Is Endotension still a reality with modern vascular imaging: what conditions can mimic it?

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Consensus Conference
Veith Symposium, November 2001
NYC
Is endotension a myth or a reality?

The term endotension is proposed to define persistent or recurrent pressurization of the aortic aneurysm sac after endovascular repair.

Geoffrey Gilling-Smith
Liverpool, England
1955 - 2010

Endotension after Endovascular Aneurysm Repair: Definition, Classification and Strategies for Surveillance and Intervention
J Endovasc Ther, Nov 1999 vol 6, no 4, 305-307

Geoffrey Gilling-Smith
Royal Prince Alfred Hospital
Sydney, Australia

Hypothesis

Endotension (increasing pressure in the sac) is classified as an enlarging aneurysm sac without a visible endoleak.

It might be due to:
- an undiagnosed endoleak with very slow flow and suboptimal imaging
- an intrasaccular hygroma which causes pressure and sac enlargement
- the transudation of fluid through the graft fabric
- an endograft infection (?)

This situation may require aortic relining or conversion to open surgery.

Surgical Conversion

Endotension following endovascular aneurysm repair

Original-permeability Excluder

Sac expansion frequently occurs in the absence of endoleak, often referred to as endotension.

Follow up

Post-implantation intrasaccular pressure & implications on aneurysm size

High pressure = Aneurysm sac expansion

Relining Strategy

Structural modification of the endograft

Limitation of excessive porosity
Pressure Sensors

Proposed by Jay Jadav, MD

What is the significance of endoleaks and endotension?

Christopher Zarins, MD

“Endotension is particularly associated with angulation of the proximal aspect of the graft.”

Surgical Clinics of North America, Nov 2004, 84 / 5:1337-1352

Case Report

- Mr MIL... D.
- Born 6/13/32
- Operated on November 30, 2009
- AAA 67mm in diameter
- Aorto-Bi-Iliac Endograft

Low flow proximal endoleak

Only visible on the late arterial phase
Immediate control CT after total relining

Control CT
- 67mm - Nov. 2009 → EVAR
- 70mm - April 2010
- 80mm - Dec. 2012
- 85mm - July 2014
- 75mm - Dec 2014
- 70mm - March 2015

Angio-CT Aortic Imaging
- High resolution of new systems
- Importance of late injection phase
- Detection of suboptimal endoleak

Conclusion
Endotension is not a myth.
It is most often a miss!

Invisible endoleak
Slight proximal migration
Increase of neck angulation

Follow up with late angiographic phase on CT controls