

Renal Artery Aneurisms

Our Experience



IX Congresso
Novas Fronteiras
em Medicina Cardiovascular

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Professor of Angiology and Vascular Surgery at ICBAS-UP
HSA-CHP Renal Transplantation Surgeon

Óbidos
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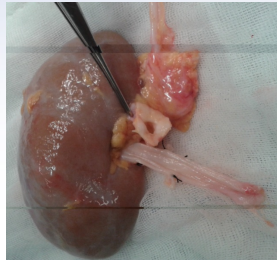
Renal Artery Aneurysms

Our Experience



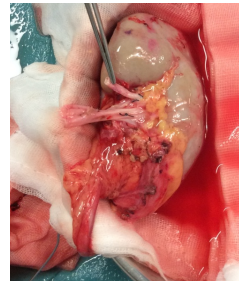
Historical Perspective

**Kidney Transplantation
Deceased Donor**



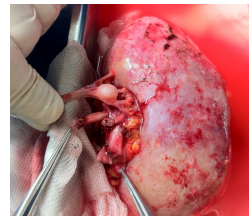
Patch

**Kidney Transplantation
Living Donor**



**Short Blood vessels
Without patch**

Autotransplant



**Arterial, Venous or
Urologic disease**

Renal Artery Aneurysms

Our Experience



**Why renal autotransplantation
as a technical reference?**

Impossibility of in situ surgical treatment

**Renal artery clamping times greater than 45
minutes**

Prevent nephrectomy

**Involves usually complex vascular
reconstruction**

Renal Artery Aneurysms

Our Experience



Autotransplant Technique

Nephrectomy

Conventional Surgery

Endoscopic Surgery

Ex situ surgery
(bank surgery)

Renal Preservation (renal lavage and cooling)

Disease correction

Transplant

In situ

Transplant in the iliac fossa

Renal Artery Aneurysms

Our Experience



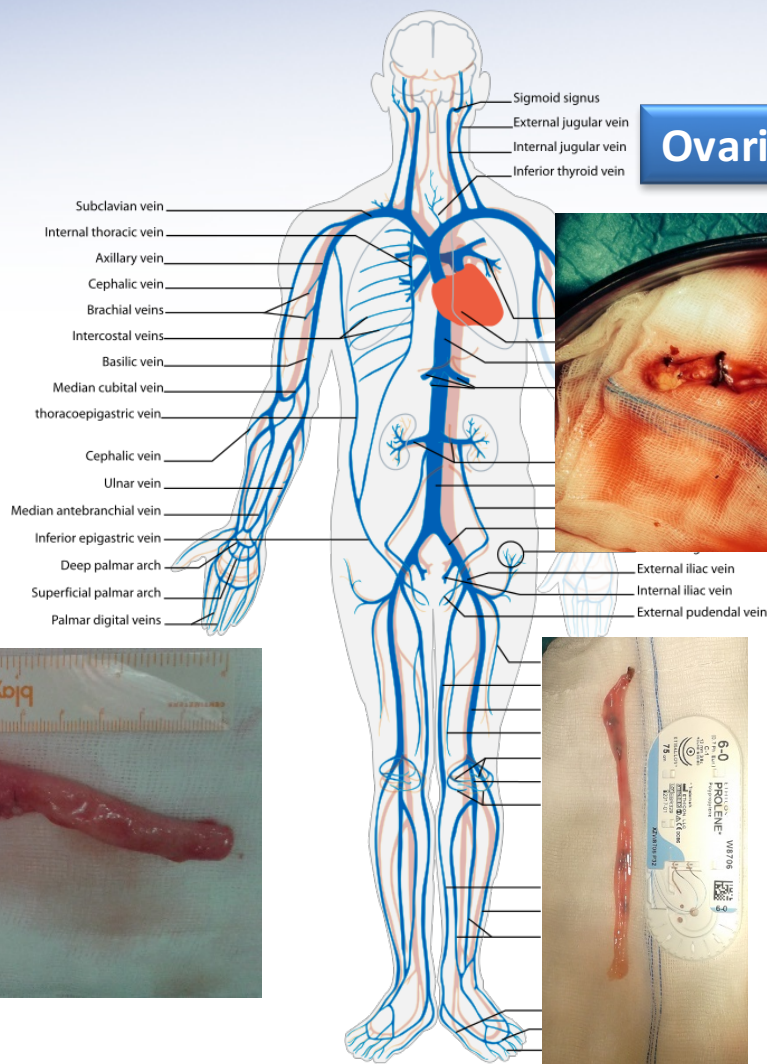
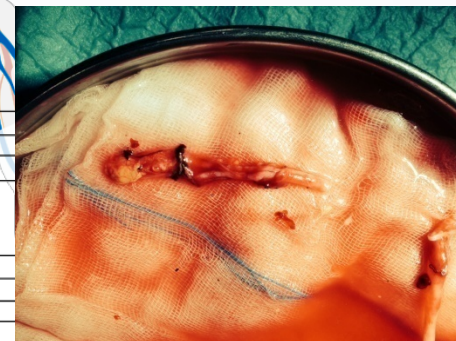
Autotransplant Technique

Prostheses for vascular reconstruction

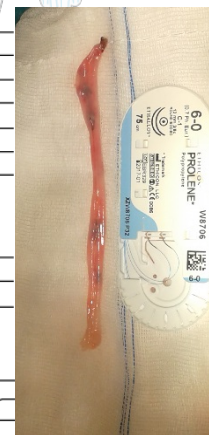
Deceased vessels



Ovaric vein



ISV



Renal Artery Aneurysms

Our Experience



Period from January 1, 2010 to December 31, 2018

True renal artery aneurysms	False aneurysms
35 patients (63,6%)	20 patients (36,4%)
Total 55 patients	

True renal artery aneurysms

Age			Female sex
Min.	Max.	Average	
16	74	52,4	74,3% of patients

	Location and number			Diameter of the aneurysm		Morphological type	Diagnosis	Hyper tension	Treatment			
	Right Kidney	Bilaterality	Multiple	Average	Standard deviation	Saccular	Incidental		Imaging Surveillance	Endovascular	<i>in situ</i>	Renal autotransplantation
Patients	48,6%	25,7%	25,7%	18,8	+8,77	92%	83,9%	72,7%	8	2	1	24

Renal Artery Aneurysms

Our Experience



Period from January 1, 2010 to December 31, 2018

Renal autotransplantation

Autotransplant

24 patients

Surgery autotransplantation	Laparoscopic nephrectomy	Renal vein stretching plasticity	Surgery time (hours)	Warm ischemia time (minutes)	Length of hospital stay (days)	Cause of failure (nephrectomy)	Preservation of kidney at 30 days	Postoperative arterial hypertension			Long-term kidney preservation
								maintained	improved	healed	
27	84%	33%	Avg. 5,22 DP +1,29	Avg. 4,12 DP + 2,15	Avg. 11,7 DP +4,78	2 renal vein thrombosis in the 1st week	84,3%	53,3%	20%	26,7%	84,3%

Renal Artery Aneurisms

Our Experience



Clinical cases

Renal Artery Aneurysms

Our Experience



Case 1

Renal aneurysm

♀, 43 years old

HT

Right Hypoglossal Paresis

Angiography-Carotid, vertebral and renal parietal irregularities with 1 right ICA saccular aneurysm and 2 right renal artery aneurysms



Renal Artery Aneurysms

Our Experience



Case 1

Renal aneurysm

♀, 43 years old

HT

Right Hypoglossal Paresis

Fibromuscular dysplasia



Renal Artery Aneurysms

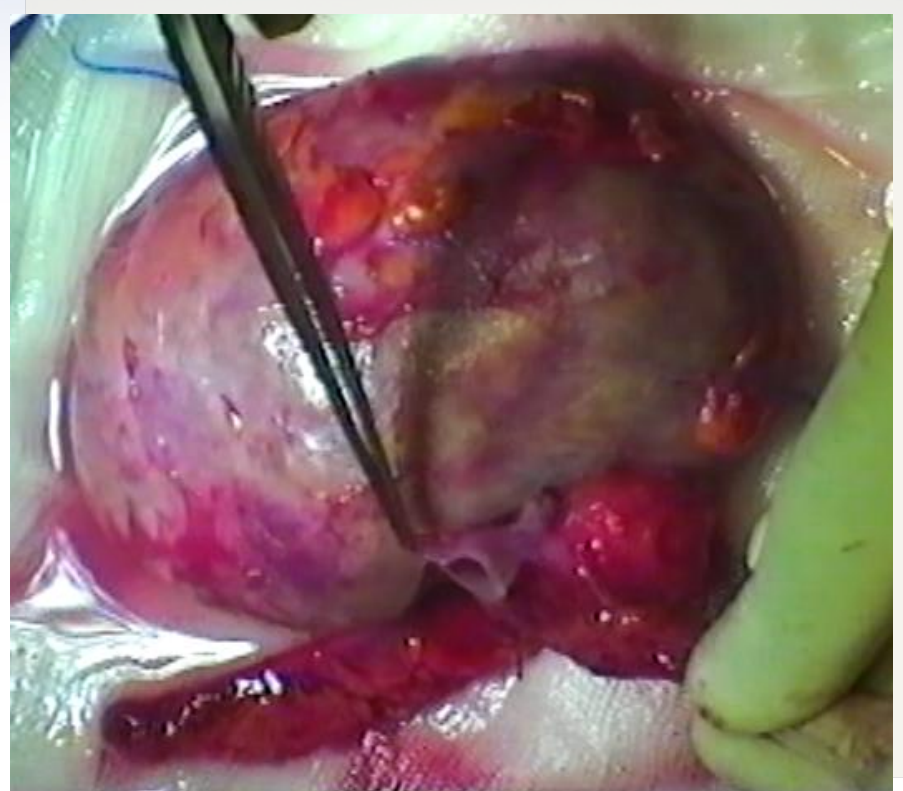
Our Experience



Case 1

Renal aneurysm

Nephrectomy by Lumbotomy + eurocollins
perfusion



Renal Artery Aneurysms

Our Experience



Case 1

Renal aneurysm

Nephrectomy by Lumbotomy + eurocollins
perfusion

Harvest and preparation ISV



Renal Artery Aneurysms

Our Experience



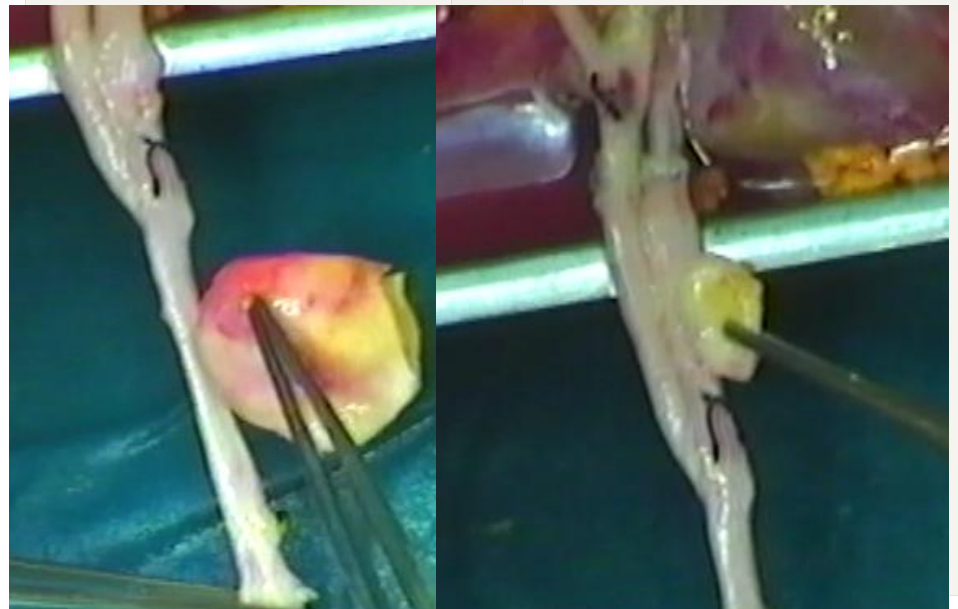
Case 1

Renal aneurysm

Nephrectomy by Lumbotomy+ eurocollins perfusion

Harvest and preparation ISV

Aneurysmectomy + patch with ISV + renal art extension with inverted ISV



Renal Artery Aneurysms

Our Experience



Case 1

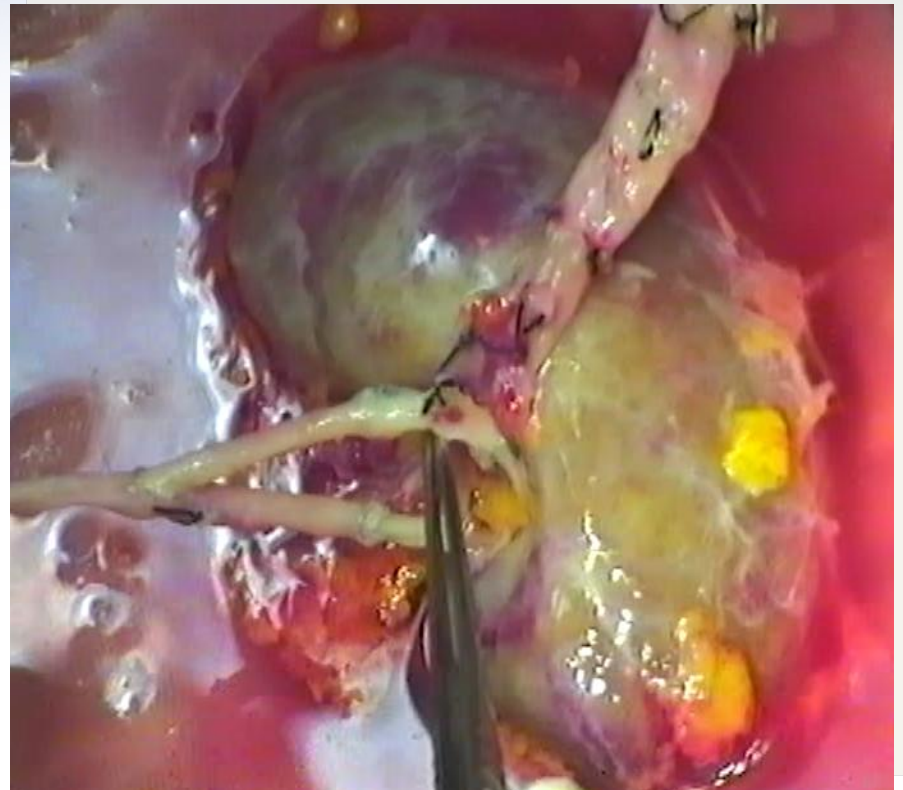
Renal aneurysm

Nephrectomy by Lumbotomy + eurocollins perfusi

Harvest and preparation ISV

Aneurysmectomy + patch with ISV + renal art extension with inverted ISV

Renal vein extension with spiral ISV



Renal Artery Aneurysms

Our Experience



Case 1

Renal aneurysm

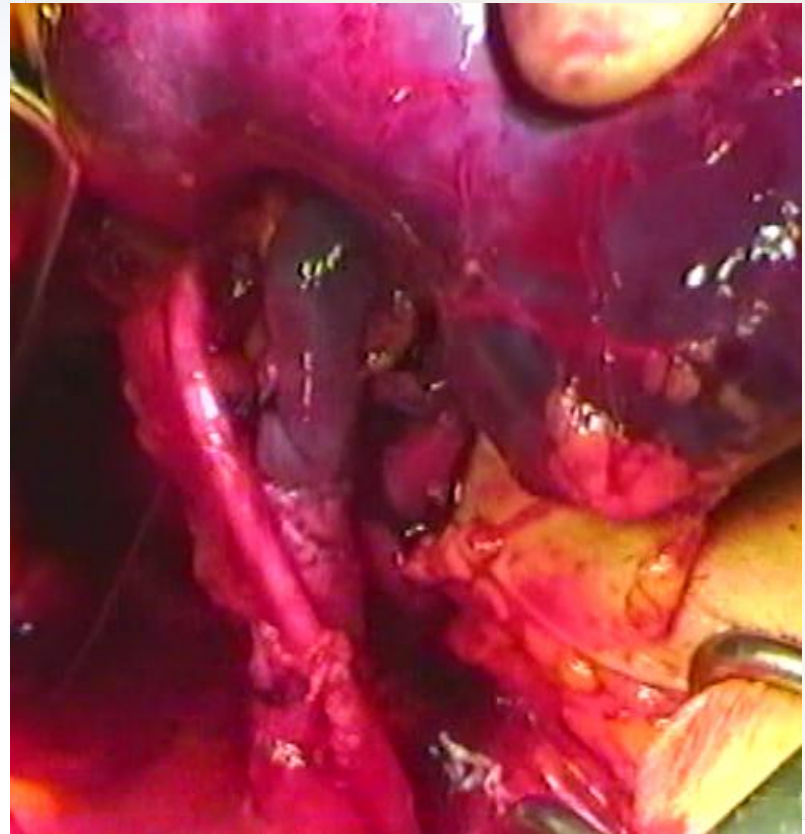
Nephrectomy by Lumbotomy + eurocollins perfusion

Harvest and preparation *ISV*

Aneurysmectomy + patch with *ISV*+ renal art extension with inverted *ISV*

Renal vein extension with spiral *ISV*

Implantation of the kidney on the right external iliac axis



Renal Artery Aneurysms

Our Experience



Case 2

Renal aneurysm

♀, 34 years old

HT

Angiography - Right Renal
Art. aneurysm



Renal Artery Aneurysms

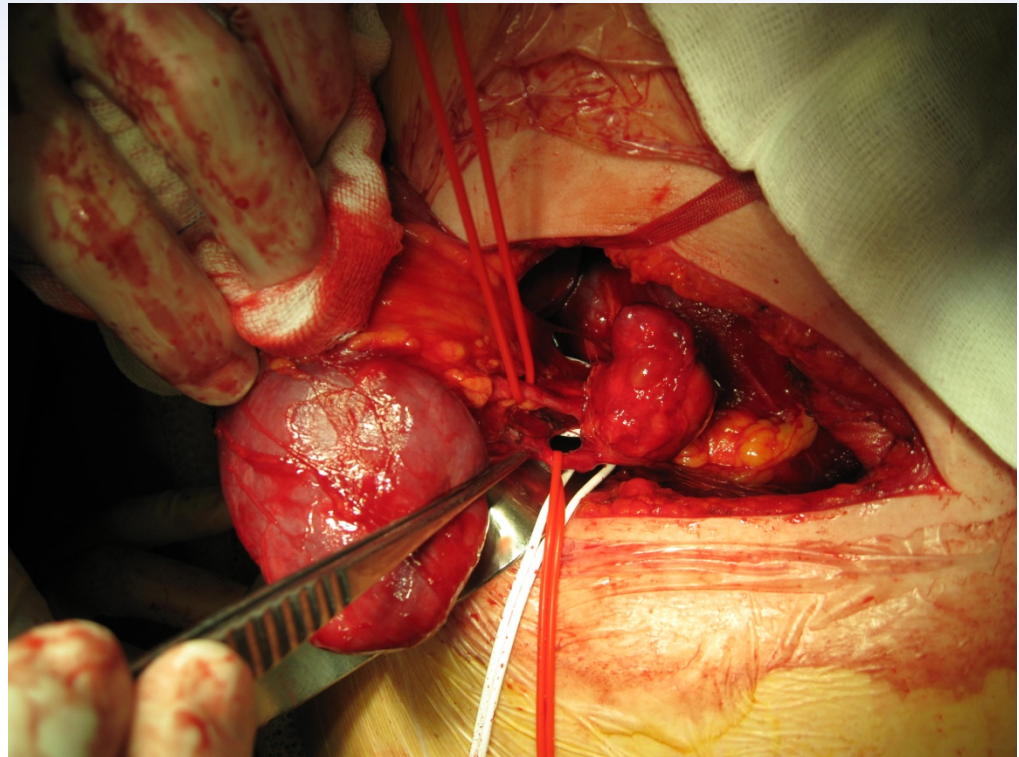
Our Experience



Case 2

Renal aneurysm

Nephrectomy by Lumbotomy
infusion with eurocollins



Renal Artery Aneurysms

Our Experience

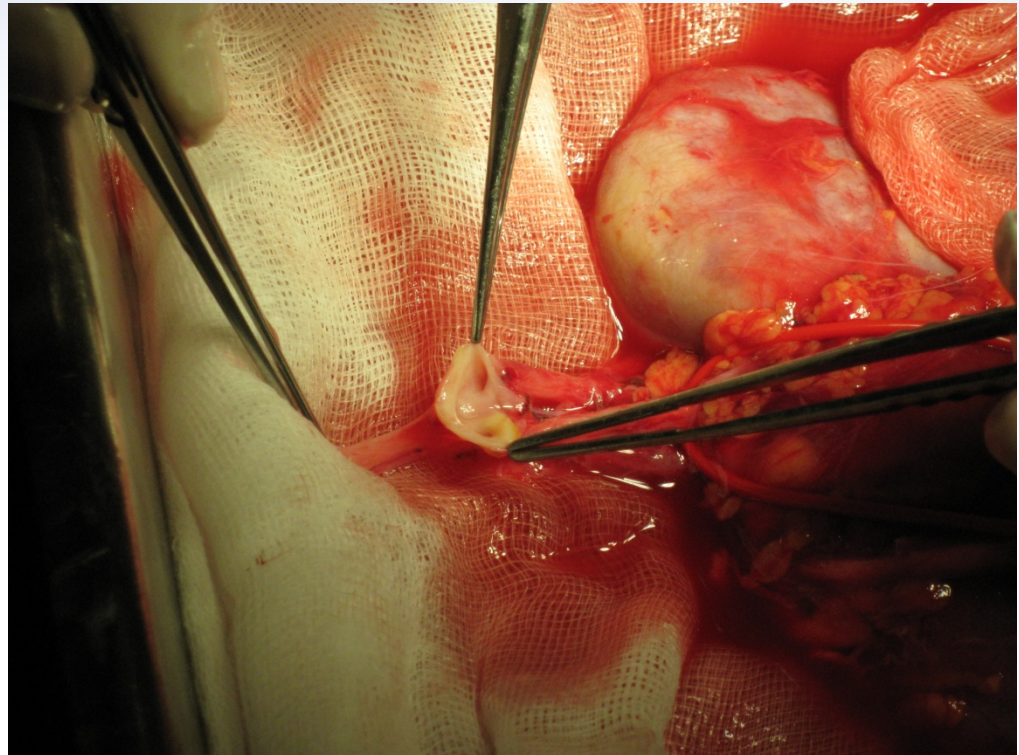


Case 2

Renal aneurysm

Lumbotomy Nephrectomy +
eurocollins perfusion

Aneurysmectomy
Direct arteriorrhaphy



Renal Artery Aneurysms

Our Experience



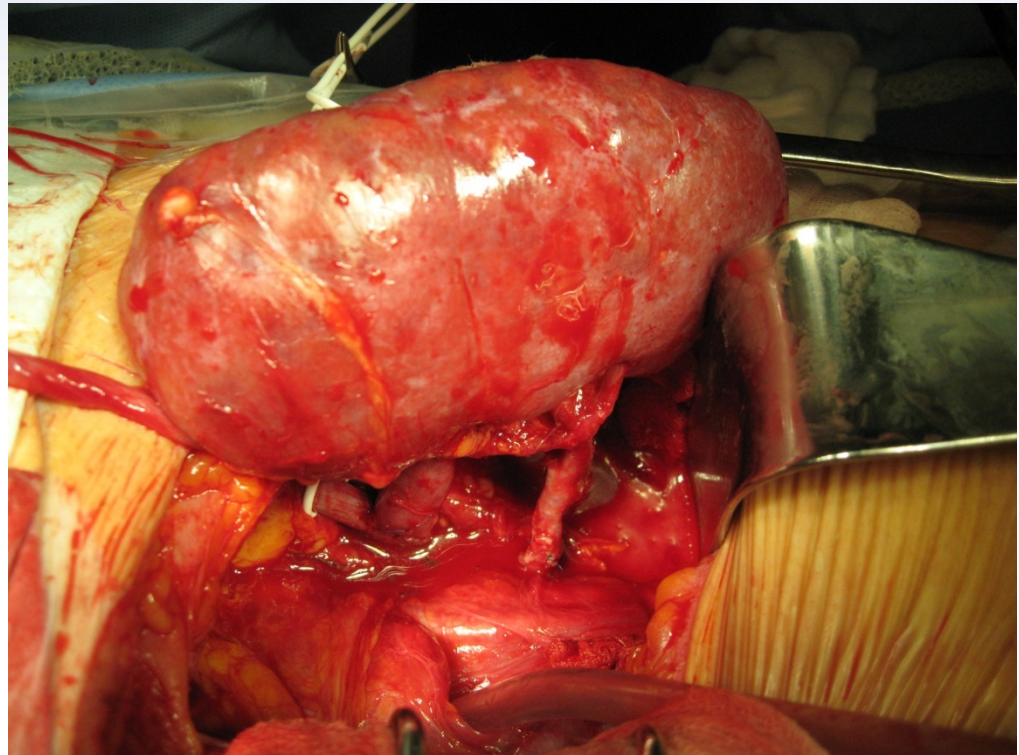
Case 2

Renal aneurysm

Nephrectomy by Lumbotomy +
eurocollins perfusion

Aneurysmectomy
Direct arteriorrhaphy

Kidney Implant in RIF
Renal Art - Internal Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



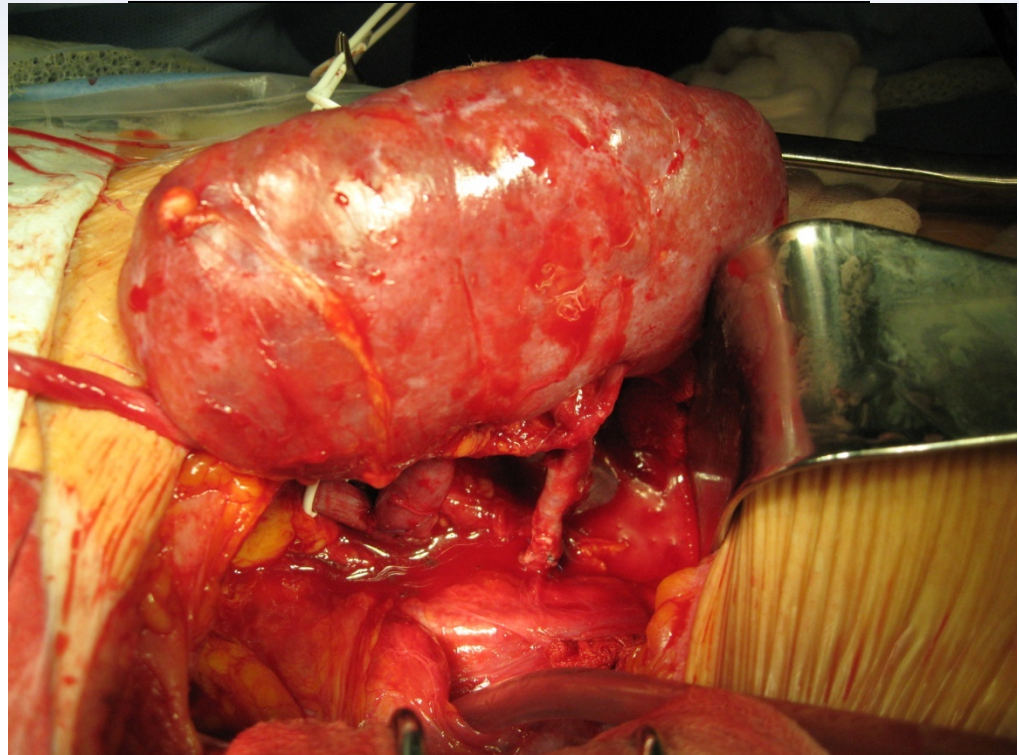
Case 2

Renal aneurysm

Nephrectomy by Lumbotomy +
eurocollins perfusion

Aneurysmectomy
Direct arteriorrhaphy

Kidney Implant in RIF
Renal Art - Internal Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



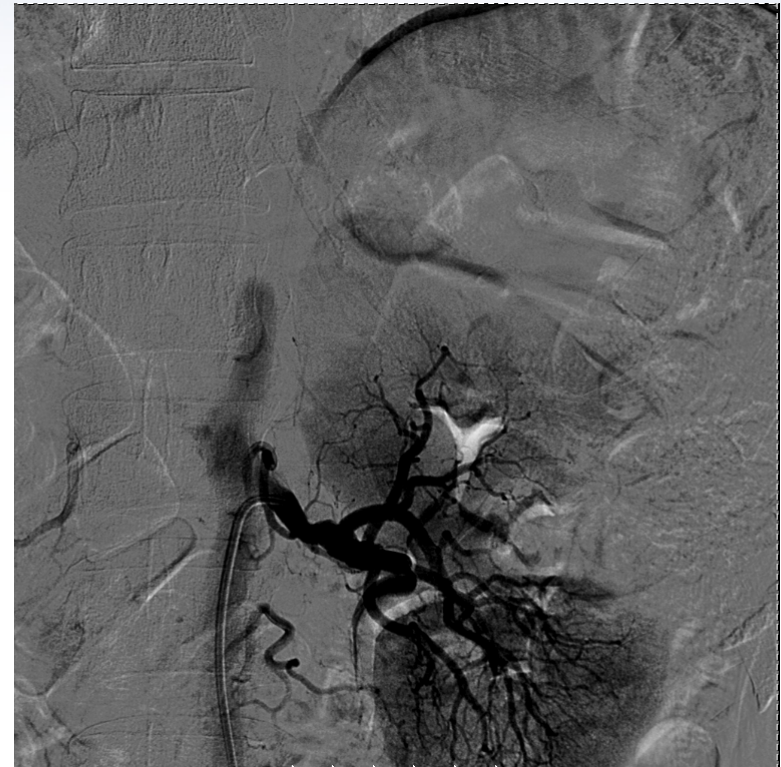
Case 3

Renal aneurysm

♀, 52 years
old

Healthy

Angiography - hilar
aneurysm of the superior
polar artery



Renal Artery Aneurysms

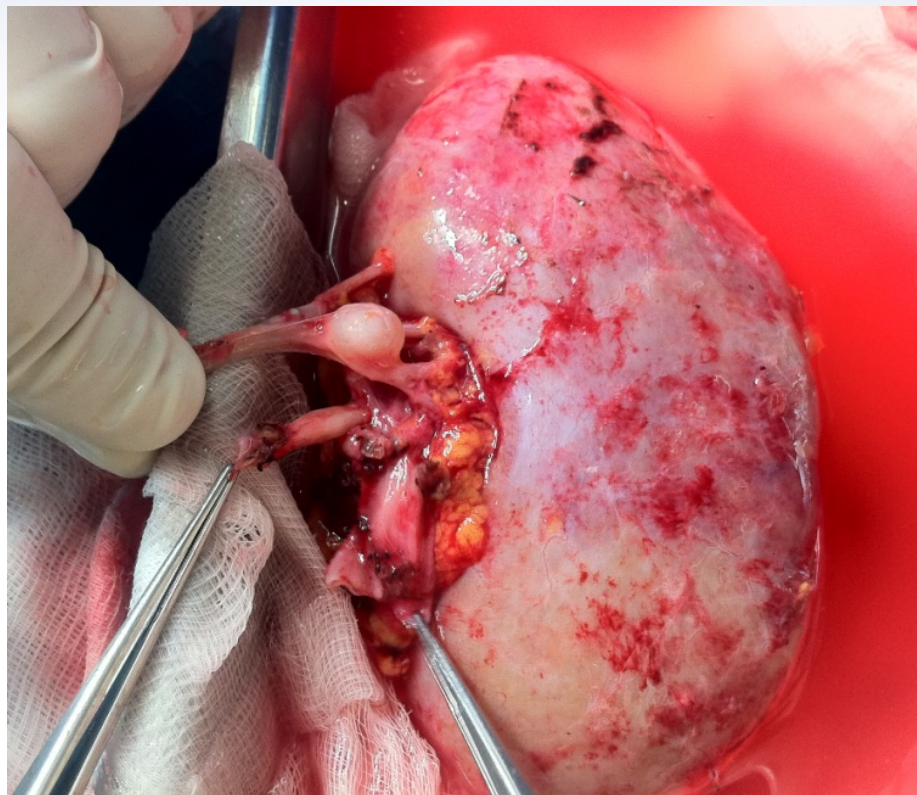
Our Experience



Case 3

Renal aneurysm

Laparoscopic nephrectomy
+
Perfusion with Eurocollins



Renal Artery Aneurysms

Our Experience



Case 3

Renal aneurysm

Laparoscopic nephrectomy
+
Perfusion with Eurocollins

Treatment in table

Double-stranded anastomosis of the 2 renal
arteries

+

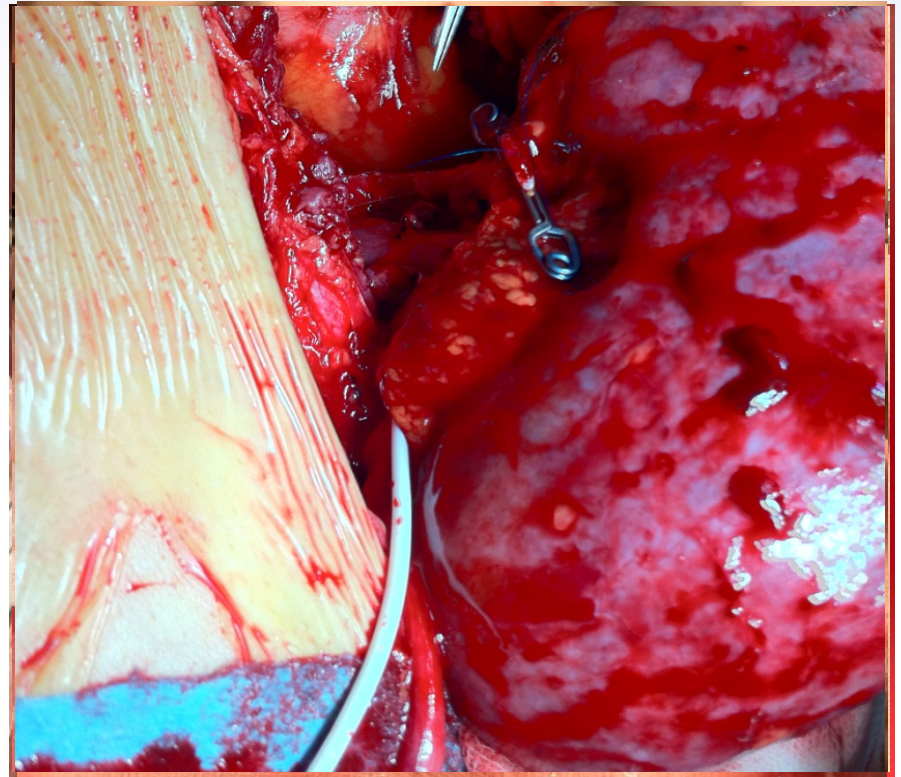
Treatment of the aneurysm with 15 and
17.5mm titanium clips Yasargill

+

Implantation of the kidney in the right iliac
fossa

Renal Art - External Iliac Art

Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



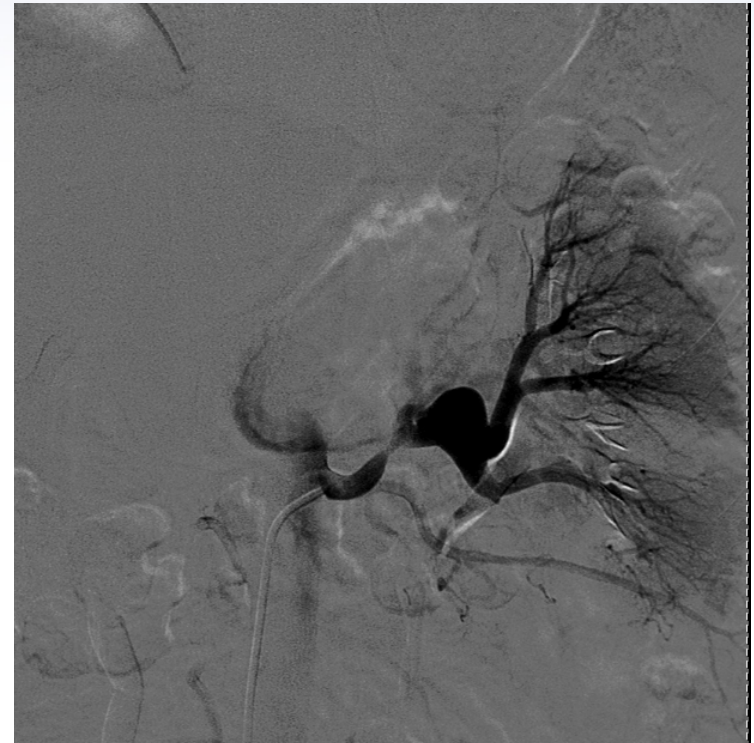
Case 4

Kidney obstructive and
renal aneurysm disease

♂, 16 years old

HT

Angiography – left renal
artery stenosis and
aneurysm



Renal Artery Aneurisms

Our Experience



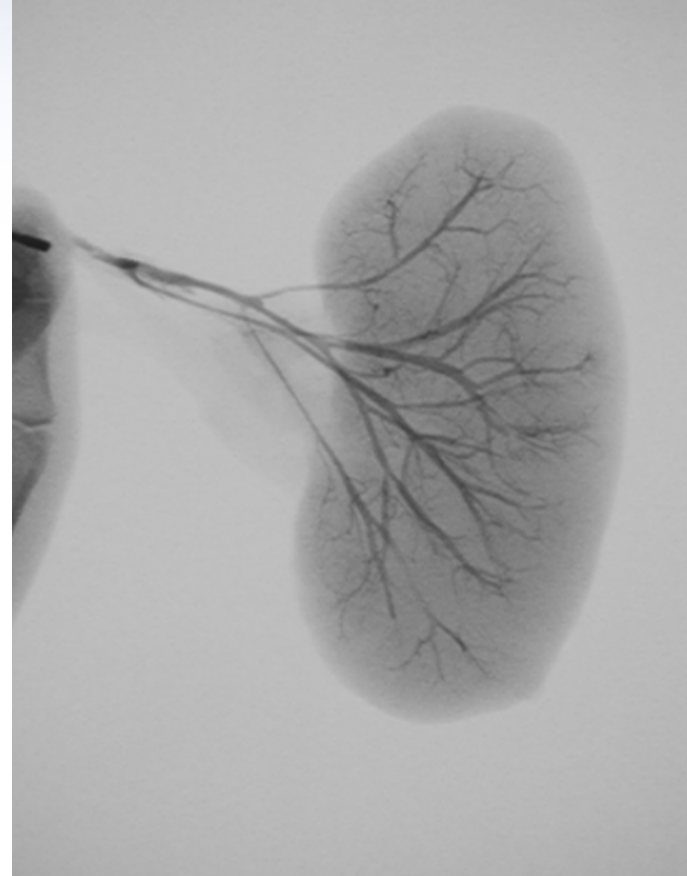
Case 4

Kidney obstructive and
renal aneurysm disease

♂, 16 years old

HTA

Angiography – left renal
artery stenosis and
aneurysm



Renal Artery Aneurysms

Our Experience



Case 5

Kidney obstructive and
renal aneurysm disease

♂, 15 years old

HT

Multiple ATL and Stenting of
the Left Renal Artery

Angiography – left renal
artery stenosis and
aneurysm



Renal Artery Aneurysms

Our Experience



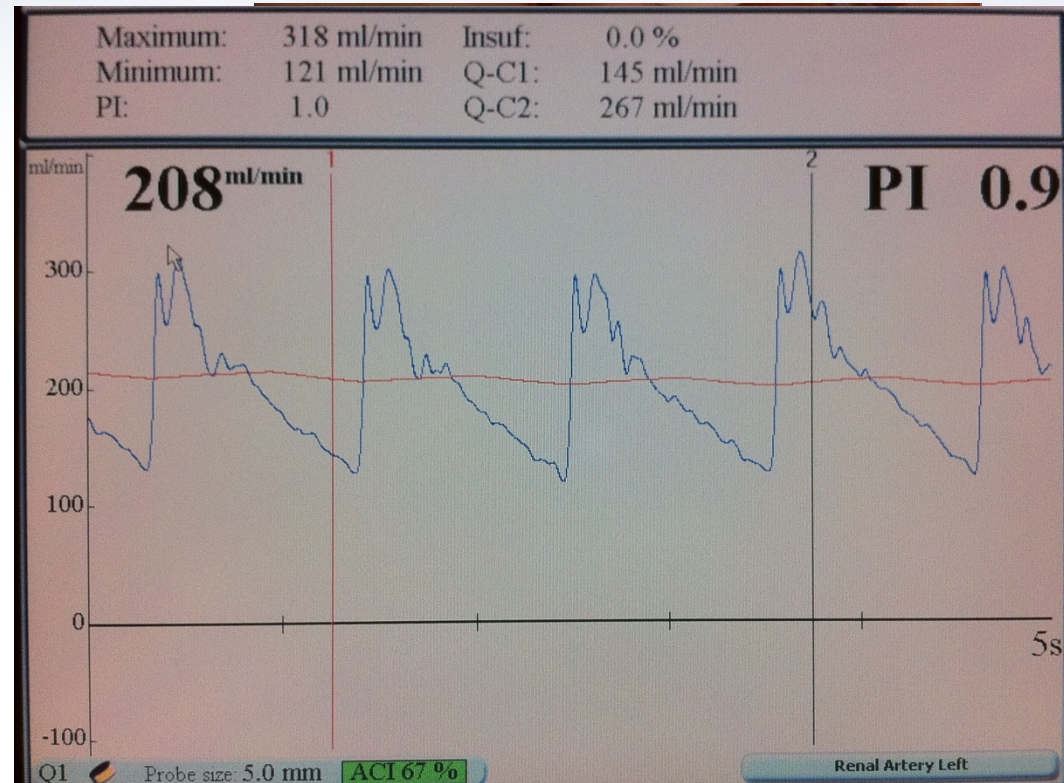
Case 5

Kidney obstructive and renal aneurysm disease

Nephrectomy by Lumbotomy
+
eurocollins perfusion

Alongation of the renal artery
with internal saphenous vein

Renal Implant at LIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurisms

Our Experience



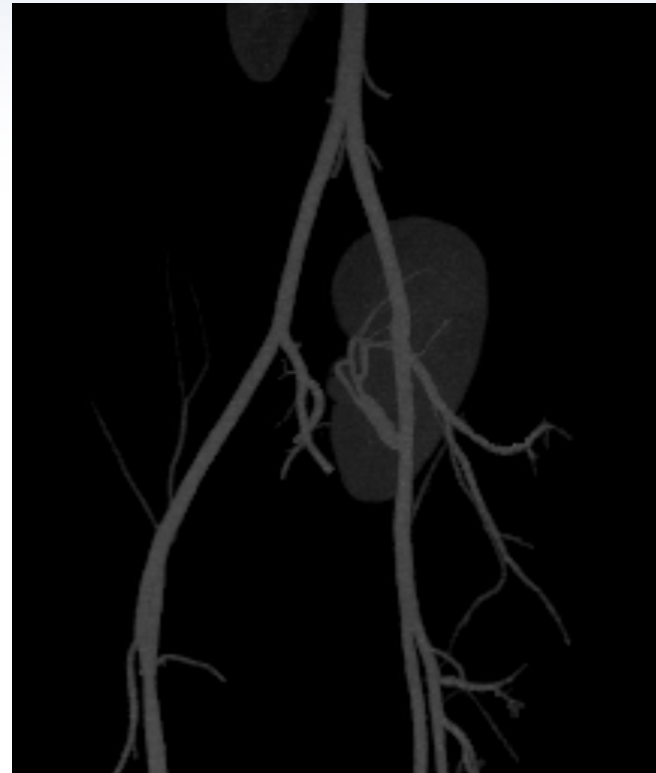
Case 5

Kidney obstructive and
renal aneurysm disease

Nephrectomy by Lumbotomy
+
eurocollins perfusion

Alongation of the renal artery
with internal saphenous vein

Renal Implant at LIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



Case 6

Renal aneurysm

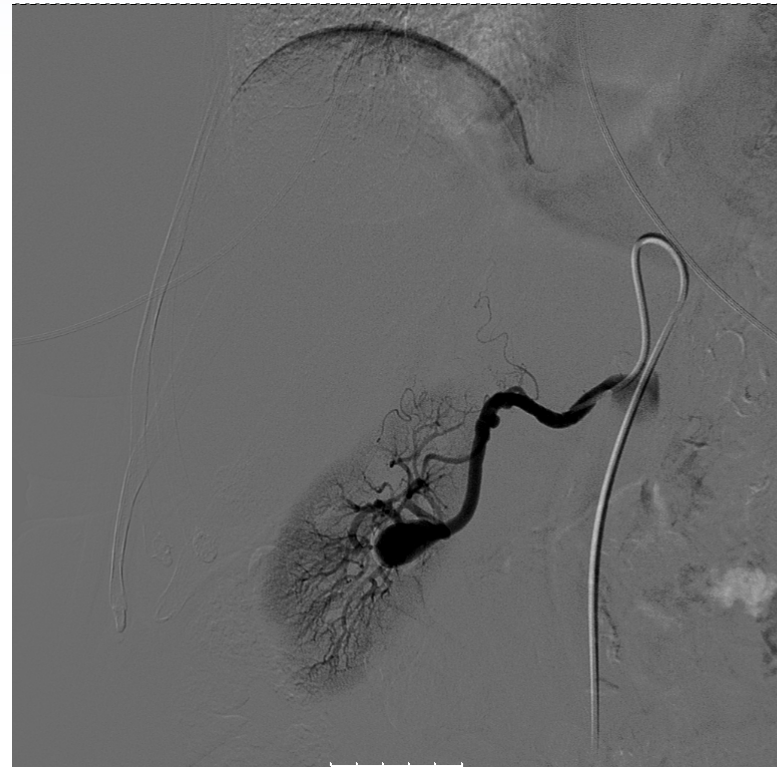
♀, 74 years old

Renal aneurysm

Laparoscopic nephrectomy

Aneurysmectomy + renal artery
angioplasty + Renal Bypass

Kidney Implant in RIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms Our Experience



Case 6

Renal aneurysm

♀, 74 years old

Renal aneurysm

Laparoscopic nephrectomy

Aneurysmectomy + renal artery
angioplasty + Renal bypass

Kidney Implant in RIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurisms

Our Experience



Case 6

Renal aneurysm

♀, 74 years old

Renal aneurysm

Laparoscopic nephrectomy

Aneurysmectomy + renal artery
angioplasty + Renal bypass

Kidney Implant in RIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



Caso 6

Renal aneurysm

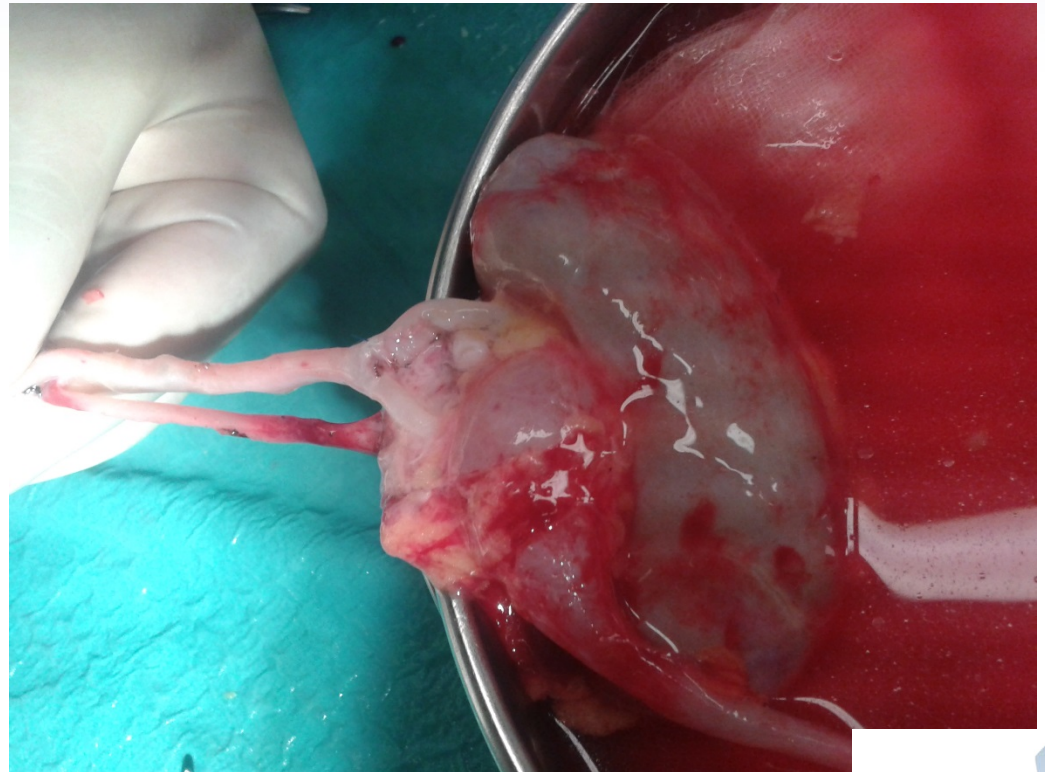
♀, 74 years old

Renal aneurysm

Laparoscopic nephrectomy

Aneurysmectomy + renal artery
angioplasty + Renal bypass

Kidney Implant in RIF
Renal Art - External Iliac Art
Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



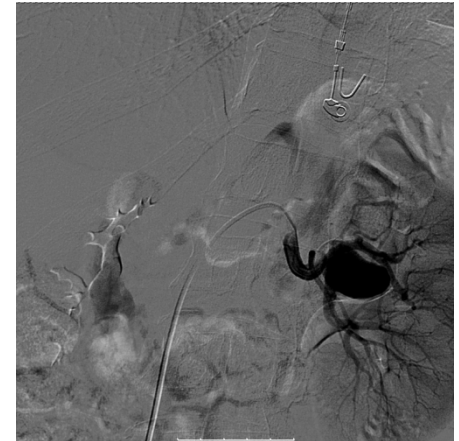
Case 7

Bilateral renal
aneurysm

♀, 46 years old

Bilateral renal aneurysm

- Laparoscopic nephrectomy
- Simple aneurysmectomy
- Right renal vein extension with spiral ISV + Prolonged renal artery with ISV
- Renal Implants in the IF
- Renal Art - External Iliac Art
- Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



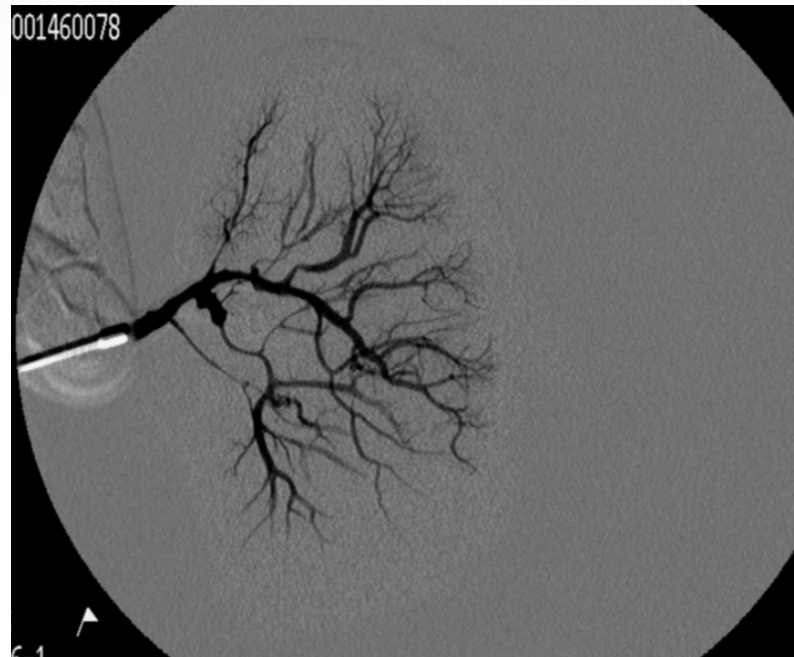
Case 7

Bilateral renal
aneurysm

♀, 46 years old

Bilateral renal aneurysm

- Laparoscopic nephrectomy
- Simple aneurysmectomy
- Right renal vein extension with spiral ISV + Prolonged renal artery with ISV
- Renal Implants in the IF
- Renal Art - External Iliac Art
- Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



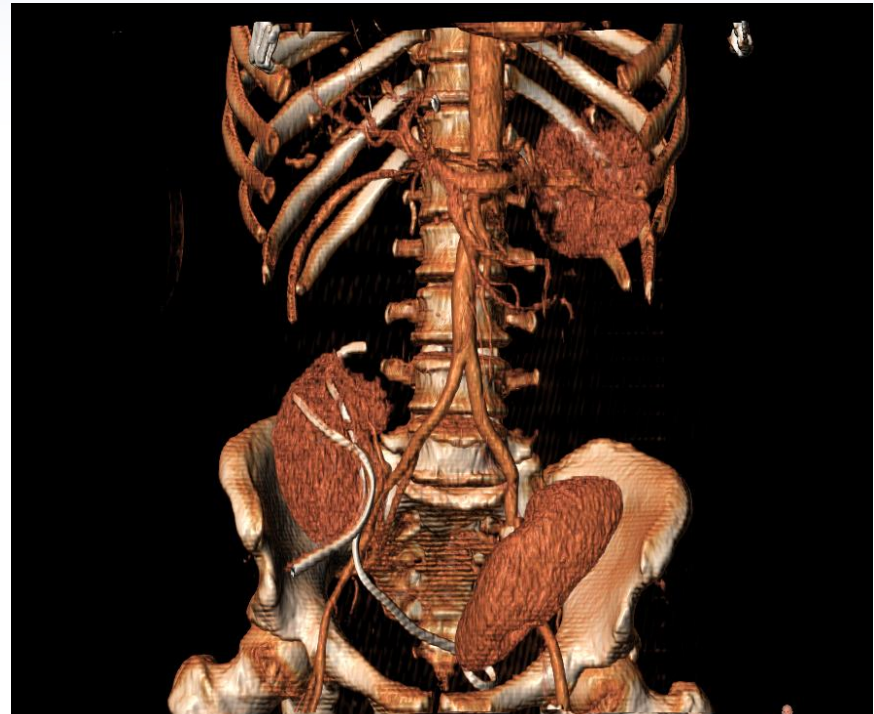
Case 7

Bilateral renal aneurysm

♀, 46 years old

Bilateral renal aneurysm

- Laparoscopic nephrectomy
- Simple aneurysmectomy
- Right renal vein extension with spiral ISV + Prolonged renal artery with ISV
- Renal Implants in the IF
- Renal Art - External Iliac Art
- Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



Case 8

Bilateral renal
aneurysm

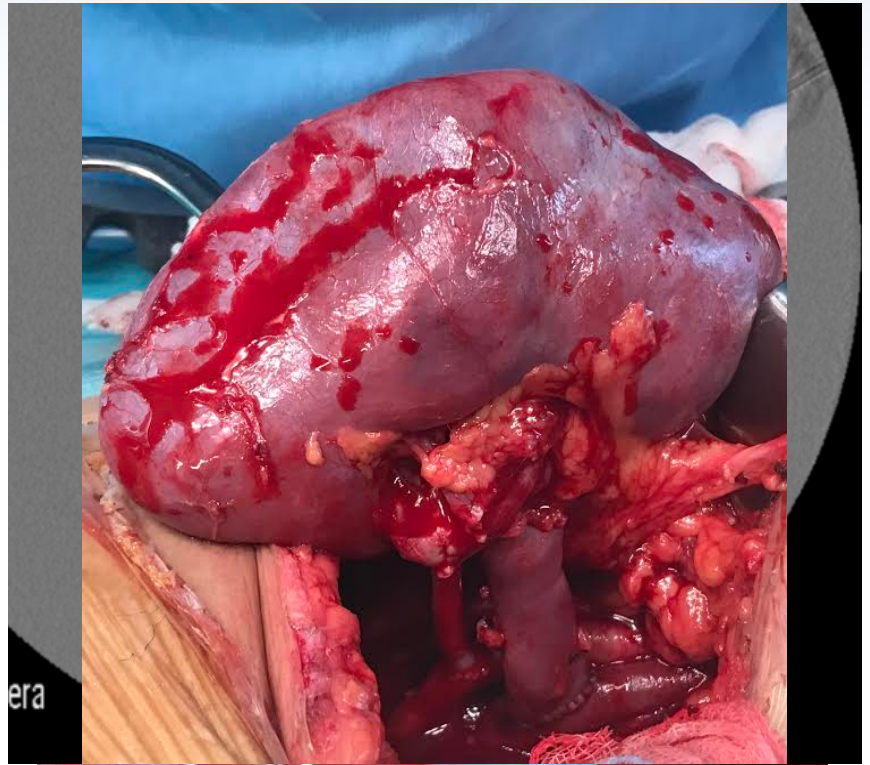
♀, 39 years old

Bilateral renal aneurysm

Right renal aneurysm treated by endovascular
approach in 2008

Failed endovascular treatment of left renal
aneurysm in 2013

- Laparoscopic nephrectomy
- Simple aneurysmectomy after removal of the multilayer stent
- Performing control angiography at the table
- Renal Implants in the LIF
- Renal Art - External Iliac Art
- Renal vein - External iliac vein



Renal Artery Aneurysms

Our Experience



Conclusion

- Renal autotransplantation is an excellent therapy for the treatment of complex renal artery aneurysms.
- Experience in vascular surgery and renal transplant surgery is mandatory for maximizing therapeutic outcomes.
- There is a need for better knowledge of genetic, epidemiologic, clinical behavior and better treatment.