For Arch and Thoracic
Primary Aortic Embolizing Lesions,
When Anticoagulation, When Bare Stent, When Endograft

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Disclosures

• None to disclose

Primary modality of treatment

Historically

Anticoagulation:
Isolated case reports: disappearance of thrombus with anticoagulation alone*

Anticoagulation alone - neither the duration nor the optimal target INR range is known.

Nihilistic Treatment of
Primary Aortic Mural Thrombosis

Persistence of thrombus load or recurrent embolism risk reported to be high
1) with anticoagulation (>25%) and
2) with open surgical removal of thrombus (9%).

Recurrent embolism significantly increases the risk of major amputation (9% for anticoagulation alone versus 2.3% for surgical group) and life threatening visceral ischemia.

Contemporary management of symptomatic primary aortic mural thrombus

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Objective: To assess the contemporary management of symptomatic primary aortic mural thrombi.

Methods: This is a retrospective analysis of 51 patients with primary aortic mural thrombus who were managed surgically with anticoagulation and or endovascular therapy at our center from 2005 - 2015.

Results: Median age was 74 years (range 26-96). A total of 49 patients presented with acute symptoms of the involved extremity or cerebral emboli. All patients underwent cardiac evaluation for a potential source of embolism. Nine patients (18%) had a known cause of cardiac embolization. In 30 patients (59%), the thrombus was detected incidentally on imaging. Of the 13 patients (25%) who were symptomatic, 3 patients (6%) had documented acute limb ischemia. Of those 3 patients, 2 presented with acute limb ischemia requiring urgent surgical intervention and 1 presented with a well localized mural thrombus that could not be managed with anticoagulation or endovascular therapy.

Conclusions: Primary aortic mural thrombus is frequently managed with anticoagulation alone or in combination with endovascular therapy. In our series, there was no increase in mortality or complications associated with primary aortic mural thrombus. In conclusion, primary aortic mural thrombus is a frequent cause of arterial embolization which may be managed safely with open surgical or endovascular therapy.

Institutional Protocol - Investigating Acute Arterial Thrombosis

Arterial Doppler * of involved extremity + ECG, 2D ECHO, TEE

Cardiac source identified

No cardiac source identified

Upstream Arterial Tree CTA/MRA

Emboligenic source identified

No emboligenic source identified

Hypercoagulable Workup

• Idiopathic Arterial Thrombosis
Classification of PAMT

Type 1: Mural thrombus in ascending and arch of aorta (up to origin of left SCA)
Type 1a: Thrombus limited to ascending aorta
Type 1b: Ascending aortic thrombus extending into arch or aortic arch thrombus.

Type 2: Mural thrombus descending thoracic aorta (distal to left subclavian artery up to coeliac artery.
Type 2a: DTA thrombus above T8
Type 2b: DTA & supracoeliac aorta thrombus (T8-L1)

Type 3: Mural thrombus in aortic segment between coeliac artery to lowest renal artery

Type 4: Thrombus between lowest renal artery to aortic bifurcation

*Based on morphology of thrombus, each type of thrombus is further classified as "S", "P" or "O"

- S (sessile): Eccentric or concentric thrombus with no free floating component
- P (pedunculated): Pedunculated thrombus (Mural thrombus attached to aorta proximally with a distal free floating segment of variable length.
- O (occlusion): Complete thrombotic occlusion of aorta.

Type 1 PAMT (n=2)


Type 1a PAMT


Type 1b PAMT


Type 2 PAMT (n=8)
Type 3 PAMT

Conclusions

• PAMT is a significant problem in young patients and has poor outcomes despite aggressive treatment. Advanced organ ischemia is a poor prognostic sign.

• We suggest that all large embolic descending thoracic and abdominal aortic lesions be covered.

• Complete exclusion of type II thrombus can be effectively achieved by large-diameter, closed-cell bare metal stents when stent grafts are not available or there are concerns with coverage of visceral or spinal cord feeding vessels.

• In patients with type III thrombus, we favor trapdoor aortotomy and thromboembolectomy.