

When open classical techniques for AAA are still the „gold standard“?

Unexpected causes for critical decline of kidney function in a 76 year old patient six months after EVAR and bilateral renal artery stenting.


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Case Report

**76 years, male; asymptomatic AAA; 5,1 cm Ø
CAD; 1 year ago (AB (4 vessels, 2 art.; 2 CAVG)
BP 133 (69; 123/70; 114/ 68 mmHg)
Betablocker 5 mg/ per day; Kreatinin 1,3 mg/ dl**

02.07. 2014 PTA LRA; Aorto-biiliac stent graft, fenestrated stents both renal arteries

19.12.2014 Kreatinin 4,51 mg/dl; hydropic decompensation

22.12.2014 Removal of renal stents/ incomplete dilatated
Removal of aorto-iliac Stentgraft
Reconstruction left renal artery with vein graft
Straight aortic tube graft

05.04.2019 **Kreatinin 1,34 mg%; Betablocker 5 mg/ per day**

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CAD; 1 year ago (AB (4 vessels, 2 art.; 2
CAVG)**

BP 133 (69; 123/70; 114/ 68 mmHg)
Betablocker 5 mg/ per day;
Kreatinin 1,3 mg/ dl
Iliac arteries normal diameter

Questions

Primary treatment

a) In favour of EVAR (simultaneous)

- 1) PTRR and stenting one/ both renal arteries
- 2) EVAR fenestrated

b) In favour of EVAR (staged)

- 1) PTRR and stent only left side
- 2) EVAR unfenestrated

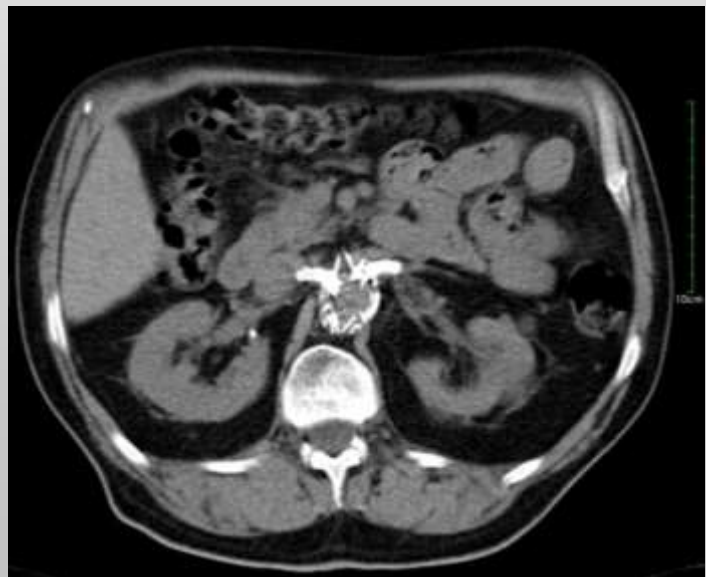
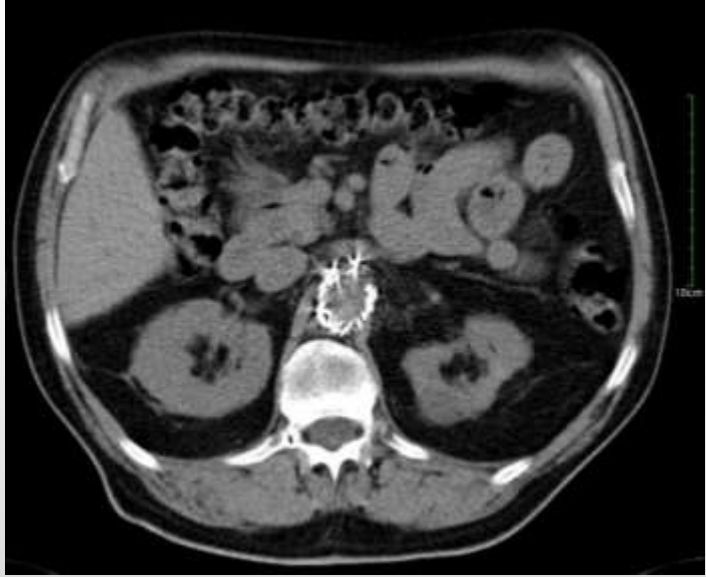
c) Against EVAR (staged)

- 1) PTRR and stent only left side
- 2) OR tube graft

d) Against EVAR (simultaneous)

- 1) Supraaortic clamping
- 2) Evtl. transaortic renal endarterectomy
- 3) Infrarenal clamping, OR tube graft

When open classical techniques for AAA are still the „gold standard“?



**Pat. R. B. , 76
years**

**Increasing
deterioration
of kidney
function
after aorto-
iliac
stentgraft
and bilateral
renal
stenting**

Questions Secondary treatment

a) In favour of EVAR

- 1) Re-Dilatation of stents
- 2) EVAR remaining, untouched

b) In favour of EVAR

- 1) Bilateral aorto-renal grafting
- 2) EVAR remaining, untouched

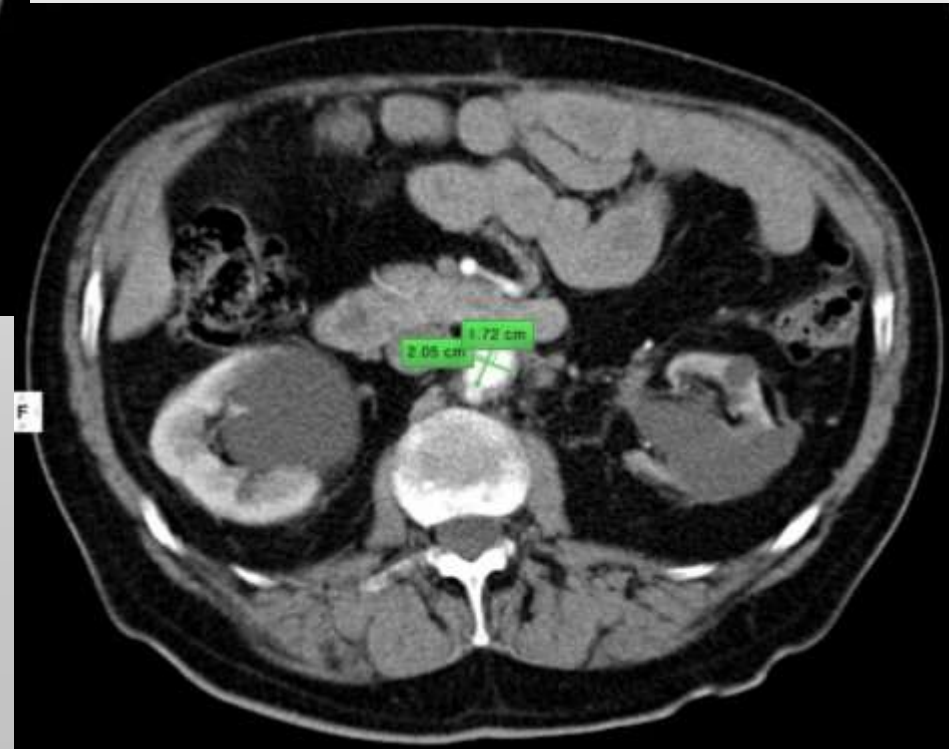
c) Against EVAR

- 1) Removing all endovascular material
- 2) Reconstruction of renal arteries
- 3) OR for AAA with tube grafting

When open classical techniques for AAA are still the „gold standard“?

**Pat. R. B. , 76 years
6 months postoperative**

**Straight aortic tube graft and
reconstruction LRA with vein
graft**



Kreatinin 1,3 mg%

When open classical techniques for AAA are still the „gold standard“?



*Pat. R. B., 76
years,
postoperative*



Kidney Function in AAA Patients after EVAR/ OR

- 1) Stents in both renal arteries and also fenestrated EVAR should give suspicion if Kreatinin rises from 1,3 mg% to 4,5mg% within 6 months, that perfusion of the kidney has impaired. This can be measured by Duplex Ultrasound and by calculation of the resistance indices. The **Endovascularist** told the patient that impairment of renal function was due to myocardial insufficiency/ failure.

Kidney Function in AAA Patients after EVAR/ OR

2) Independent from transitional impairment of renal function after either technique, which requires suprarenal approach there exists a continuing decline of renal function in EVAR patients which is well known but unexplained and which is not the case after OR.

When open classical techniques for AAA are still the „gold standard“?

Renal dysfunction and the associated decrease in survival after elective endovascular aneurysm repair

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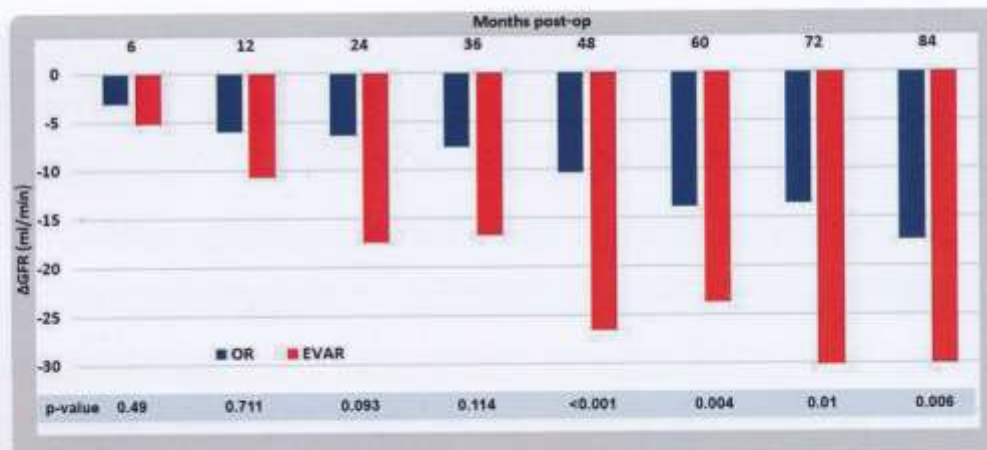


Fig 2. Change in glomerular filtration rate (Δ GFR) over time, open repair (OR) vs endovascular aneurysm repair (EVAR). GFR decline or Δ GFR is greater for EVAR than for OR at every year postoperatively. However, by looking at the *P* values at every year, we can see that the difference between the two groups becomes significant starting at 4 years postoperatively and thereafter.

Kidney Function in AAA Patients after EVAR/ OR

3) In experienced hands open repair (OR) of AAA and of concomittant RAS reduces the risk of renal failure and not only improves kidney function but facilitates postoperative blood pressure management.

4) Many patients accept stentgraft for AAA treatment and stents for RAS because they were told, that OR and renal artery reconstruction would be too risky, but isn't it amazing, that those patients in experienced hands not only survive this more challenging treatment but also get better? **Mortality 1,4%/ 1,0%**

Summary and Conclusion

- a) Stentgrafts inserted into the aorta and stents inserted into adjacent arteries will not remain unchanged, because the aorta and those arteries will degenerate with age and along the time after implantation. Therefore, early or late a sequence of complications arises and requires continuous control measures and subsequent procedures.
- b) Open surgery and not endovascular techniques is still the goldstandard of treatment and it will it be „**nice**“ in the sense of **NICE** that open surgical techniques, which have undergone a substantial refinement, are taught and can be learnt again by the younger generation of vascular surgeons.



***Thank you for
your attention!***