

MANAGEMENT OF PEDIATRIC ARTERIAL  
and ABDOMINAL AORTIC ANEURYSMS in 2024:  
DIFFERING ETIOLOGIES NECESSITATE  
DIFFERENT THERAPEUTIC INTERVENTIONS

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VEITH Symposium  
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No Disclosures

ARTERIAL ANEURYSMS

68 Children 97 Aneurysms  
Mean age 9.3 years  
Multiple Aneurysms in 26%

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Pediatric nonaortic arterial aneurysms  
David M. Davis, MD, Sarah L. Haines, MD, Sarah A. Haines, MD, Paul R. Hain, MD, PhD, James C. Stanley, MD, and Dawn M. Coleman, MD. J Vasc Med Biol. 2024.

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Arterial aneurysms in children:  
Clinicopathologic classification  
Robert J. Beaulieu, MD, Joseph G. Gove, MD, Robert K. Chiles, MD, & Robert J. Beaulieu, MD, and Dawn M. Coleman, MD. J Vasc Med Biol. 2024.

ABDOMINAL AORTIC ANEURYSMS

11 Children, 9 Boys 2 Girls  
Mean age 3.1 years

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Surgical treatment of abdominal aortic aneurysms  
in infancy and early childhood  
Joseph G. Gove, MD, Dawn M. Coleman, MD, Benjamin Chabot, MD, and James C. Stanley, MD. J Vasc Med Biol. 2024.

Infectious

Traumatic

Poststenotic

Inflammatory

Genetic

Idiopathic

Infectious

AORTIC ANEURYSMS

Infectious

Umbilical Artery Catheterization

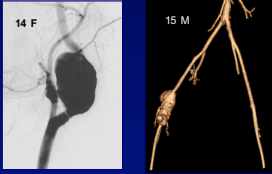


Clear the infection    Oversize the aortic graft

Traumatic

### ARTERIAL ANEURYSMS

Traumatic  
Blunt Penetrating

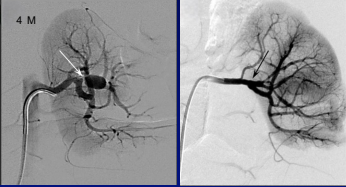


Autologous grafts preferred Ovoid anastomoses Interrupted sutures

Poststenotic

### ARTERIAL ANEURYSMS

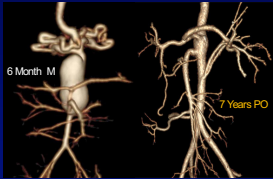
Poststenotic



Resect stenosis Reimplant distal artery  
Otherwise bypass

### AORTIC ANEURYSMS

Poststenotic



Resect stenosis Open aneurysmorrhaphy

Inflammatory

## ARTERIAL ANEURYSMS

### Inflammatory

Kawasaki Disease, Polyarteritis Nodosa, Takayasu Aortoarteritis



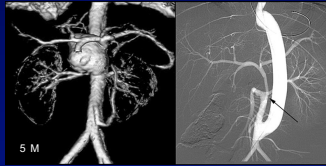
Autologous grafts preferred    Ovoid anastomoses    Interrupted sutures

Genetic

## AORTIC ANEURYSMS

### Genetic Disease

Loeys-Dietz, Ehlers-Danlos, Marfan, Arterial Tortuosity, Tuberous Sclerosis

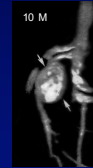


Resect aneurysm    Aortoortic Bypass    Complex intestinal and renal revascularizations

## ARTERIAL ANEURYSMS

### Genetic Disease

Loeys-Dietz, Ehlers-Danlos, Marfan, Arterial Tortuosity, Tuberous Sclerosis

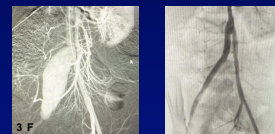


Autologous grafts preferred    Ovoid anastomoses    Interrupted sutures  
Simple Ligation

Idiopathic

## ARTERIAL ANEURYSMS

### Idiopathic

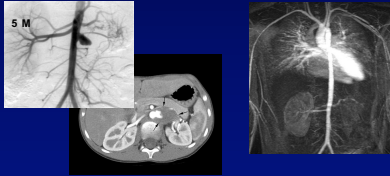


Use autologous grafts or oversized synthetic grafts    Ovoid anastomoses

Unique Cases

## AORTIC ANEURYSMS

Idiopathic



Resect aneurysm

Patch aortic closure

Unique Cases

## AORTIC ANEURYSMS

Idiopathic



Simple closed aneurysmorrhaphy

Unique Cases

## AORTIC ANEURYSMS

Idiopathic



Resect aneurysm

Aortoortic bypass

Complex intestinal and renal revascularizations

## INTERVENTIONS

Arterial Aneurysms - Successful 97%,

Aneurysmectomy with Reanastomosis, Reimplantation, Angioplasty Closure, Bypass; Plication, Operative Ligation, Endovascular Occlusion

Abdominal Aortic Aneurysms - Successful 91%

Aneurysmorrhaphy (Closed, Open), Aneurysmectomy with Thoracoabdominal, Interposition Aortic, or Aortoiliac Bypass

## CONCLUSION

Poorly-Defined Natural History  
Frequent Rupture and Death in Large Aneurysms

Treatment often **Anecdotal** but **Logical**  
Complex Interventions may be required to assure **Continued Growth**

## Thank You



University of Michigan Frankel Cardiovascular Center



University of Michigan Mott Children's Hospital