CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES IN VASCULAR SURGERY
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Ruptured abdominal aortic aneurysm Fix it rapidly by open repair: it is the safest way

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Faculty Disclosure

I disclose the following financial relationships: **Jürg Schmidli**

I have **no financial relationships** to disclose.

Je déclare les informations suivantes : j

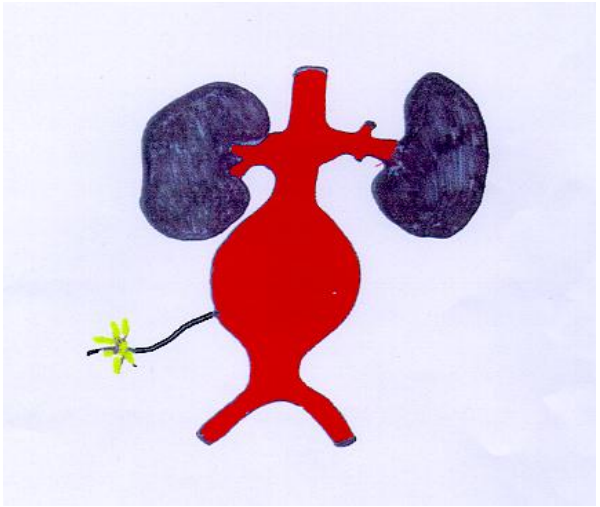
je n'ai **aucune relation financière** à déclarer.

Which is the safest way?

Eiger Mönch Jungfrau

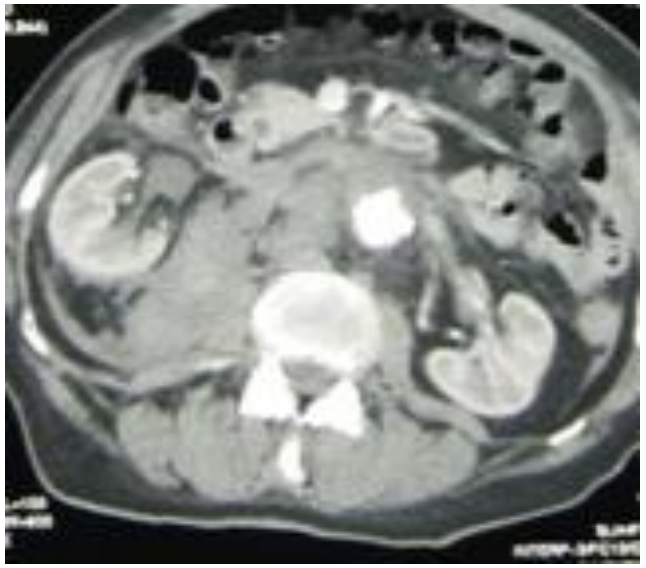
Predictors of risk ?

- **Patient related**
  - **Free rupture** → **STABILITY**
  - **Shock** → **STABILITY**
  - **Renal function**
  - **Age**
- **Surgeon related**
  - **Surgeon volume**
  - **Treatment modality (OAR or EVAR)**
- **Perioperative management**
  - **fluid and blood products** → **STABILITY**
  - **Blood pressure** → **STABILITY**
  - **Hospital volume**
  - **Delay**



Symptomes at rupture

- **Syncope, presyncope**
- **Back pain ➔ flank, buttocks, groin**
- malaise, nausea, vomiting



Etiology of syncope

Retroperitoneal process

parasympathetic activity

vasodilation, bradycardia ⇧ ➔ **HYPOTENSION**

NOT primary blood loss !

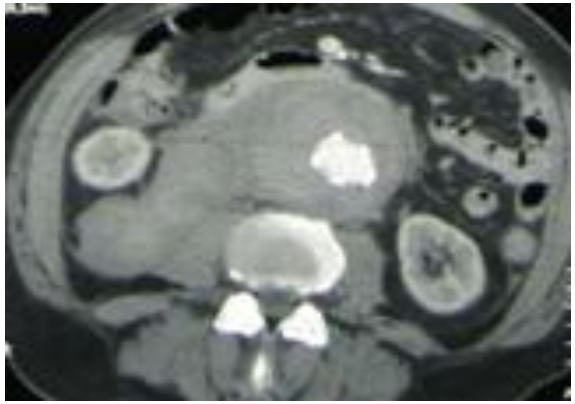
Dangerous reflex

Accept Hypotension

- **Slows bleeding**
- **local clot formation**
- **Local retroperitoneal tamponade (contained rupture)** Crawford S JVS 1991

Large volumes

- **increased blood pressure** Cotton BA et al. Shock 2006
- **Clot dislodgement** Rhee P et al. J Trauma 2003
- **Vicious circle: Increased bleeding**
- **Hemodilution / coagulopathy**
- **Hypothermia**
- **Acidosis**
- **Third space**



What is more important:

Fluids or pressure ?

Damage control strategies

- **Early damage-control surgery**
  - **Control of bleeding with early, aggressive, temporary techniques not meant to be the definitive therapy**

- **Early damage-control resuscitation**
  - **TOLERATE OR INSTITUTE relative hypotension**
  - **Institute hemostatic resuscitation strategies**
    - **Reduce risk of dilutional coagulopathy**
    - **Reduced crystalloid fluid administration (500 ml)**
    - **Aggressive blood component transfusion**
    - **1 PRBC : 1 FFP, Platelets**
    - **(Consider recombinant coagulant therapy (rFVIIa, PCC)**

Treatment algorithm in Berne

Phone Call (diagnosis rAAA known)

*

Paramedics

*

OR

*

unstable

‚stabilized‘

OAR

CTA < 3mm

suitable

Surgeon‘s preference

EVAR

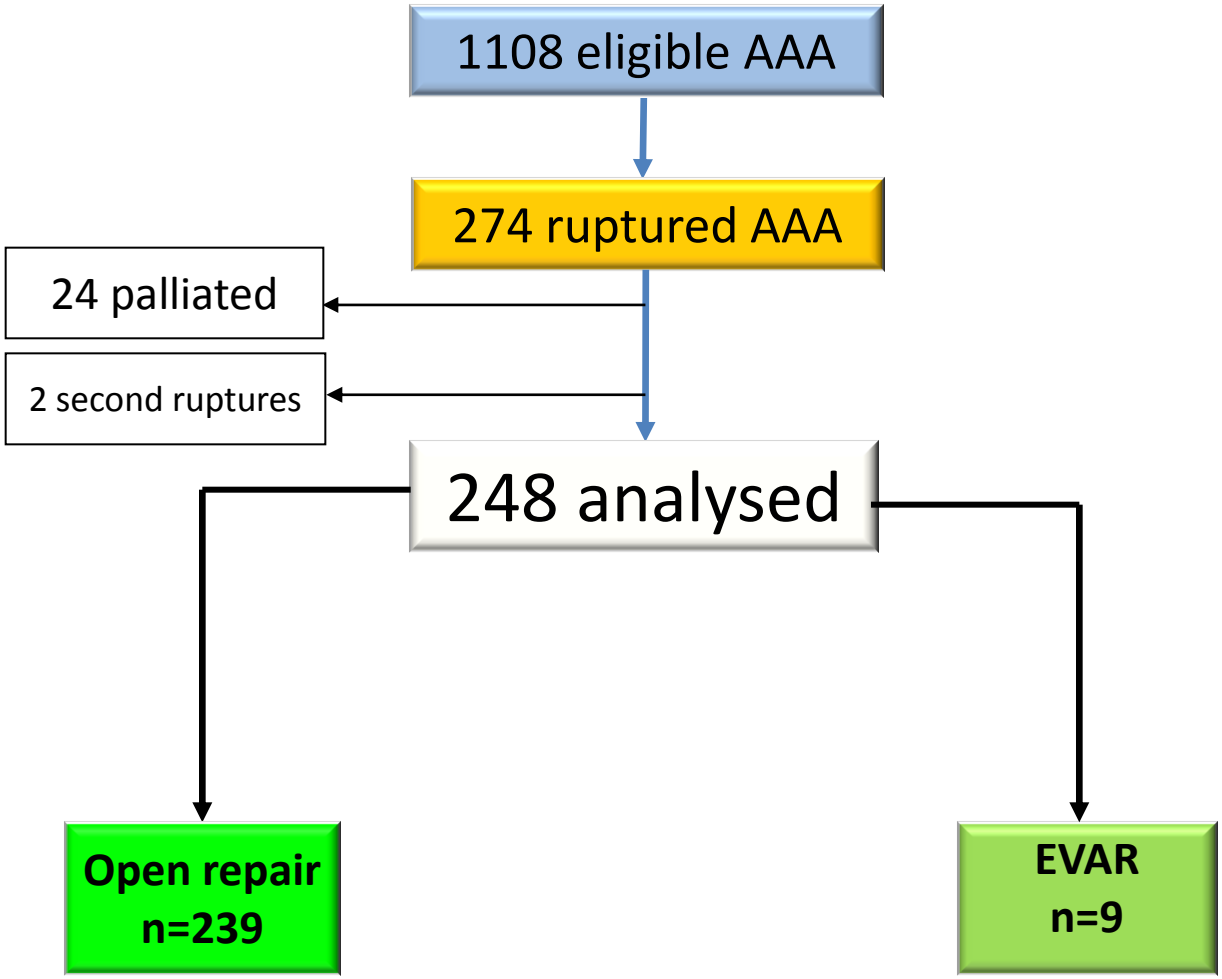
Not suitable

OAR

*Fluid restriction, permissive hypotension, no intubation, no catecholamines

Patient cohort Berne (2001 – 2010)

Opfermann P. et al. EJVES 2011



Posthoc analysis of prospective cohort: 248 consecutive patients with rAAA

male	90%
age, mean ± SD (y)	74 ± 9
median diameter (mm)	80
rupture site, % (aortic/CIA/HA)	91 / 7 / 2
duration of stay, median (d)	13

OAR in rAAA (2001-2010)*

	Acute Rupture	30-d-Mortality
N	**248**	**38 (15.3%)**
>80 y		27%*
<80y		12%
Hemodynamically stable	40%	8%
Unstable / shock	60%	22%
Suprarenal clamping	13%	16%

* Opfermann P. et al. EJVES 2011

European Journal of Vascular & Endovascular Surgery
esvs Journal
2011;42:475 - 483

Repair of Ruptured Abdominal Aortic Aneurysmin Octogenarians

P Opfermann, R von Allmen, N Diehm, MK Widmer, J Schmidli, F Dick

	N (%)		h)
All			
			5.1 (95%-CI 1.1-23.4) p=0.037

Mortality after OAR for rAAA:

NOT independent related to advanced age

Mainly driven by cardiac disease and manifest hypovolemic shock

BJS

2012 July;99(7):940-7

British Journal of Surgery

Endovascular suitability and outcome after open surgery for ruptured abdominal aortic aneurysm.

F Dick, N Diehm, P Opfermann, R von Allmen, H Tevaearai, J Schmidli

2 blinded investigators:

	N (%)		
All			
			9.2 (95%-CI 2.1-39.2) p=0.003
assessed	15 (6)		

Endovascular suitability:

Independent and strongly positive predictor of survival after OAR for rAAA

Suitable aneurysms fare better

Journal of Vascular Surgery®

2012 in press

Delayed volume resuscitation during initial management of rAAA

F Dick, G Erdoes, P Opfermann, B Eberle, J Schmidli, RS von Allmen

	N (%)	30-d-Mortality	OAR (…
All	248 (100)		
Total volume …			
			(95%-CI 1.06-2.33) p=0.026

Mortality in rAAA:

Volume resuscitation should be delayed until surgical control is achieved

Conclusions

- Mortality of OAR can be as low as in EVAR (15%-20%)
- Patient management is more important than ‚modality' of repair
- Predictive factors of mortality
  - Cardiac disease, hypovolemic shock (not age)
- Predictors of
- ensure
  specialities
- better results based on better preadmission care
- EVAR should not be a religion

EVAR: 20-30% abdominal compartment syndrome

OPEN REPAIR IS SAFE !

OPEN REPAIR IS THE GOLD STANDARD !