



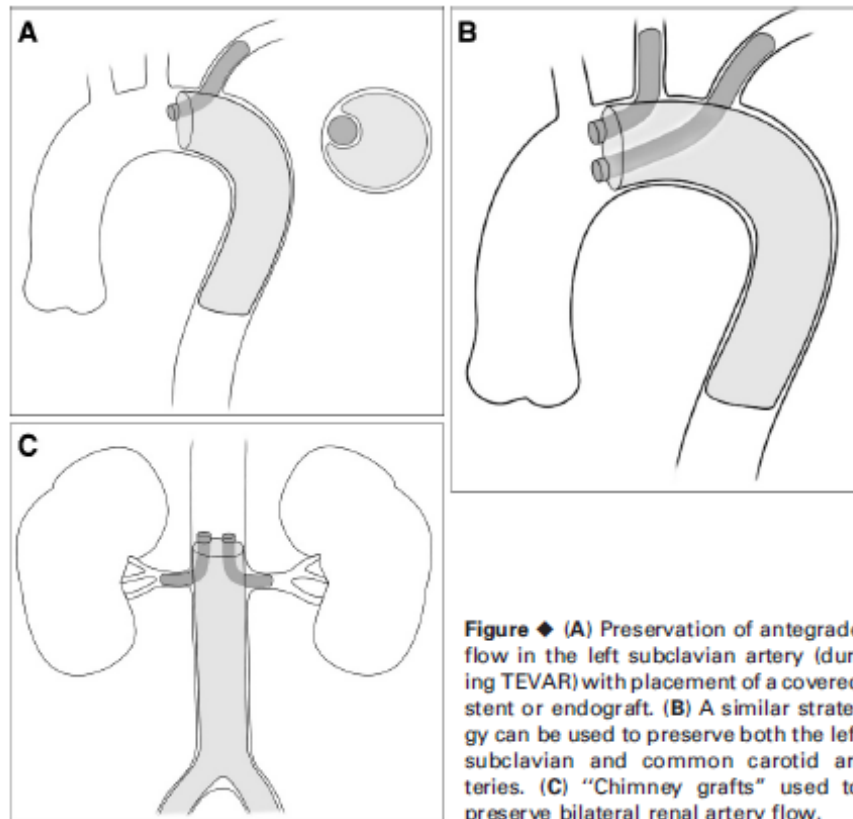
VASCUPEDIA

# Gutters after Chimney EVAR:

*How „PERICLES and PROTAGORAS“  
can protect ACHILLES heel?*

Prof. Dr. Konstantinos Donas  
Department of Vascular Surgery  
St. Franziskus Hospital Münster, Germany

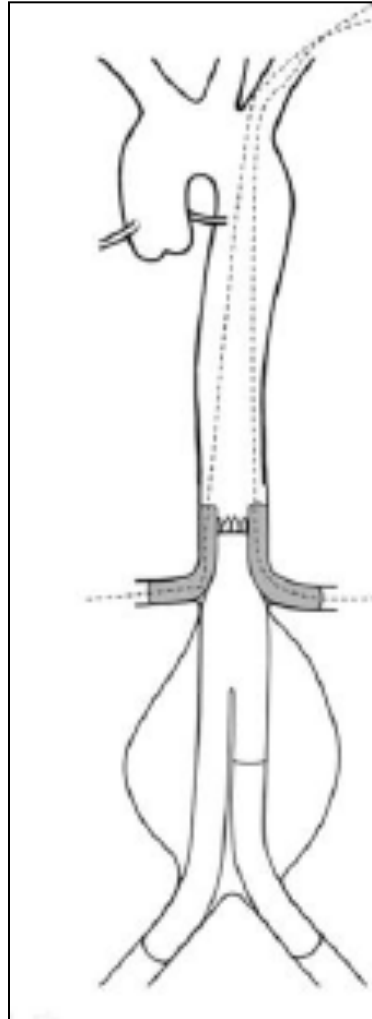
# First description of chimney EVAR as therapeutic modality



**Figure** ♦ (A) Preservation of antegrade flow in the left subclavian artery (during TEVAR) with placement of a covered stent or endograft. (B) A similar strategy can be used to preserve both the left subclavian and common carotid arteries. (C) "Chimney grafts" used to preserve bilateral renal artery flow.

*FJ Criado and M. Malina*  
*JEVT 2007*

# Chimney technique



# Strengths of the chimney technique

- **Availability 24h per day**
- **Overcoming anatomical obstacles**  
*(angulated necks, calcified iliac arteries)*
- **No need to involve the mesenteric artery**  
*(as in case of scallop or fenestration for the SMA during f-EVAR)*
- **Cost effective**

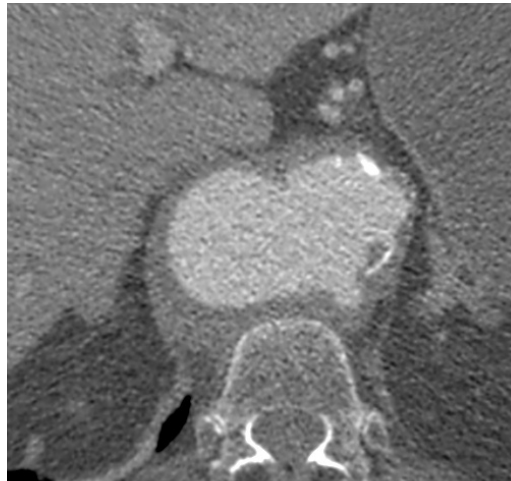
# Achilles heel of chimney EVAR

- Gutters?



# „Gutters“

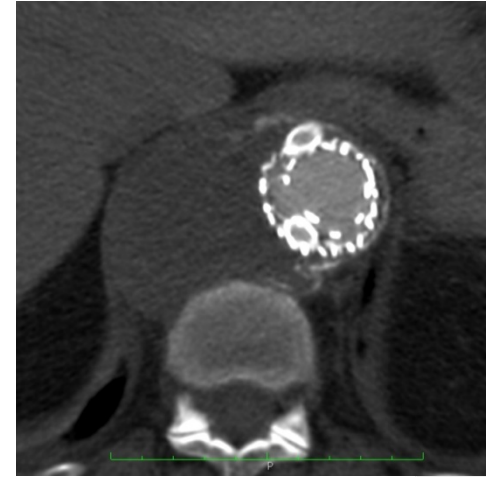
Benign phenomenon in the majority of the cases



12.9.2011



19.9.2011



28.11.2011



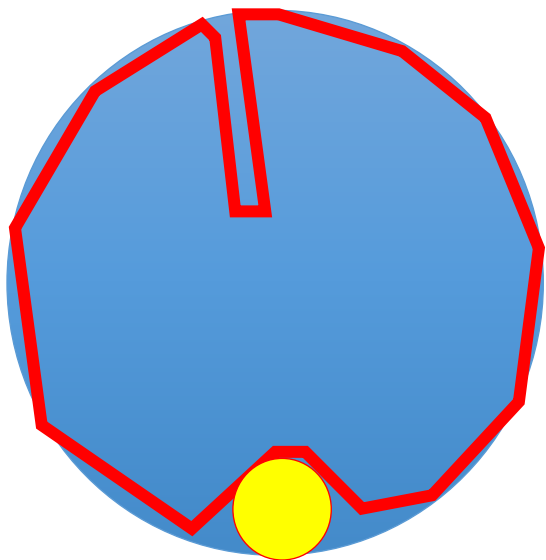
One year follow up (1.9.2012)

# Persistent gutter-related type IA endoleaks

## Novel classification based on causative mechanisms

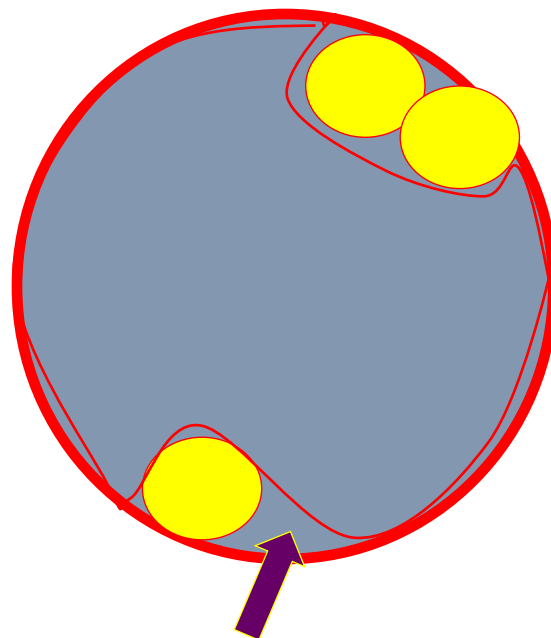
### Pattern A

Excessive oversizing of the aortic endograft



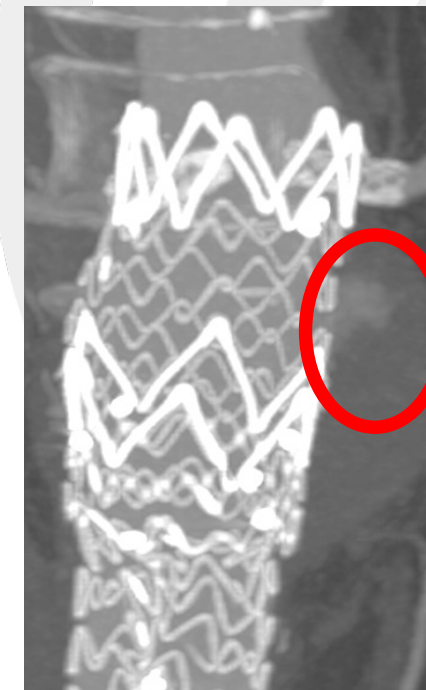
### Pattern B

Undersized aortic endograft in large neck diameters or multiple chimney grafts



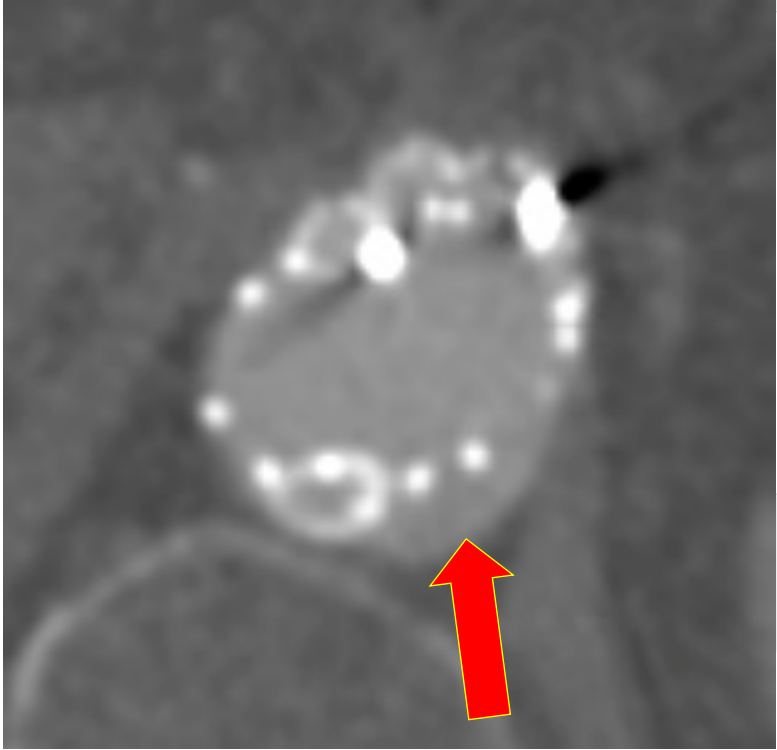
### Pattern C

Insufficient new sealing length and endograft migration



*Donas KP, Criado FJ, Lachat M, Torsello G, Minion D.  
Insights from PERICLES Registry. JEVT 2017*

# Type B causative mechanism



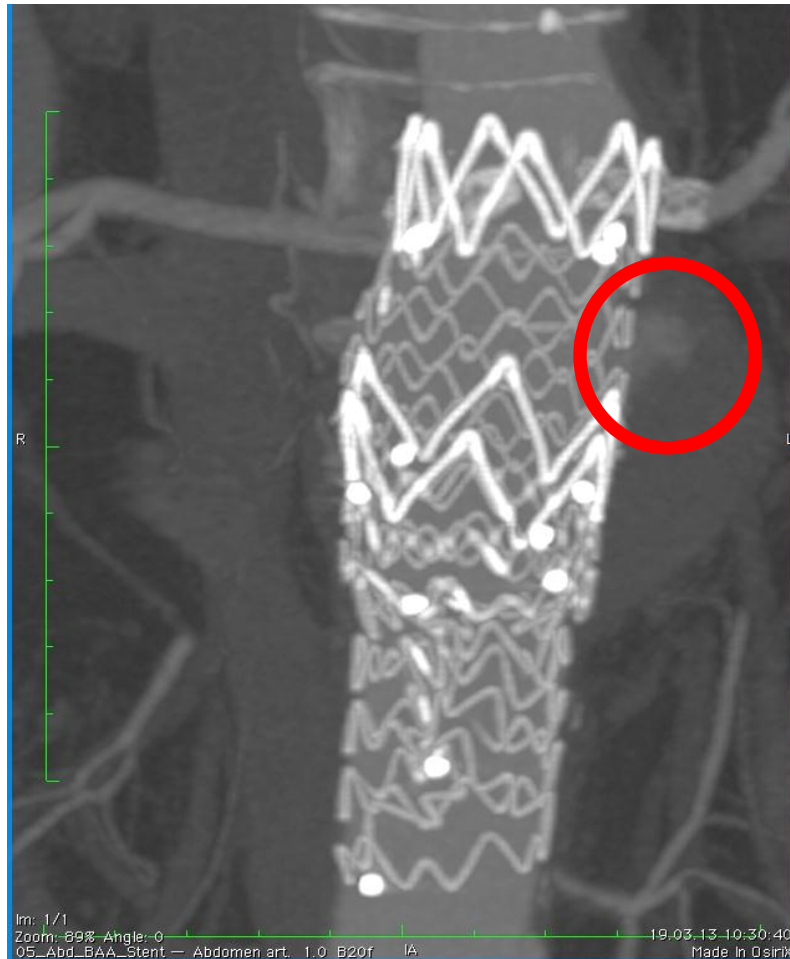


# Embolization by use of coils and Onyx



# Type C causative mechanism and treatment option

Proximal Extension and triple chimney graft placement



# Suggested management of persistent gutter-related type IA endoleak

- Type A:** Conservative treatment, intervention in case of aneurysm sac progress
- Type B:** Onyx embolization/ Use of Aptus Endoanchors
- Type C:** Proximalization of the landing zone with placement of additional chimney grafts in aortic side branches.

# Which factors play crucial role for the disappearing of gutter-related endoleaks?

- Combination of the devices  
*(abdominal stent-graft and chimney graft)*
- New sealing zone
- Degree of abdominal stent-graft oversizing
- Number of the chimney grafts

# Findings of the PERICLES and PROTAGORAS studies „to protect Achilles heel“



- Combination of the devices:

*(abdominal stent-graft and chimney graft)*

- New sealing zone:

- Degree of abdominal stent-graft oversizing:

- Number of the chimney grafts:

Endurant and Advanta V12

20mm

30%

1-2