Endovascular Management Of Thoracic, Abdominal, And Mesenteric/Small Bowel AVMs

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Abdominal Arteriovenous Malformations

Yakes Type IIa AVM

26 yo female with an anterior Rt Rectus muscle AVM causing a severe pain syndrome and asymmetric Rt anterior abdominal wall muscular hypertrophy.
Venous phase

Lateral DSA
Anterior ABD wall AVM

2 ml ethanol

1 yr F/up AVM cure

1 yr F/up AVM cure

1 yr F/up AVM cure

1 yr F/up AVM cure
Yakes Type IIIa AVM

74 yo female with abdominal pain and unremitting GI hemorrhaging with weekly transfusion requirements.

DSA early arterial phase

Venous phase showing Vein aneurysm draining into Portal Vein Yakes Type IIIa AVM of the small bowel

Previous proximal coiling of the Gastro-Duodenal artery is totally ineffective
Rt renal artery supply to AVM

Direct puncture DSA with 21 g needle. Portal vein drainage of AVM.

Initial coiling with Ruby coils
Occlusion of the AVM
Celiac injection

Renal injection

4 month F/up Cure

4 month F/up Cure

Cure

4 month F/up
Thoracic AVM

19 yo female diagnosed with a “pulsatile mass” in the Lt supraclavicular area and mild exercise intolerance.
Massive AVM of Lt chest & shoulder.

Yakes Type IIa AVM
Conclusions

- Thoracic, supraclavicular, shoulder, axillary, and arm AVMs are in fact treatable.

- Durable cures in these complex lesions are documented at long-term follow-up with the use of ethanol and coils.

- Onyx has the potential for cure in dural AVFs. In brain AVMs its use is largely a preoperative-oniour surgical measure and has very limited potential as a primary mode of treatment.
**Conclusions**

- In non-CNS peripheral AVMs, Onyx’s potential for cure is even more limited to non-existent. As a surgical pre-op adjunct, Onyx definitely has a role. However, patients’ symptoms can dramatically worsen with time as the AVM “evolves” by the growth of new blood vessels due to the “angiogenesis neo-vascular stimulation” phenomenon that invariably occurs. Then, definitive endovascular treatment can be very challenging due Onyx’s radio-opacity obscuring vascular structures that now cannot be visualized to target for treatment.

- The abdomen and pelvis are home to multiple organs.

- This adds to the challenge of treating AVMs in challenging anatomies successfully.

- Separating these lesions into the various Yakes Type I – IV AVMs aids in determining the appropriate endovascular techniques necessary for treatment.