

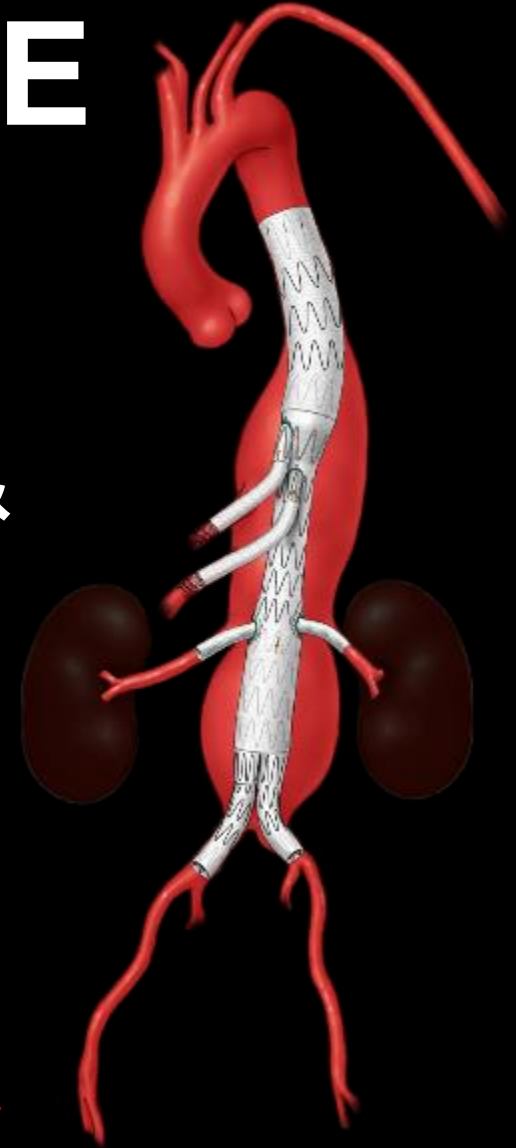
WHO SHOULD BE DENIED FENESTRATED- BRANCHED GRAFTS & WHY?

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Controversies & Updates in Vascular Surgery
Paris 2015

FACULTY DISCLOSURE

- Consulting
Cook Medical Inc. , WL Gore, Lombardi, Syncthex
- Research grants
Cook Medical Inc., WL Gore, Atrium Maquet

THE IDEAL CANDIDATE

Healthy patient

Good cardiac, pulmonary and renal function

Healthy neck

No angulation, thrombus or calcium

Good targets

No early bifurcation, occlusive disease, tortuosity

Diameter >4 mm

Good access



IMPACT OF EXPERIENCE

First 240 patients at Mayo Clinic

	<i>Patient</i>			P value
	<i>1 to 80</i>	<i>81 to 160</i>	<i>161 to 240</i>	
Pararenal	70%	74%	38%	.01
TAAA	30%	26%	62%	.01
No. of Vessels	2.4±1.06	3.04±1.02	3.54±0.75	.001
2-vessel	50%	29%	10%	.001
4-vessel	19%	41%	65%	.001
Fluoroscopy (min)	117±61	84±38	72±23	.05
Contrast (ml)	237±99	163±73	138±75	.001
30-day Mortality	5 (6%)	2 (3%)	0	.12

MAYO CLINIC

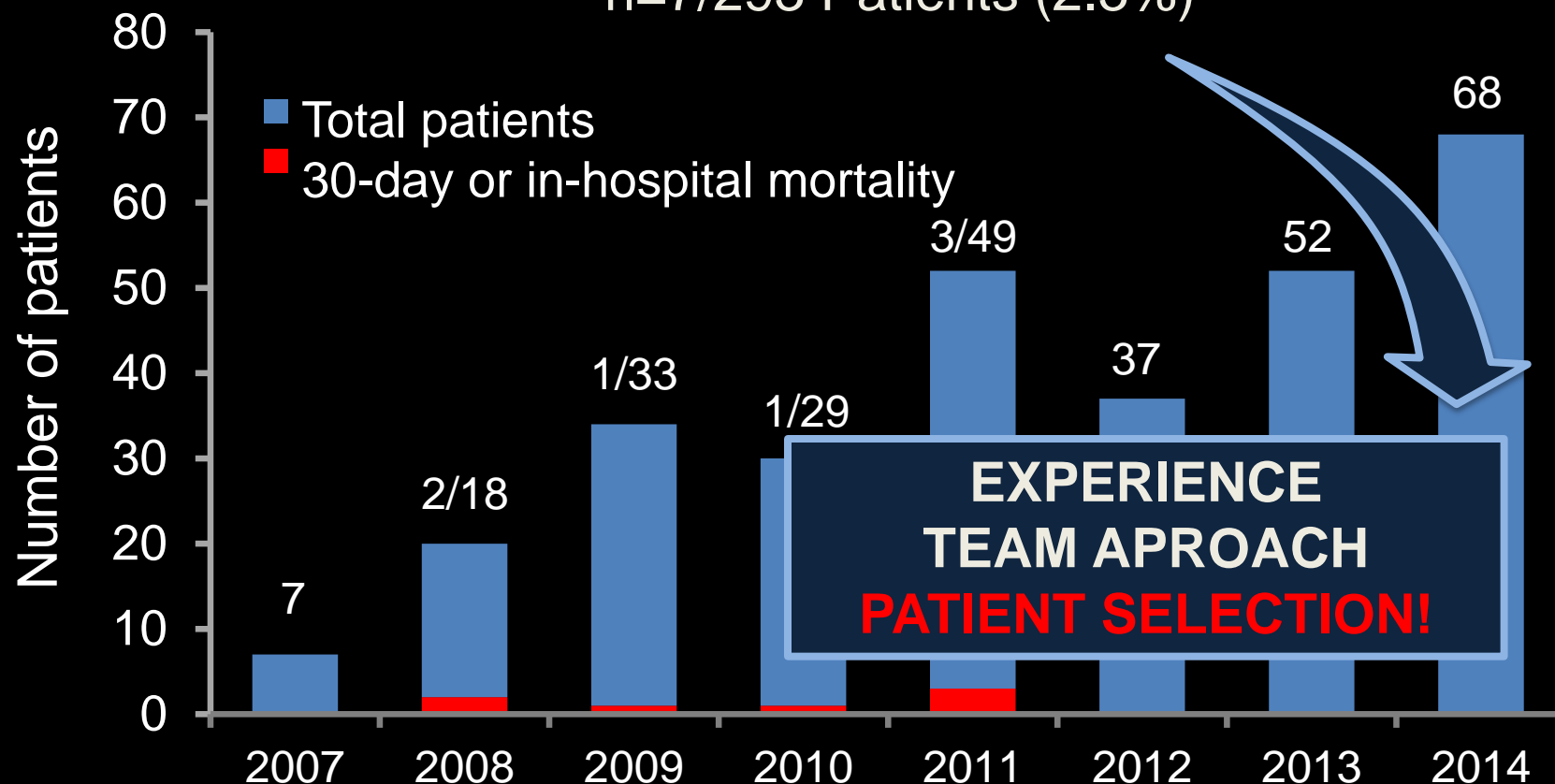
30-Day or In-Hospital Mortality

	n	Mortality
Pararenal	173	2 (1.1%)
Thoracoabdominal	120	5 (4.1%)
Total	293	7 (2.3%)

MAYO CLINIC

30-Day or In-Hospital Mortality

n=7/293 Patients (2.3%)

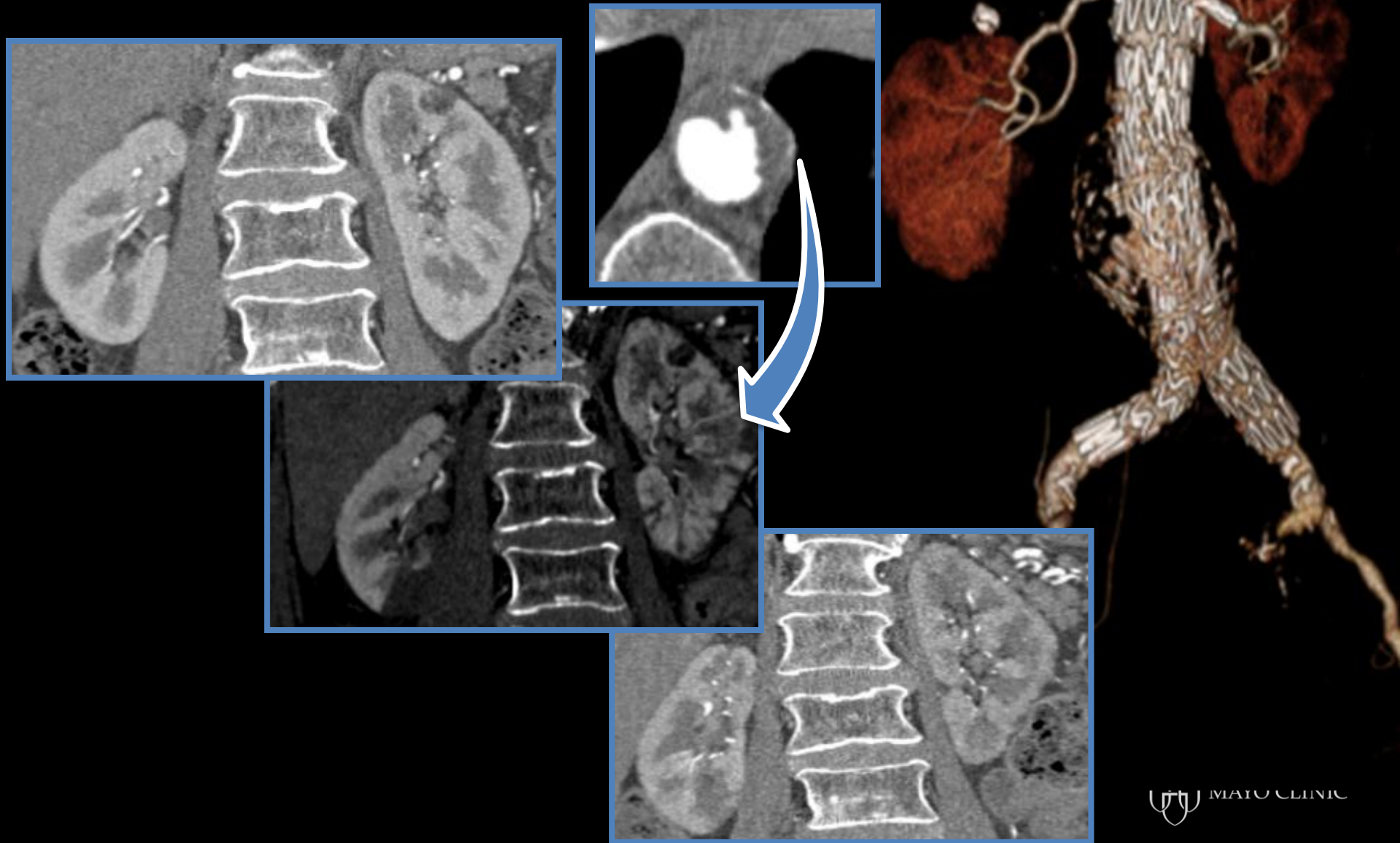


WHO SHOULD BE DENIED?

1. Shaggy aorta

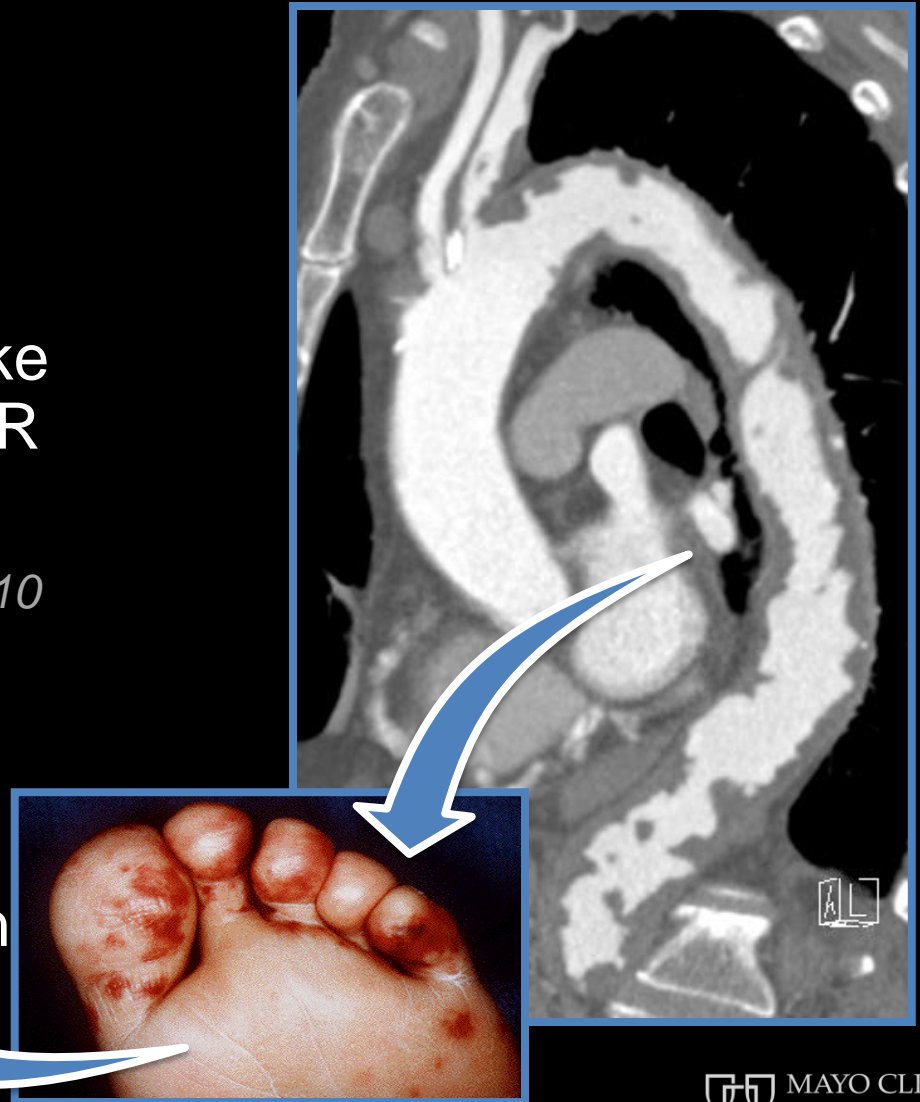


'SHAGGY' AORTA



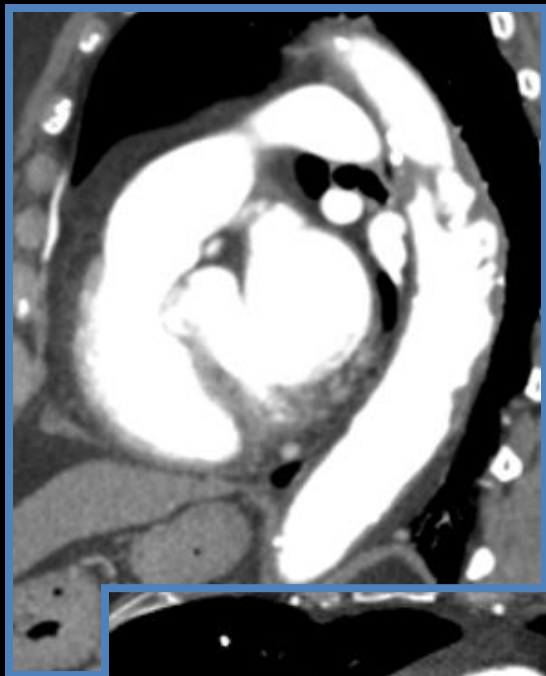
SHAGGY AORTA

- Mesenteric ischemia and mortality
Patel SD et al. Eur J Vasc Endovasc Surg 2014
- Stroke and silent stroke after TEVAR and TVAR
Kahler P et al. Ann Thorac Surg 2014
Kahler P et al. Circulation 2010
- Spinal cord ischemia during eTAAA repair
Kato M et al. Eur J Cardiothoracic Surg 2014
- Renal deterioration and other effects



'SHAGGY' AORTA





4-vessel
FEVAR



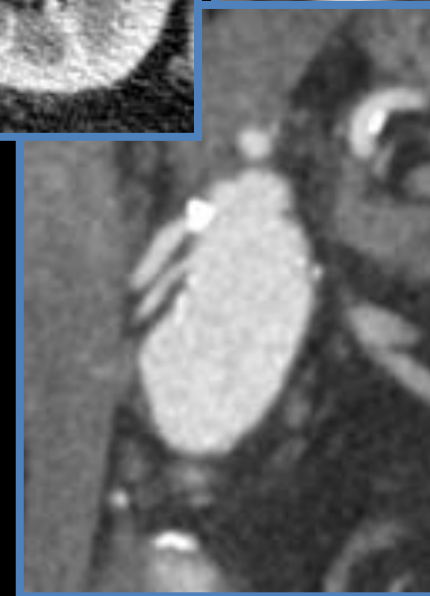
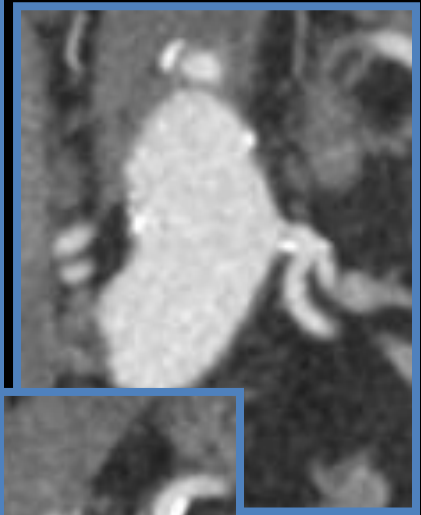
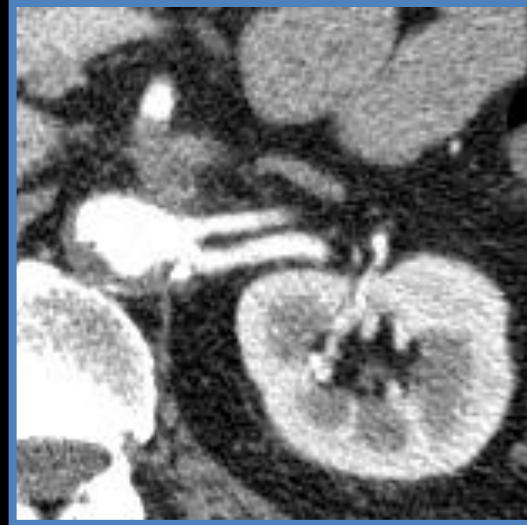
12-cm thoracic
coverage (~6wk
Prior)

WHO SHOULD BE DENIED?

1. Shaggy aorta
2. Multiple, small renal arteries

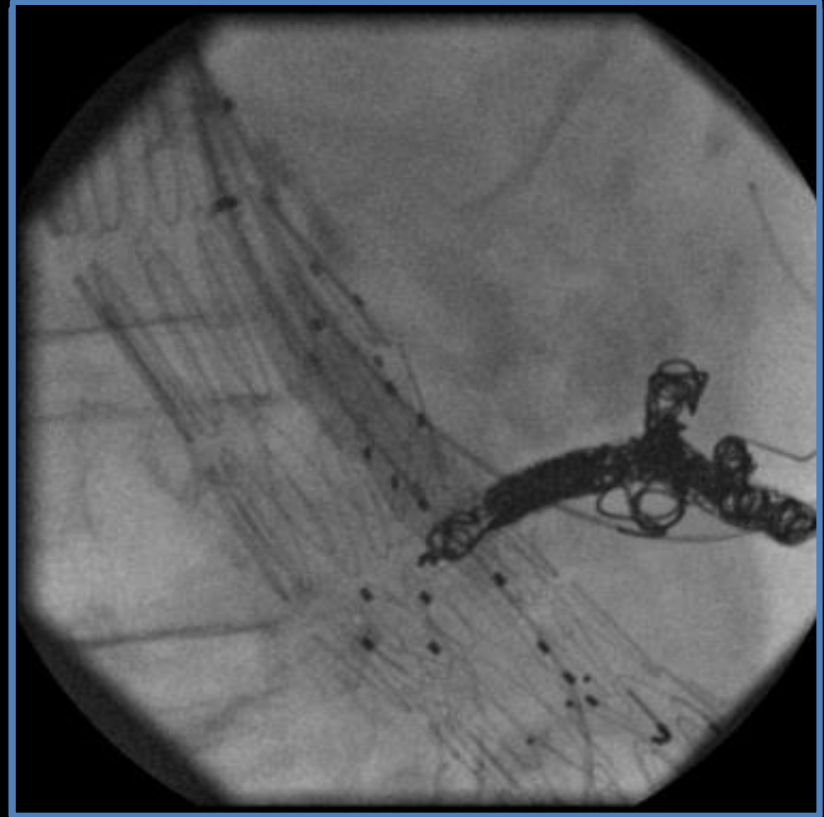
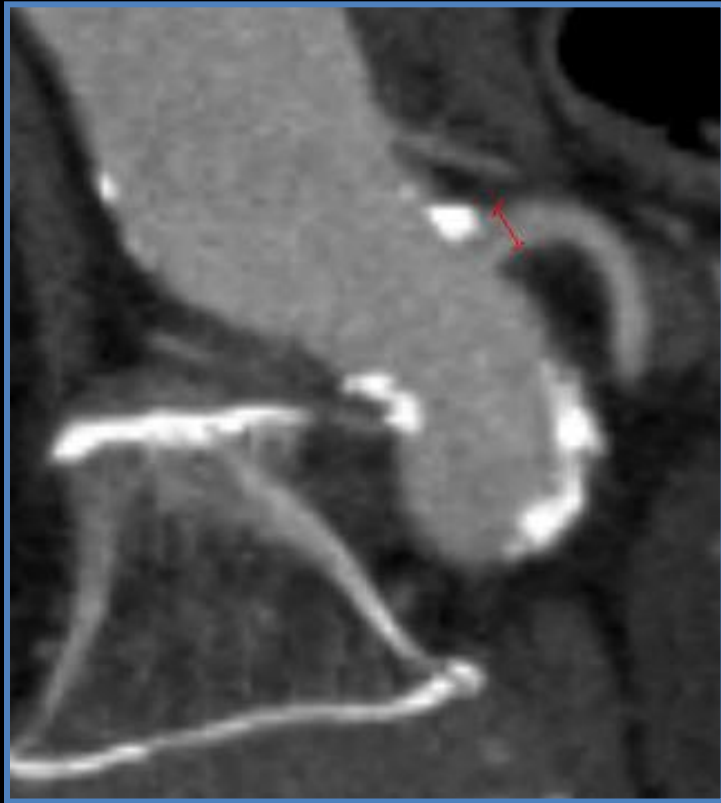


RENAL ARTERY ISSUES



- Multiple small diameter (<4mm)
- Early bifurcation (<13mm)

RENAL DIAMETER <4MM



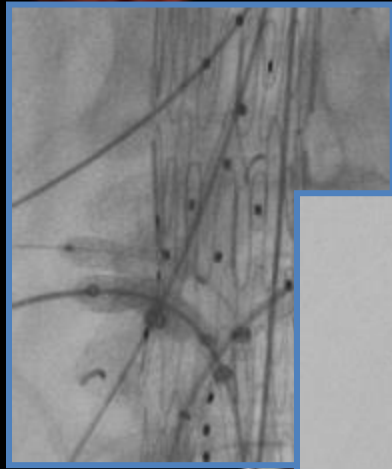
- Covered stents → disruption
- Bare-metal stents → endoleaks
- Questionable durability

FACTORS AFFECTING TARGETING BY STENT-GRAFTS

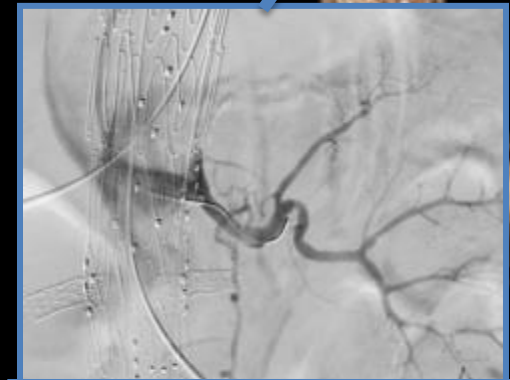
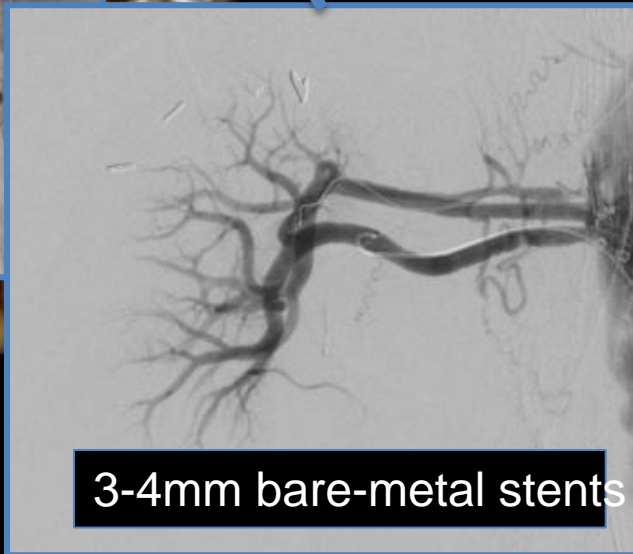
Anatomical criteria	<i>n</i> = 520
Bifurcation <13mm	42 (9%)
Diameter <4mm	28 (5%)
aRA with >40% renal parenchyma	28 (5%)
Any issue	92 (18%)



QUESTIONABLE DURABILITY?



3-4mm bare-metal stents



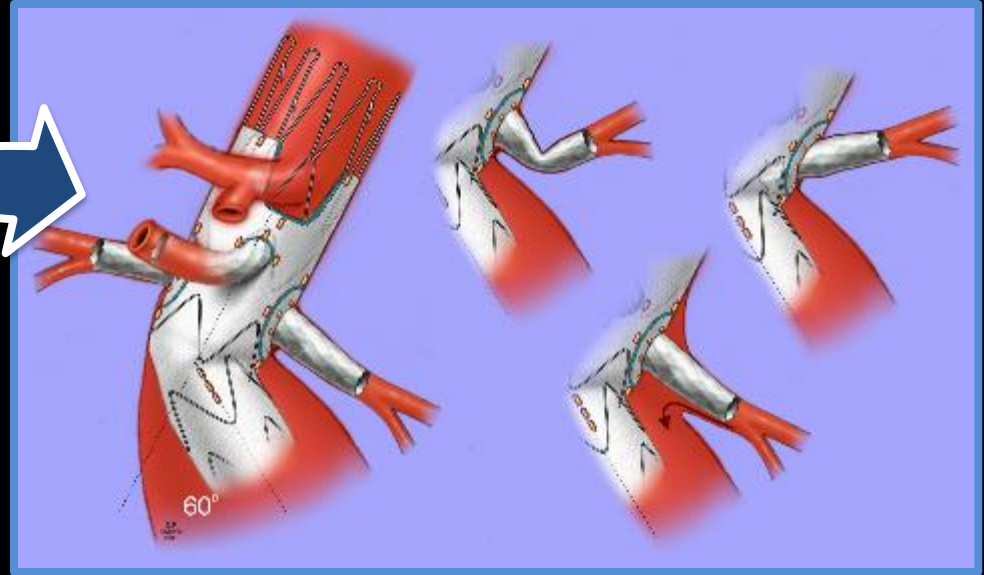
3-mm bare-metal stent

WHO SHOULD BE DENIED?

1. Shaggy aorta
2. Multiple, small renal arteries
3. Excessive angulation in the visceral segment



NECK ANGULATION



- 13% of patients have $>60^\circ$
 - *Misalignment*
 - *Stent kink, dislodgement*
 - *Branch occlusion*
 - *Endoleaks (type I, III)*

WHO SHOULD BE DENIED?

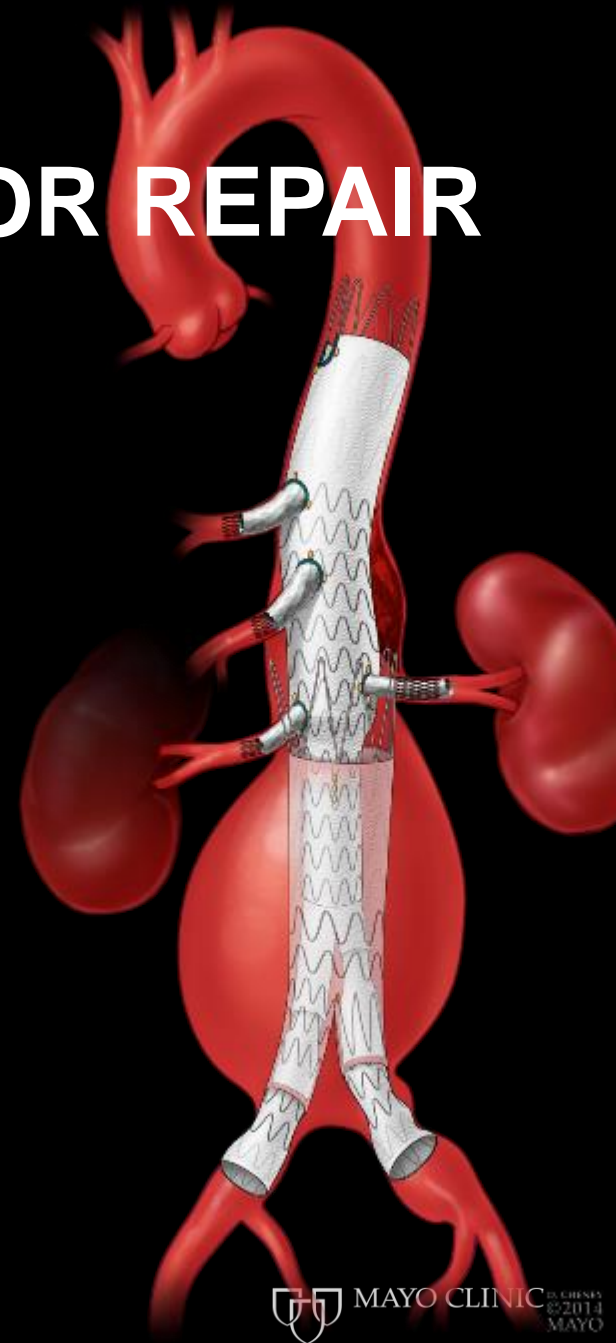
1. Shaggy aorta
2. Multiple, small renal arteries
3. Excessive angulation in the visceral segment
4. Difficulties created by prior aortic repair



CHALLENGES FROM PRIOR REPAIR

~15% of patients

- Prior visceral stents into aorta
- Suprarenal fixation
- Severely kinked, narrow or occluded iliac stents or grafts
- Migrated aortic devices
- Palmaz stents at visceral segment
- Occluded IIAs (= SCI)
- Failed multilayer, fenestrated or parallel stents



WHO SHOULD BE DENIED?

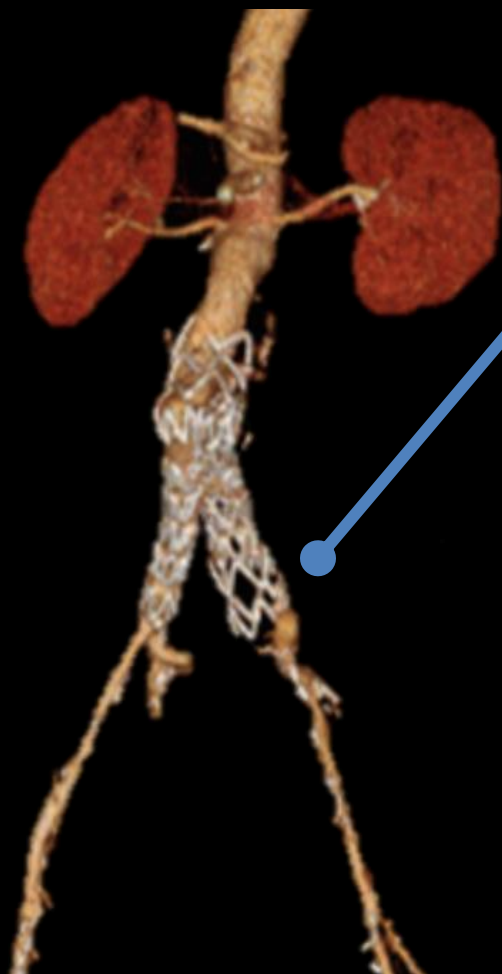
1. Shaggy aorta
2. Multiple, small renal arteries
3. Excessive angulation in the visceral segment
4. Difficulties created by prior aortic repair
5. Other issues
 - *Connective tissue disorders*
 - *Mycotic aneurysms*



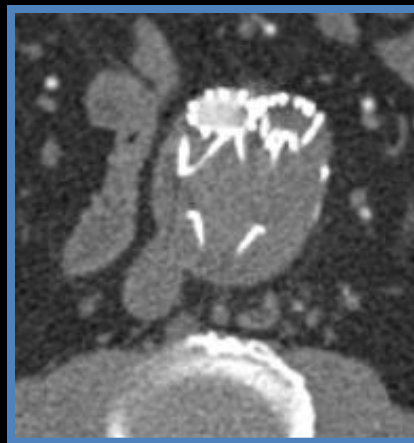
Case examples that
I have recently said **No!!!**

68M with prior failed EVAR

OPEN REPAIR



Occluded iliac limb



Kinked,
migrated stent



81F with large juxta-renal AA,

OPEN REPAIR

Diffuse disease
Unhealthy aorta

Angula
n

Small
iliacs

Too
posterior

Two intermediate risk patients with **H** AAAs

OPEN REPAIR



76M with multiple comorbidities and large large TAAA

Type III
arch

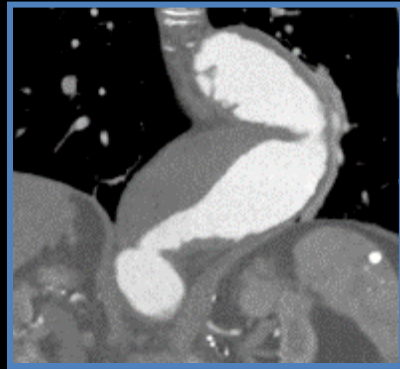
Small
ascendin
g
aneurysm

tortuosity

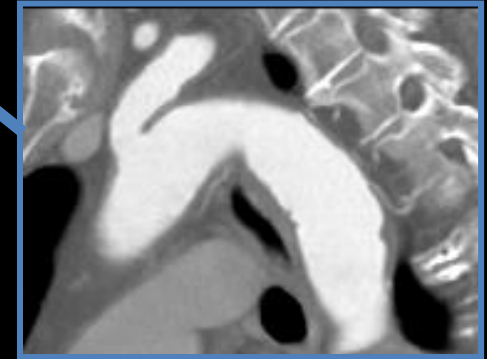
OPEN REPAIR

84F with multiple comorbidities and large TAAA

Tortuosity,
angulation



Type II Arch

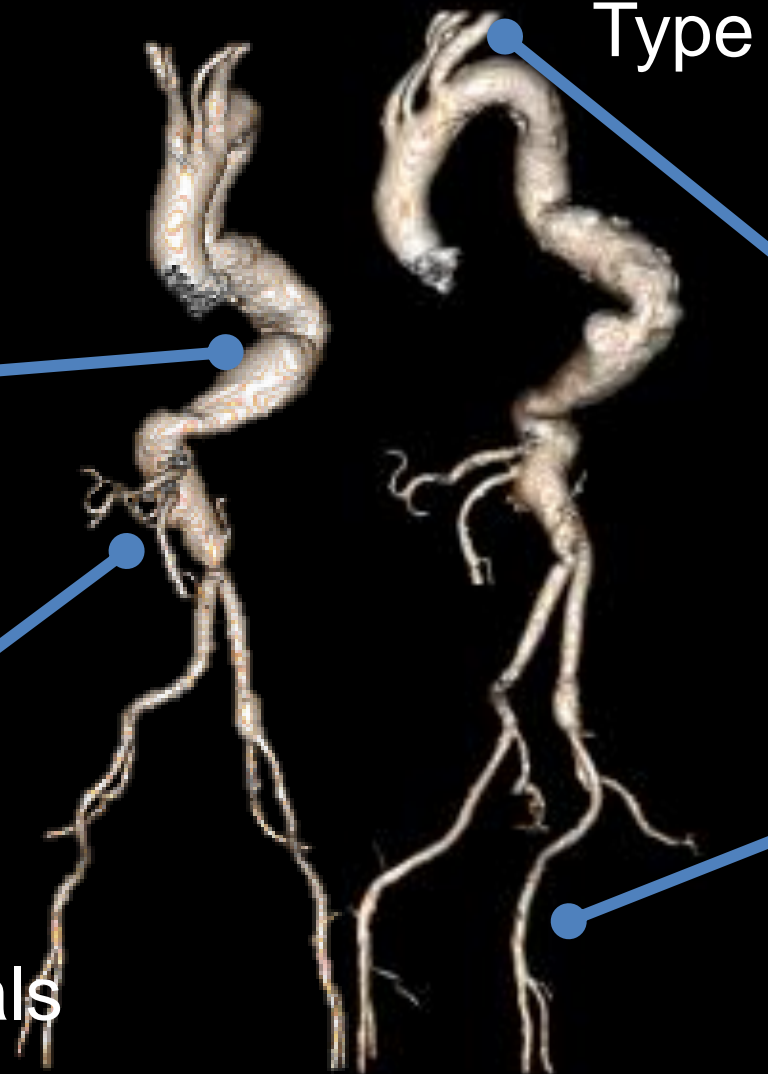


NO REPAIR



Multiple renals

Small iliacs



Two exceedingly high-risk patients with late TAAAs

NO REPAIR

Replaced HA

LRA1

RRA1

Angulation

2 small renals

Palma
z
stent

LRA2

RRA2

Small
iliacs

WHO SHOULD BE DENIED?

- Poor medical candidates
 - Limited life-expectancy (<2-years) who “don’t pass the eyeball test...or can’t handle a haircut”...
- Poor anatomical candidates
 - Unsuitable landing zones not amenable to hybrid repair
 - “Shaggy” or “Trash Can” Aortas
 - Small renal arteries preventing stenting
 - Excessive tortuosity/ angulation in the visceral segment
 - Prior aortic repair creating excessively difficult anatomy
 - Connective tissue disorders and mycotic aneurysms suitable to open repair
 - Combinations of multiple (small) factors listed above

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LIMITATIONS

UNTIL YOU SPREAD YOUR WINGS,
YOU'LL HAVE NO IDEA HOW FAR YOU CAN WALK.