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Title

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Expansion of the Pediatric Cardiac Interventional Repertoire – Renal Artery Interventions

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Introduction

- Adult interventional cardiologists have expanded their procedural repertoire to include renal artery interventions, while the pediatric cardiology community has not yet followed suit¹⁻²
- There is little data originating from pediatric cardiologists on catheterization and intervention to treat renal artery stenosis in pediatric patients³⁻⁵

Methods

- Retrospective chart review on patients with systemic hypertension due to renal artery stenosis
- Patients underwent catheterization and intervention on the renal artery from 2/2020 to 5/2021
- Data analyzed: patient profile, catheterization data, early and intermediate outcomes including pre- and post-procedure blood pressures and anti-hypertensive medications.

Results

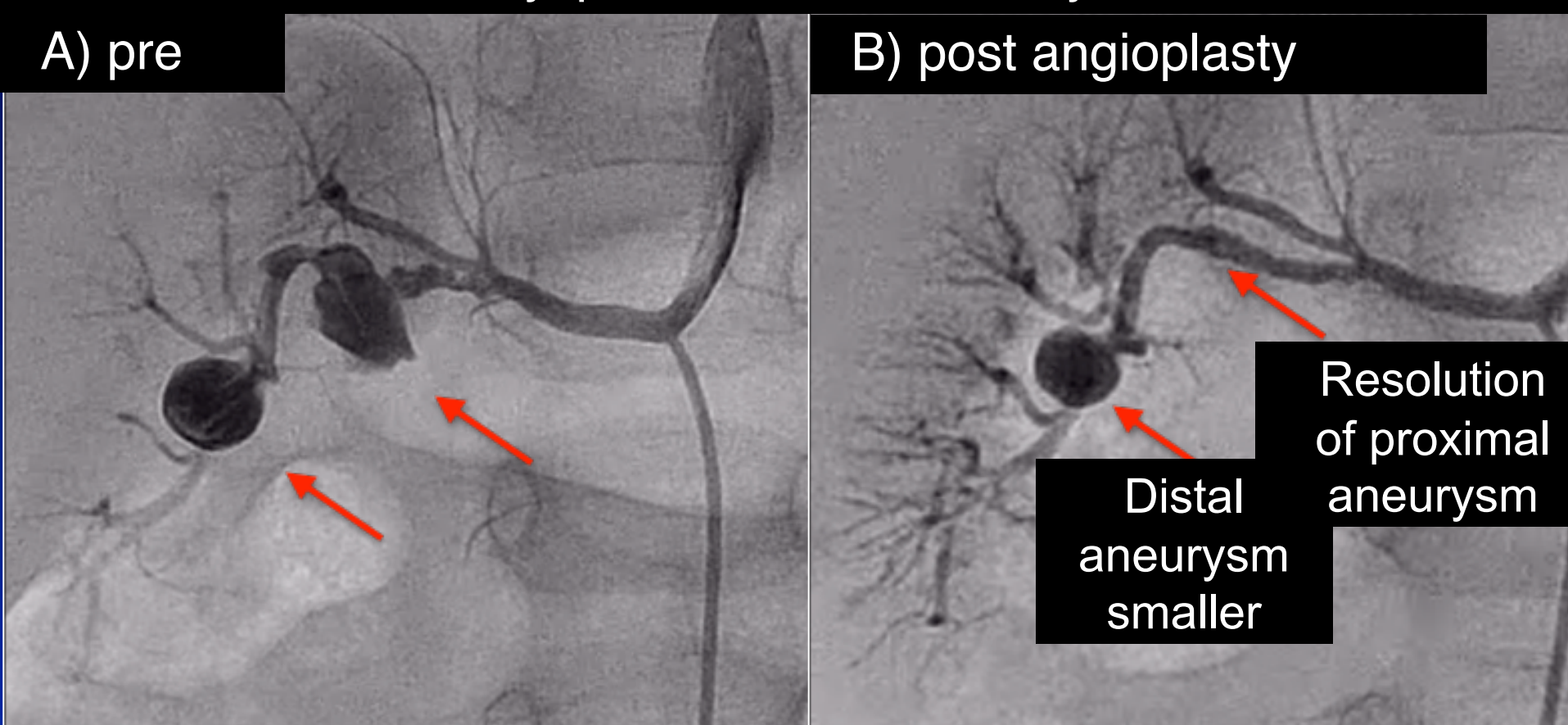
- Six patients underwent 9 interventions: 6 angioplasties and 3 stent implantations
- Median minimum diameter increased 83% from 1.40 (0.79-3.34) mm to 2.56 (1.24-4.86) mm (P<0.05)
- Patient characteristics & blood pressure pre-intervention

Patient	Age (months)	SBP at presentation (with medications)	No. of preoperative medications
1	41	132	5
2	217	107	0
3	29	110	4
4	106	120	2
5	124	127	2
6	197	123	1

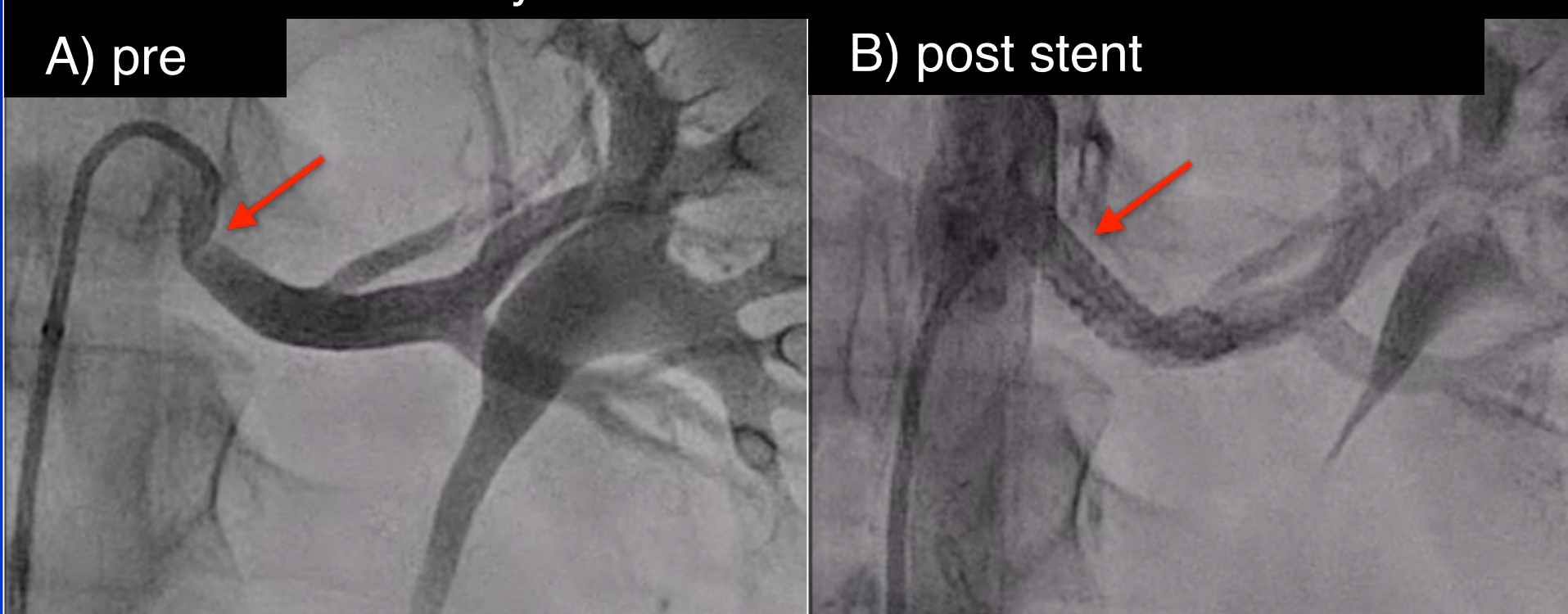
Conditions associated with renal artery stenosis in study patients include: Takayasu's disease, fibromuscular dysplasia with renal artery aneurysms, William's syndrome, congenital renal artery stenosis, and unknown.

- At follow-up, (median = 59 days (48-82 days)), antihypertensive medications were either eliminated or decreased in 4, but average systolic blood pressure remained controlled (from 119mmHg to 120mmHg) (P=0.44).

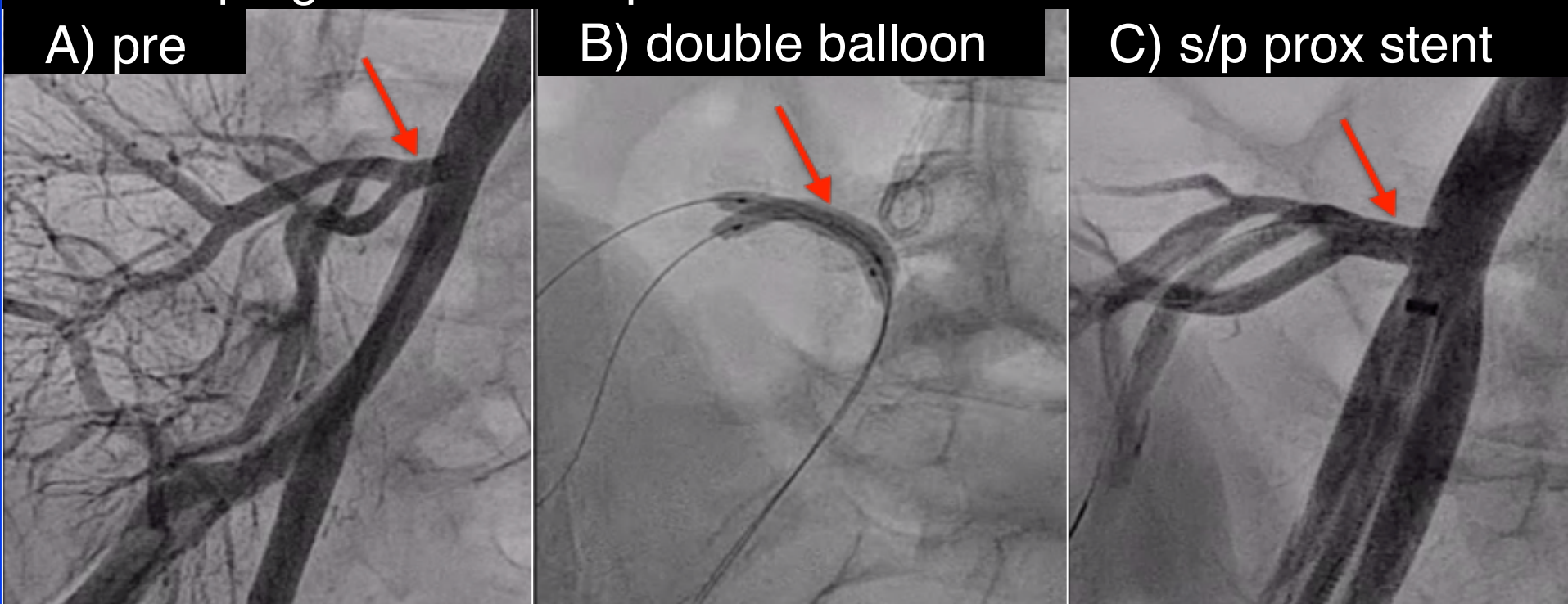
Pt. 1-fibromuscular dysplasia with two aneurysms



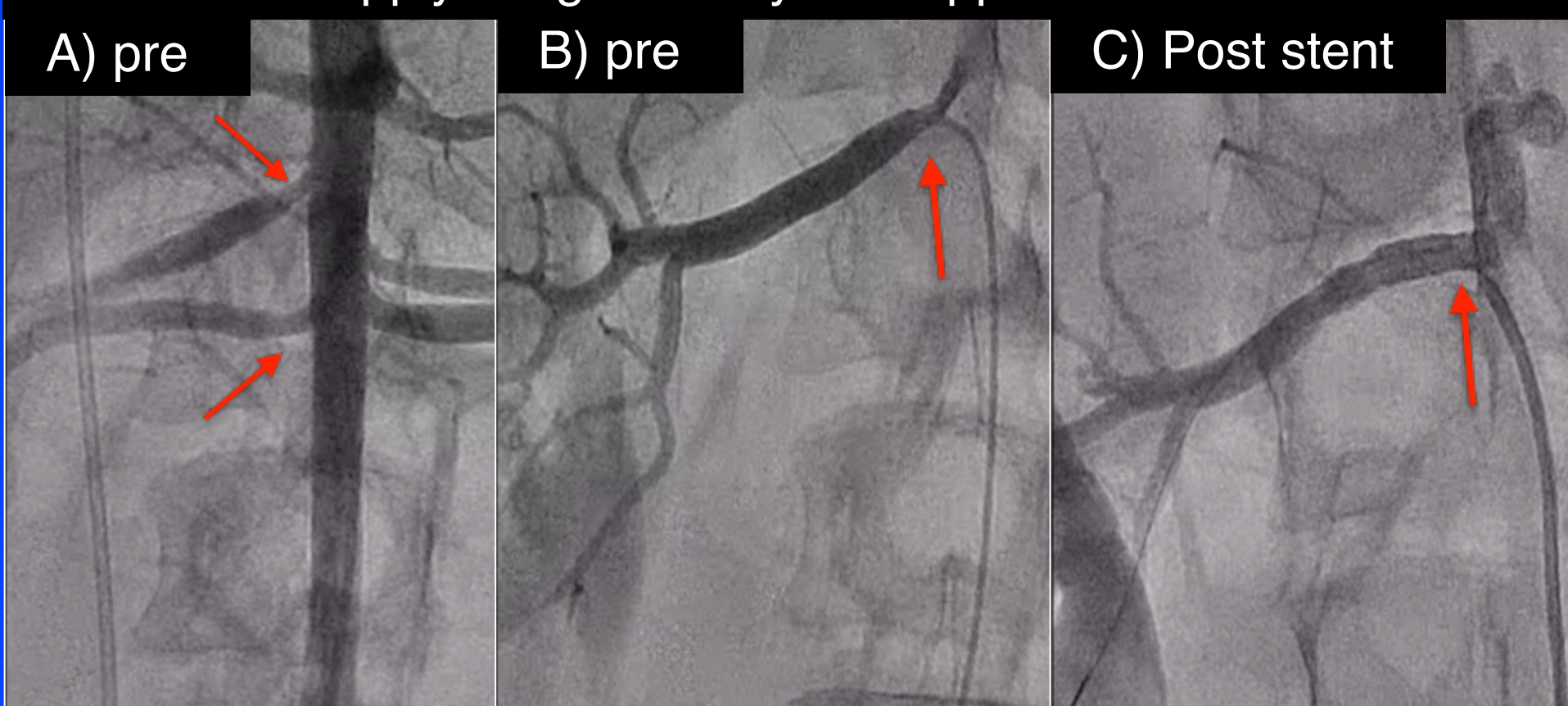
Pt. 2-Left renal artery stenosis with "fold"



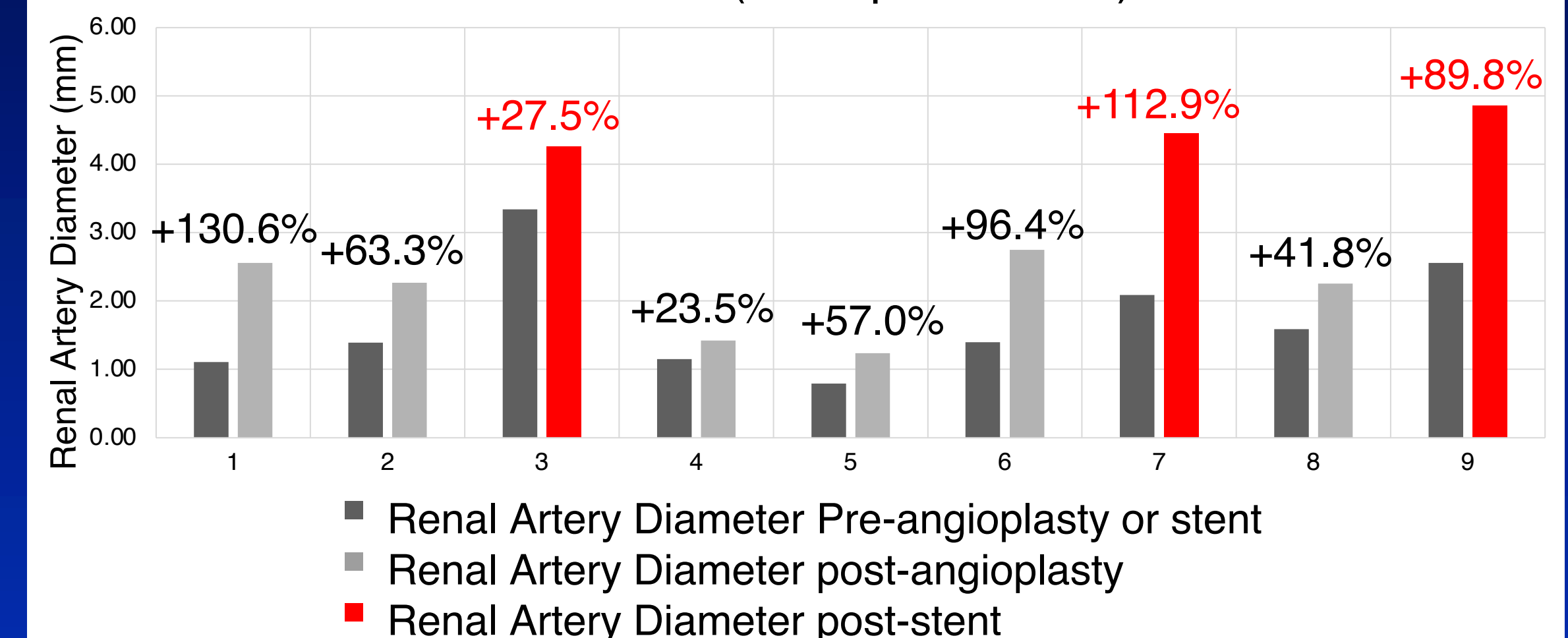
Pt. 3-S/p right renal transplant- with unifocalized small RRA



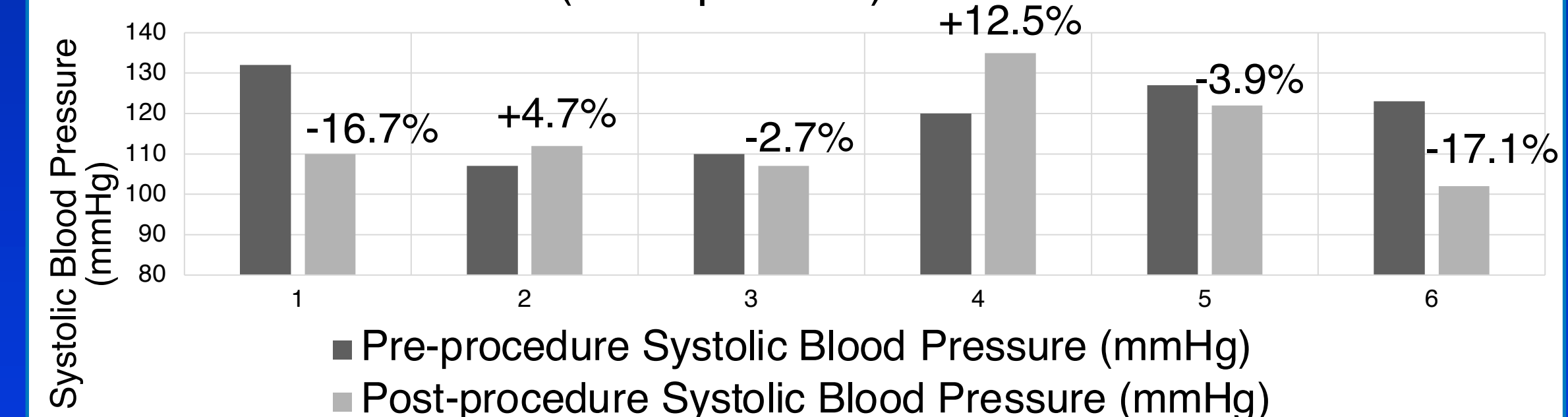
Pt. 4- Dual supply in right kidney with upper lobe stenosis



Percent Change of Renal Artery Diameter Post-Intervention (n = 9 procedures)



Systolic blood pressure change after intervention (n = 6 patients)



Conclusions

- Renal artery angioplasty and stenting is safe and effective
- Antihypertensive medications can be discontinued or decreased while maintaining acceptable systolic blood pressures post-intervention
- Pediatric cardiac interventionists can and should expand their procedural repertoire to include renal artery interventions
- Larger series and long follow up is warranted

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