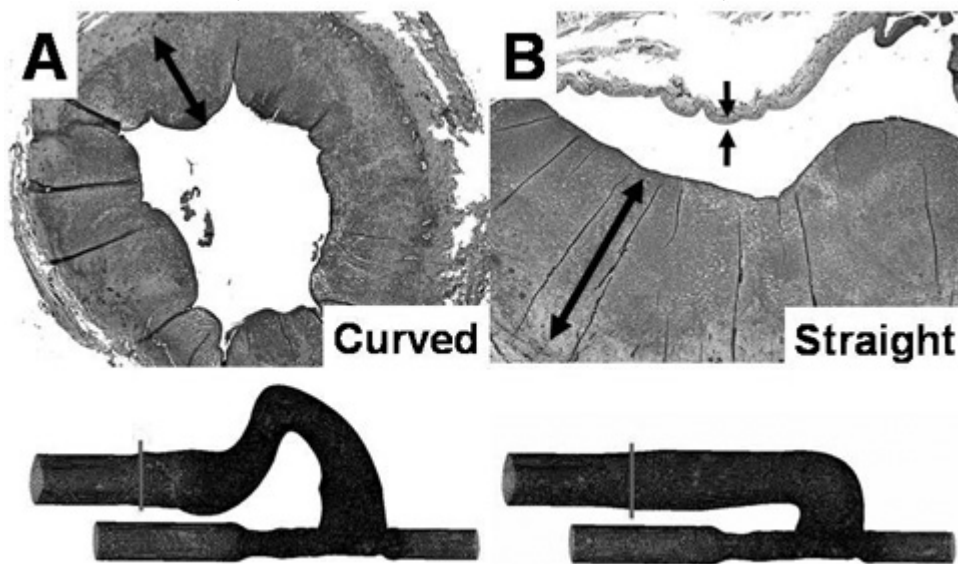


[F-FC156] Anatomical Configuration of an AV Fistula Influences the Pattern of Intima-Media Thickening.

Mahesh Krishnamoorthy, Rupak Banerjee, Yang Wang, Jianhua Zhang, Steve Rudich, Lois Arend, Prabir Roy-Chaudhury
Cincinnati Access Research Program, University of Cincinnati, Cincinnati, OH

Introduction: Hemodialysis vascular access dysfunction due to early arteriovenous fistula (AVF) stenosis is currently a significant clinical problem which has been reported to occur in upto 50% of all incident AVF. However, it is unclear as to why some AVF fail while others do not. We therefore hypothesized that the anatomical configuration of an AVF was an important determinant of AVF success or failure. **Methods:** AVF were created between the femoral artery and vein of Yorkshire swine in either a straight or curved configuration. Animals were sacrificed at 42 days. Formalin fixed, paraffin embedded sections of the venous segment were examined morphometrically for % luminal stenosis and for the ratio of maximal to minimal intima-media (IM) thickness within a single cross section. **Results:** % luminal stenosis was similar in the curved (C) and straight (S) fistulae ($C=76.25\pm 4.25\%$ vs $S=67.5\pm 2.95\%$). However, the straight fistulae had a markedly eccentric pattern of IM thickening with a maximal to minimal IM thickness ratio of 39.6 ± 19.3 (compare the length of the doubleheaded arrow in Fig B, with the tissue between the small arrows) versus 4.0 ± 1.1 for the curved fistulae (Fig A). While this did not reach statistical significance ($p=0.28$; unpaired t test), the histological differences between the two configurations was striking (Figure A vs B). **Discussion:** These initial results suggest that the anatomical configuration of an AVF could play an important role in determining the pattern of IM thickening, perhaps as a result of differences in hemodynamic shear stress profiles between the two configurations. We believe that optimization of the anatomical configuration of AVFs in individual dialysis patients could result in a reduction of early AVF failure.



Friday, November 2, 2007, 5:00 PM

Free Communication: Vascular Access for Hemodialysis (4:00 PM-6:00 PM)

2014

All information presented at Renal Week is embargoed for media release until one hour (PT) after presentation on the date scheduled at the ASN meeting. This includes all releases that are part of the media kit and corporate press releases that address research being presented at the annual meeting. Please email Shari Leventhal at seventhal@asn-online.org with questions pertaining to embargoes.

© 2007 ASN

[Close Window](#)