LIVE 2019 Leading Innovative Vascular Education
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Organized by:
Institute of Vascular Diseases (IVD), Greece
In collaboration with:
Hellenic Society of Vascular and Endovascular Surgery
Stony Brook University Medical Center, New York, USA
International Symposium on Endovascular Therapeutics
Intervention Master Aortic Course
10th ANNIVERSARY

Expansion and Atrophy –

aortic wall development after EVAR with an endoleak type II

A Busch

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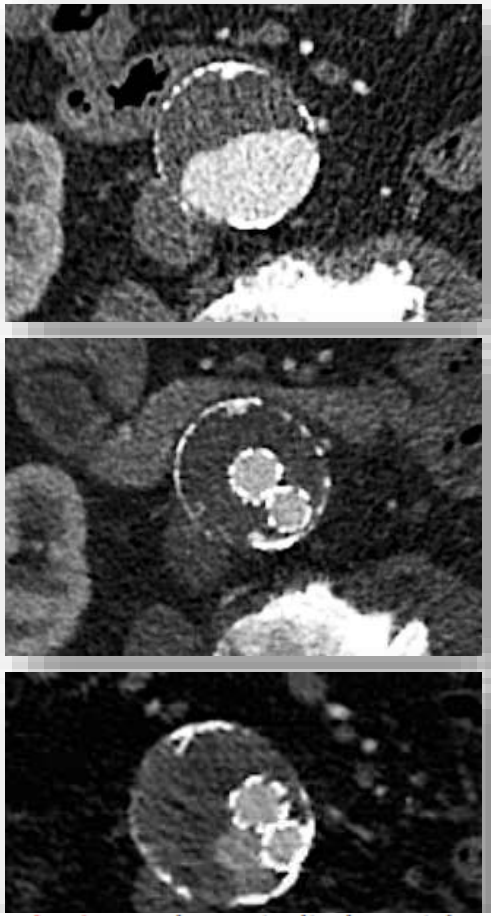
The structural atrophy of the aneurysm wall in secondary expanding aortic aneurysms with endoleak type II

Anna-Leonie Menges, MD,[a] Albert Busch, MD,[a,b] Benedikt Reutersberg, MD,[a] Matthias Trenner, MD,[a] Philip Kath,[a] Ekaterina Chernogubova, PhD,[b] Lars Maegdefessel, MD, PhD,[a,b] Hans-Henning Eckstein, MD,[a] and Alexander Zimmermann, MD,[a] *Munich, Germany, and Stockholm, Sweden*

Introduction



- AAA prevalence age dependent 2-11%
- EVAR in 80% of elective and 60% of acute repairs
- specific complications:

  type I and III endoleaks (EL) ▶ immediate repair

  type II EL in 20-32% of EVARs ▶ watch and wait

  - ca. 30% spontaneous resolution
  - ca. 30% persist w/o sac growth
  - ca. 30% persist w/o sac growth ▶ repair >5mm growth

    low rupture rate reported

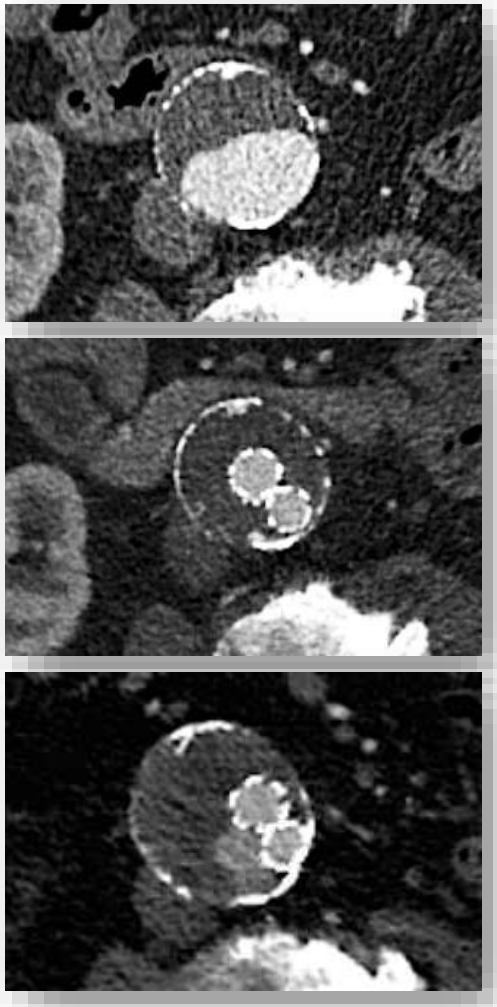
REVIEW

Editor's Choice — Systematic Review and Meta-Analysis of the Outcome of Treatment for Type II Endoleak Following Endovascular Aneurysm Repair

Klaas H.J. Ultee [a,f], Stefan Büttner [a,f], Roy Huurman [a], Frederico Bastos Gonçalves [a,b], Sanne E. Hoeks [c], Wichor M. Bramer [d], Marc L. Schermerhorn [e], Hence J.M. Verhagen [a,*]

Conclusion: There is little evidence supporting the efficacy of secondary intervention for type II endoleaks after EVAR. Although generally safe, the lack of evidence supporting the efficacy of type II endoleak treatment leads to difficulty in assessing its merits.

Introduction



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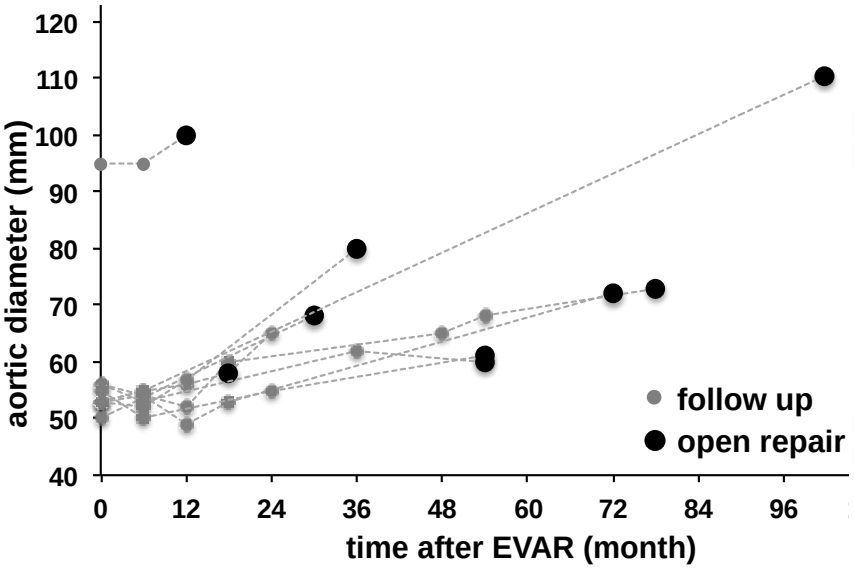
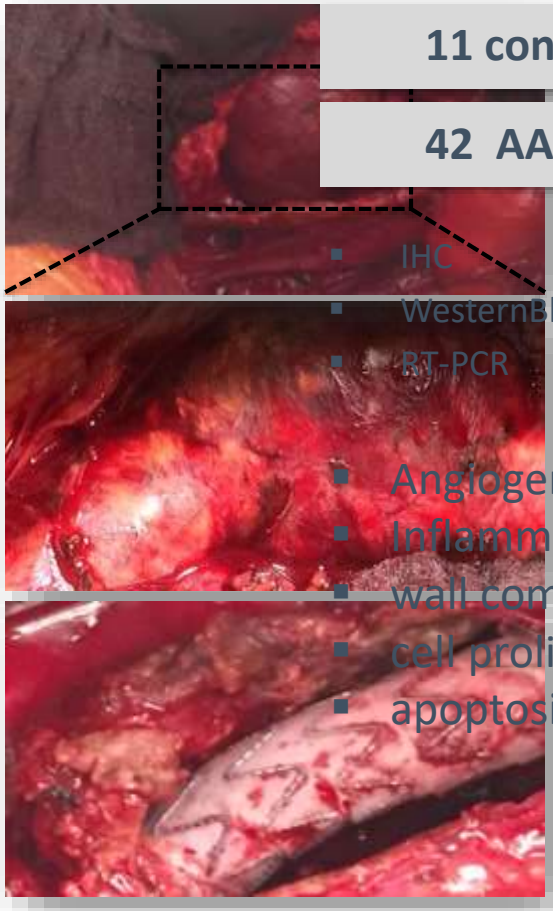
central research question

What happens in the secondary expanding aneurysm sac wall due to endoleak type II compared to normal aorta and AAA?

Study Design





11 control aortae

42 AAA samples

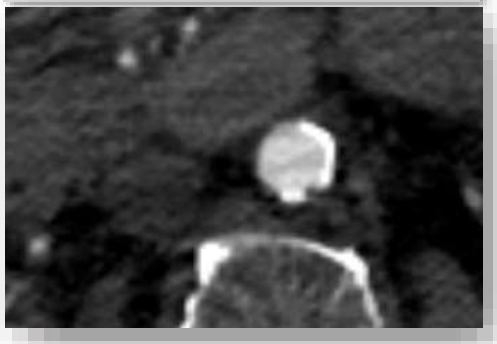
- IHC
- WesternBlot
- RT-PCR

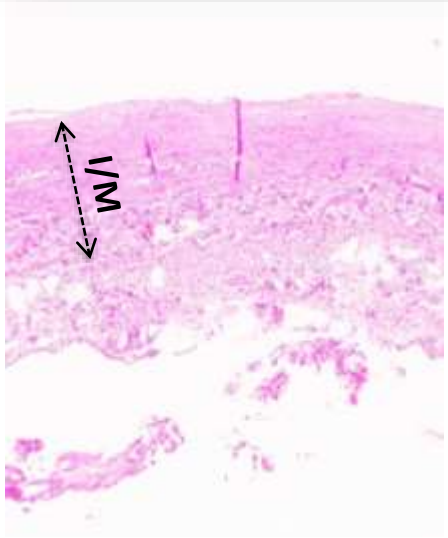
- Angiogenesis
- Inflammation
- wall composition
- cell proliferation
- apoptosis

10 patients → OR → structural analysis

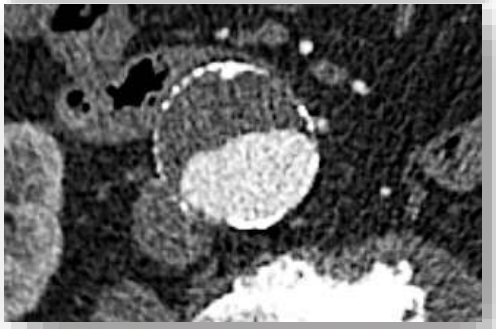
Results

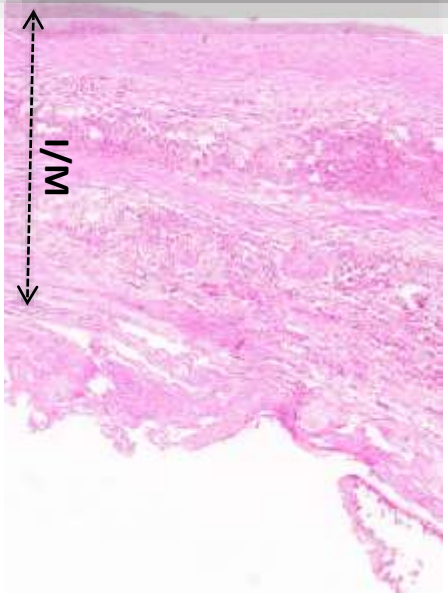
control aorta



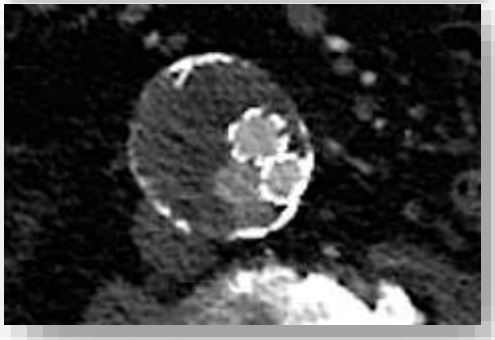


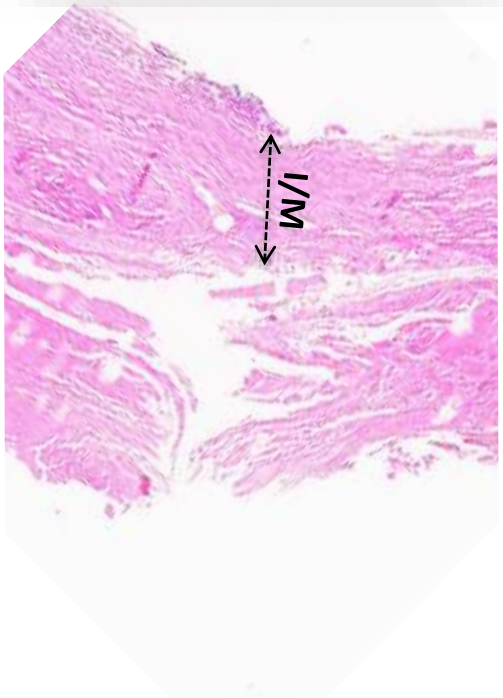
AAA





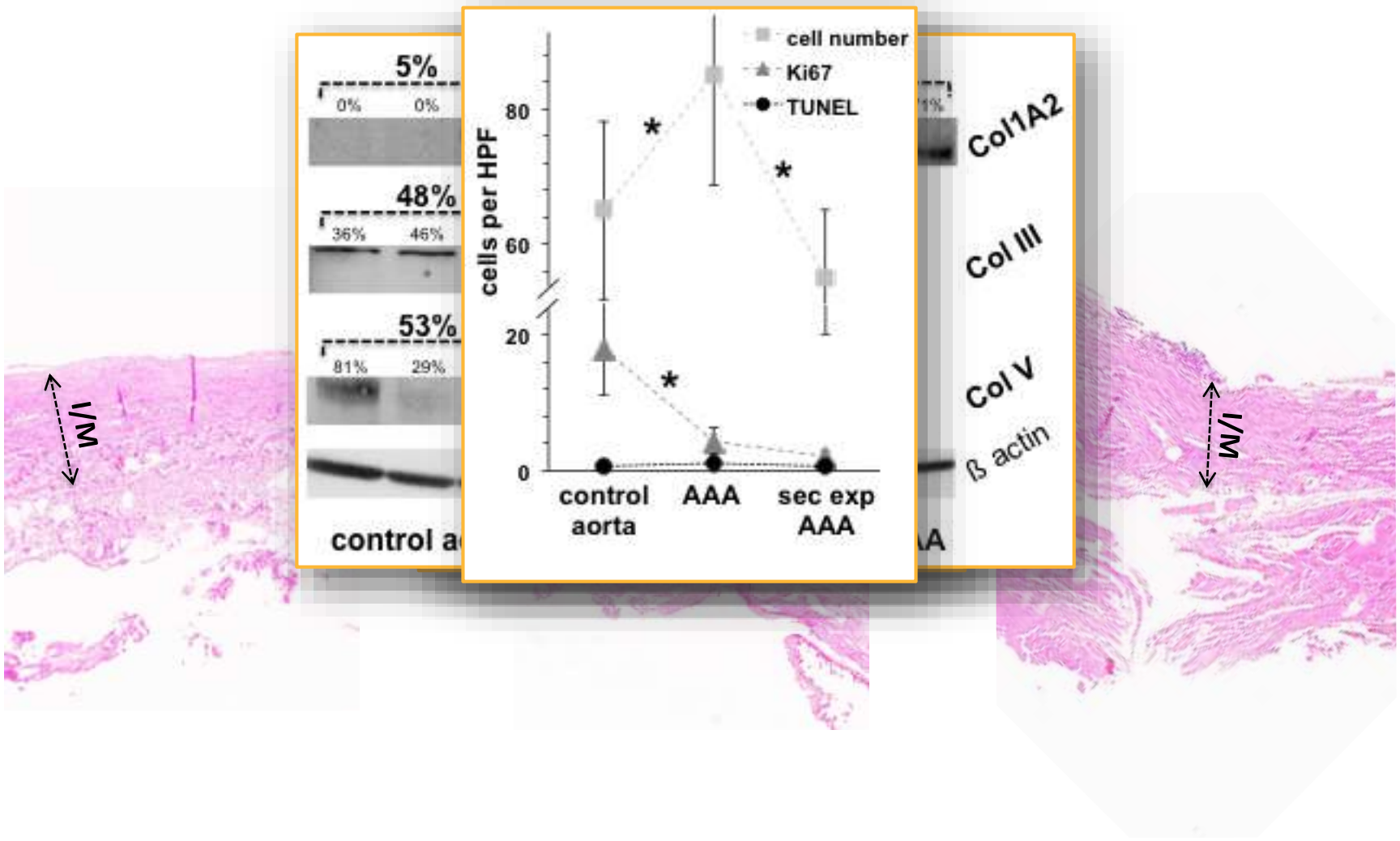
sec expanding AAA





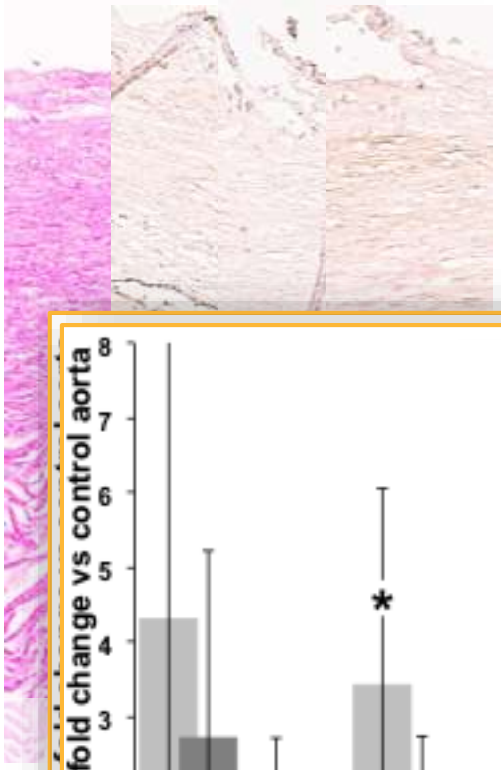
Results

control aorta | AAA | sec expanding AAA

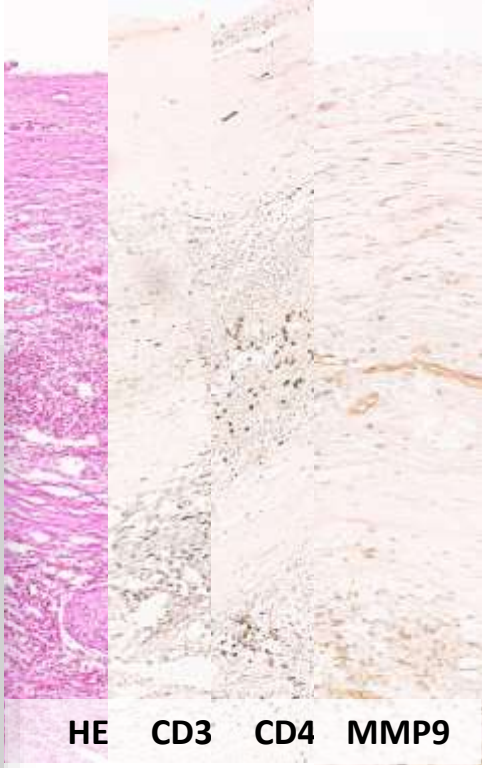


Results

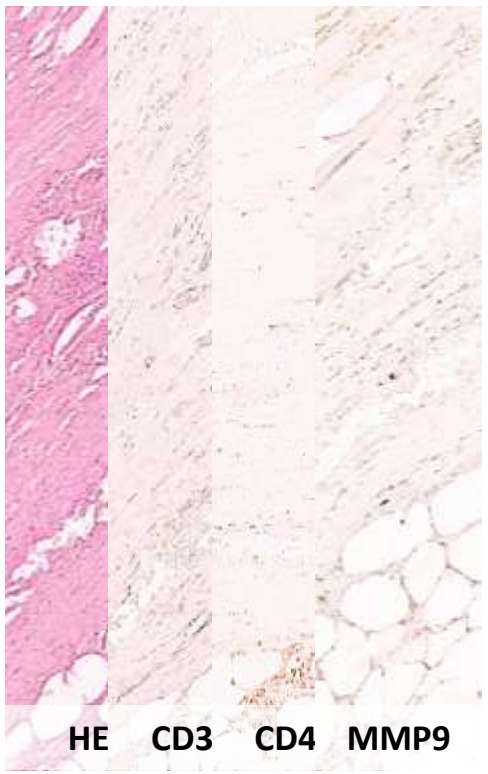
control aorta



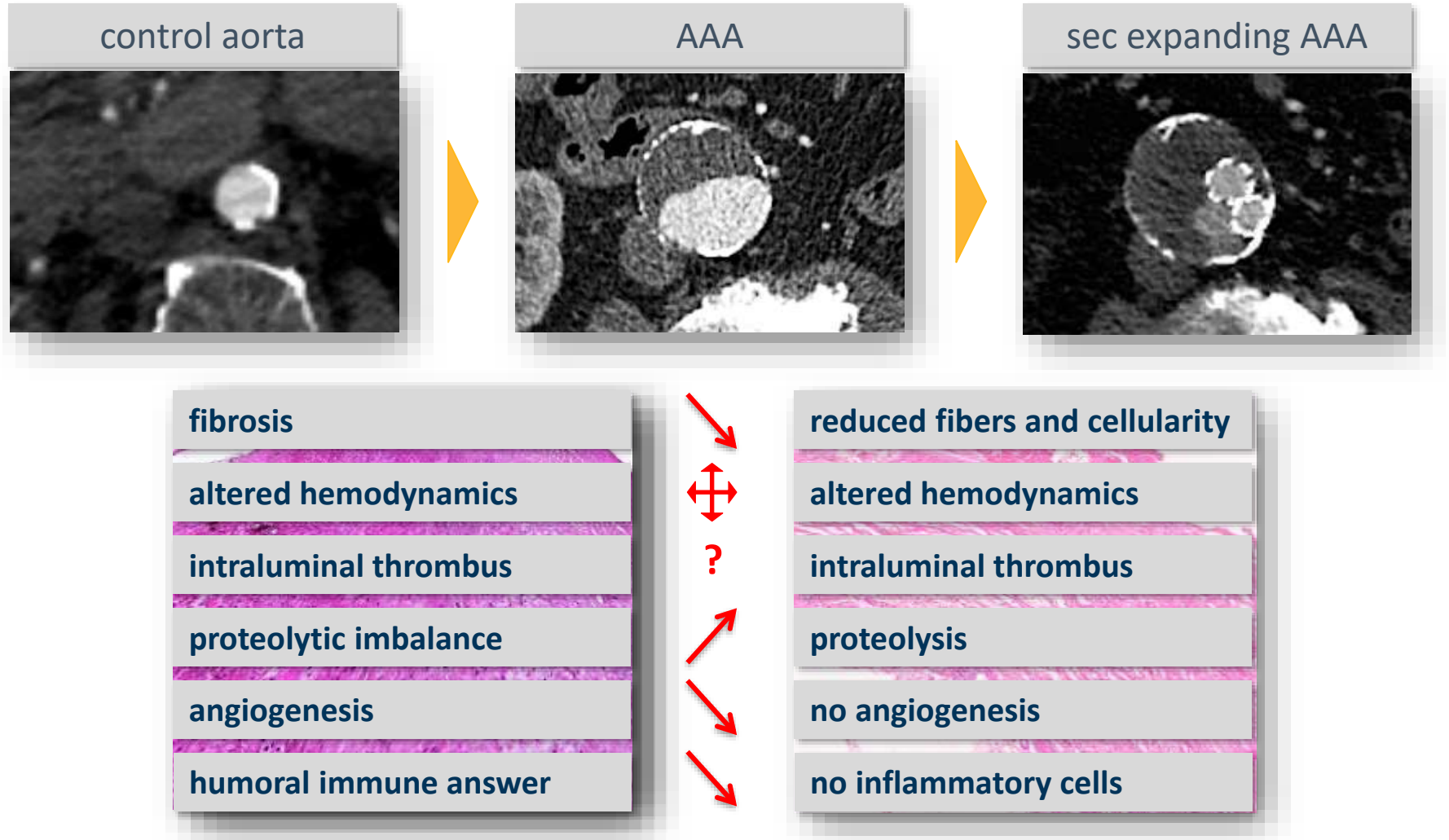
AAA



sec expanding AAA



Summary


control aorta
AAA
sec expanding AAA
fibrosis
altered hemodynamics
intraluminal thrombus
proteolytic imbalance
angiogenesis
humoral immune answer
?
reduced fibers and cellularity
altered hemodynamics
intraluminal thrombus
proteolysis
no angiogenesis
no inflammatory cells

Conclusion

central research question

What happens in the secondary expanding aneurysm sac wall due to endoleak type II compared to normal aorta and AAA?

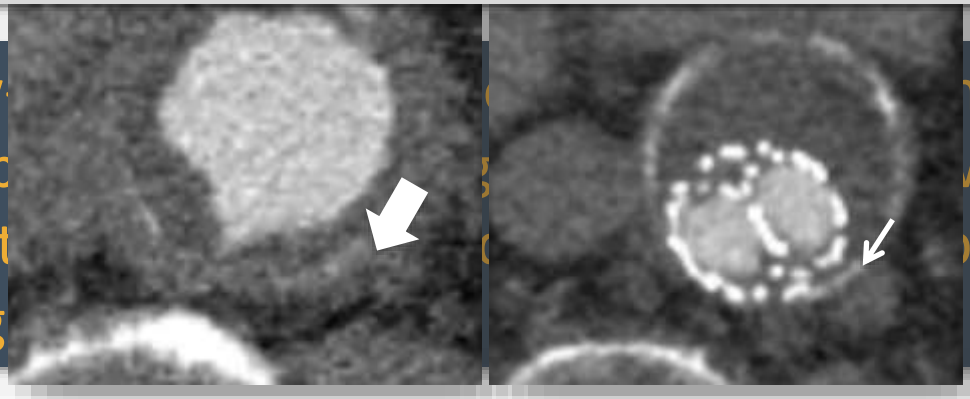
thin and fibrotic wall with little cellularity and enzymatic activity

suggests a widely inert aneurysm sac exposed to the special conditions of EL type II

adds additional evidence to the role of pressure and stress on the aneurysm wall

rupture might be less frequent than secondary/late type I/III endoleak

EVAR follow- … neurysm en-
largement, b … wth, luminal
thrombus, st … roximal and
distal sealing …



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