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Titel des Beitrags:
Inflammatory Infiltrates and Neovessels Are Relevant Sources of MMPs in Abdominal Aortic Aneurysm Wall

Abstract:
Objectives: Abdominal aortic aneurysm (AAA) wall is characterized by degradation of extracellular matrix through matrix metalloproteinases (MMPs), chronic inflammatory cell infiltration and extensive neovascularization. So far, MMP expression within AAA wall in association with infiltrates and neovascularization has not yet been studied. Methods: Vessel walls of 15 AAA patients and 8 organ donors were analyzed by immunohistochemistry for expression of various MMPs (MMP-1, -2, -3, -7, -8, -9, -12 and -13) in all cells located within the AAAs and correlated with infiltrates and neovascularization. Results: Luminal endothelial cells (ECs) were positive for MMP-1, -3 and -9, ECs of mature neovessels were furthermore positive for MMP-2. Immature neovessels expressed all MMPs tested except for MMP-13. Aortic medial smooth muscle cells (SMCs) expressed MMP-1, -2, -3 and -9, SMCs of mature neovessels, only MMP-1, -3 and -9. Inflammatory infiltrates expressed all MMPs tested except for MMP-2, macrophages expressed all MMPs. Infiltrates were composed mainly of B cells (58.5 ± 10.9%) and T lymphocytes (26.3 ± 9.5%). Furthermore, significant inverse correlations were found between the amounts of inflammatory cells, neovessels and collagen/elastin content of the aortic vessel wall ($r = +0.806/p < 0.001$, $r = –0.650/p = 0.012$, $r = –0.63/p < 0.015$; respectively). Conclusion:
Inflammatory infiltrates and invading neovessels are relevant sources of MMPs in the AAA wall and may substantially contribute to aneurysm wall instability.

Stichworte: Aneurysm; Matrix metalloproteinases; Inflammation; Neovascularization

Zeitschriftentitel: Pathobiology

Jahr: 2009

Band: 76

Heft / Issue: 5

Seiten: 243--252

Volltext / DOI: http://doi.org/10.1159/000228900

Verlag / Institution: S. Karger AG

Verlagsort: Basel, Switzerland

Print-ISSN: 1423-0291

E-ISSN: 1423-0291

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Occurences:
- Kollektionen > Open Access Publikationen > 2009
- Kollektionen > Open Access Publikationen > Verlage > Karger

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