

Ascending Intramural hematoma (IMH)

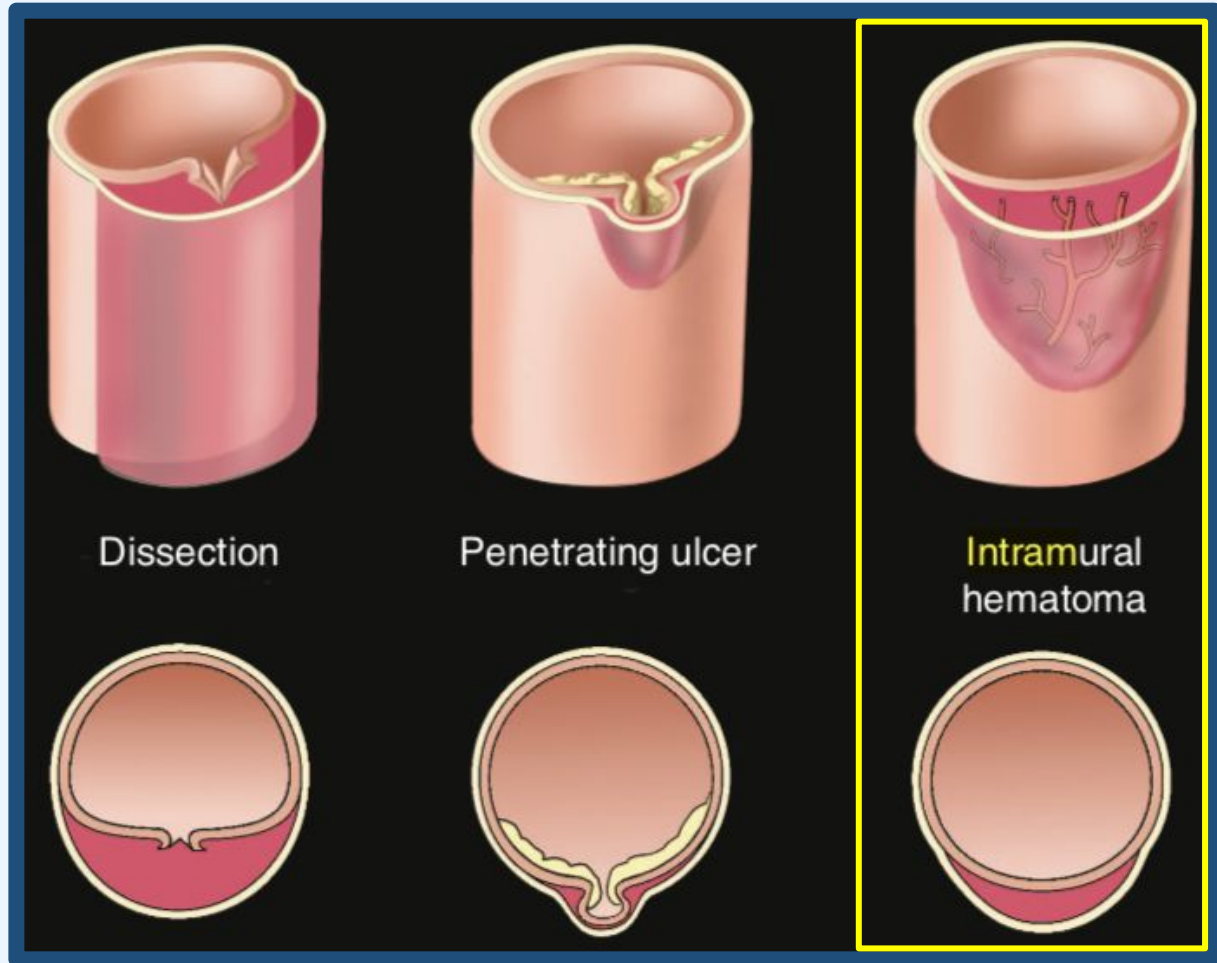
Does it really occlude arch branch vessels?

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Background: Ascending Intramural Hematoma (IMH)



Circumferential hematoma
in the aortic wall.
No intimal tear.

1. Coady MA, Rizzo JA, Elefteriades JA. PATHOLOGIC VARIANTS OF THORACIC AORTIC DISSECTIONS. *Cardiology Clinics*. 1999;17(4):637-657. doi:10.1016/s0733-8651(05)70106-5
2. Elefteriades JA. Thoracic aortic aneurysm: reading the enemy's play- book. *Curr Probl Cardiol*. 2008;33:203-277

ACC/AHA 2022 Clinical Practice Guidelines

- The Guidelines indicate **malperfusion** as a potential-IMH complication, due to branch vessel occlusion or compromise
- Recommend consequent surgical intervention for Type A aortic IMHs with this complication

<u>Features of Complicated IMH</u>
Malperfusion
Periaortic hematoma
Pericardial effusion with cardiac tamponade
Persistent, refractory or recurrent pain
Rupture

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Recommendations for Management of IMH Referenced studies that support the recommendations are summarized in the Online Data Supplement .		
COR	LOE	Recommendations
1	B-NR	1. In patients with complicated (Table 29) acute type A or type B aortic IMH, urgent repair is recommended. ¹⁻³

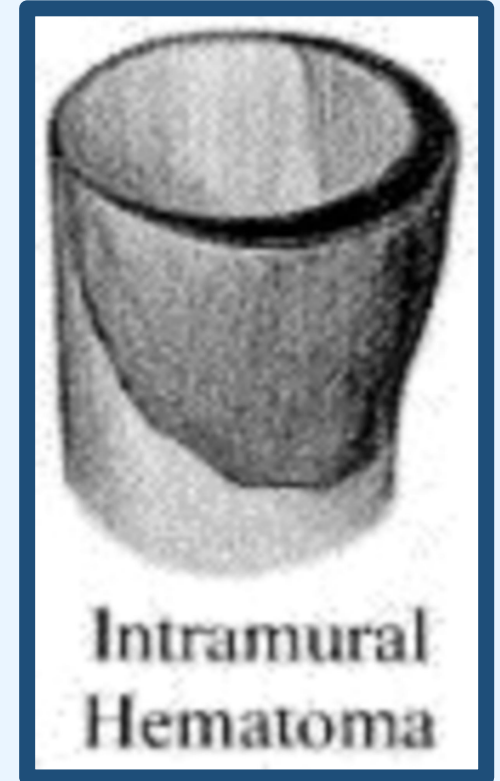
Study Objective

Not recalling any case of arch branch vessel compromise in our experience, we explore systematically the true incidence and frequency of malperfusion in ascending IMHs in our database.

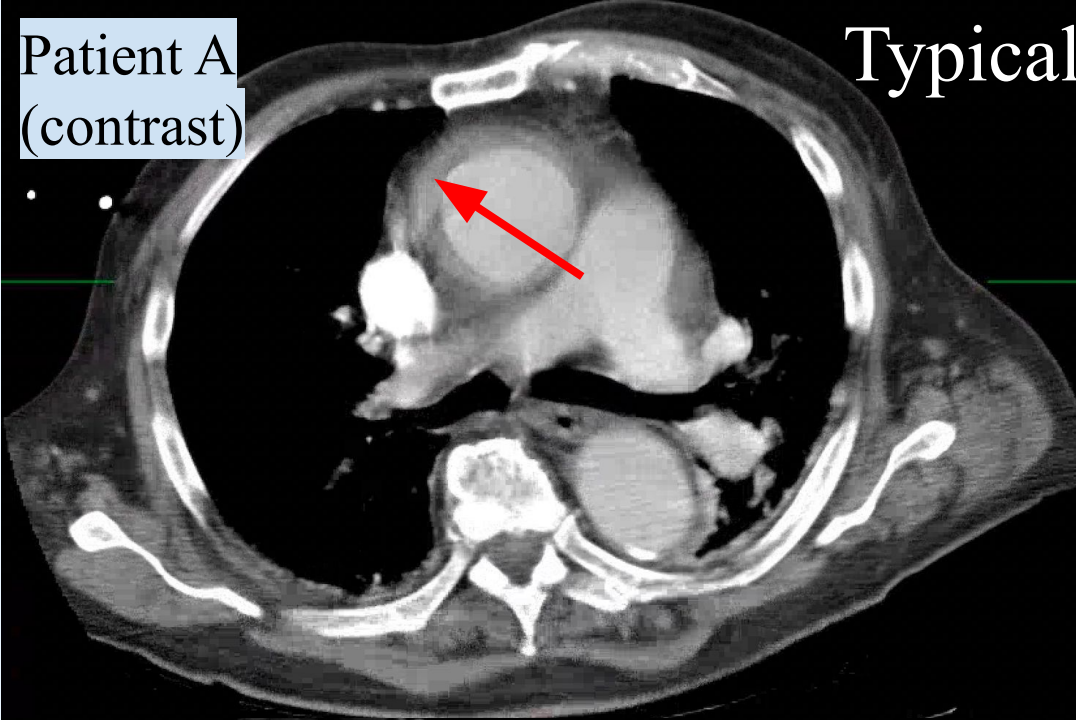


Methods

- IMH was defined as concentric intramural hemorrhage without dissection flap or ulceration
- All patients with ascending IMH were identified from imaging studies of a 3055 patient Thoracic Aortic Aneurysm database
- We identified 22 patients with strictly defined ascending IMH, 19 of whom had scans still available for review

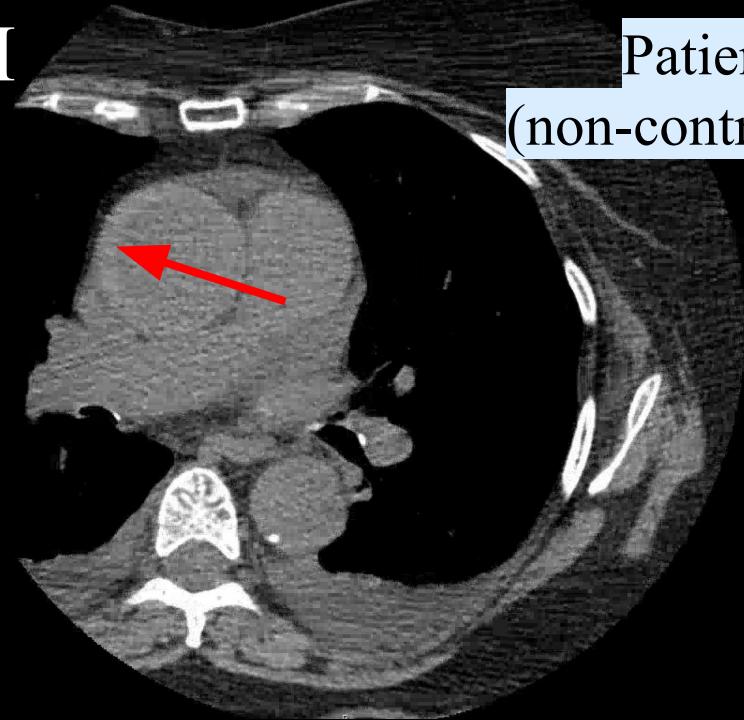


Patient A
(contrast)

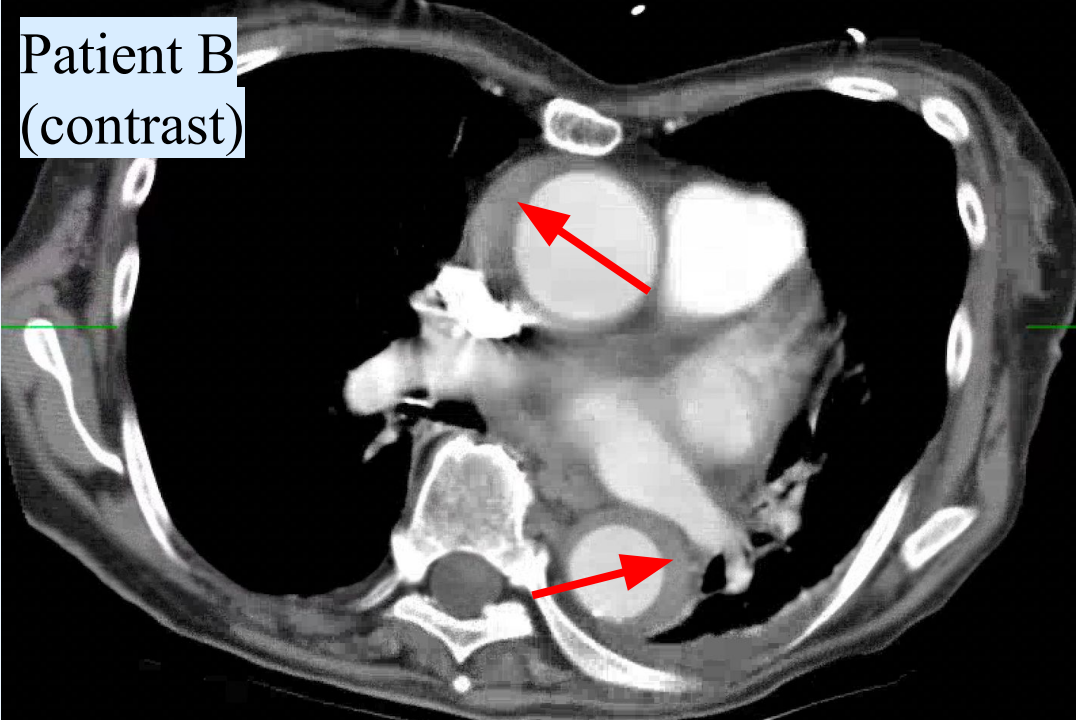


Typical IMH

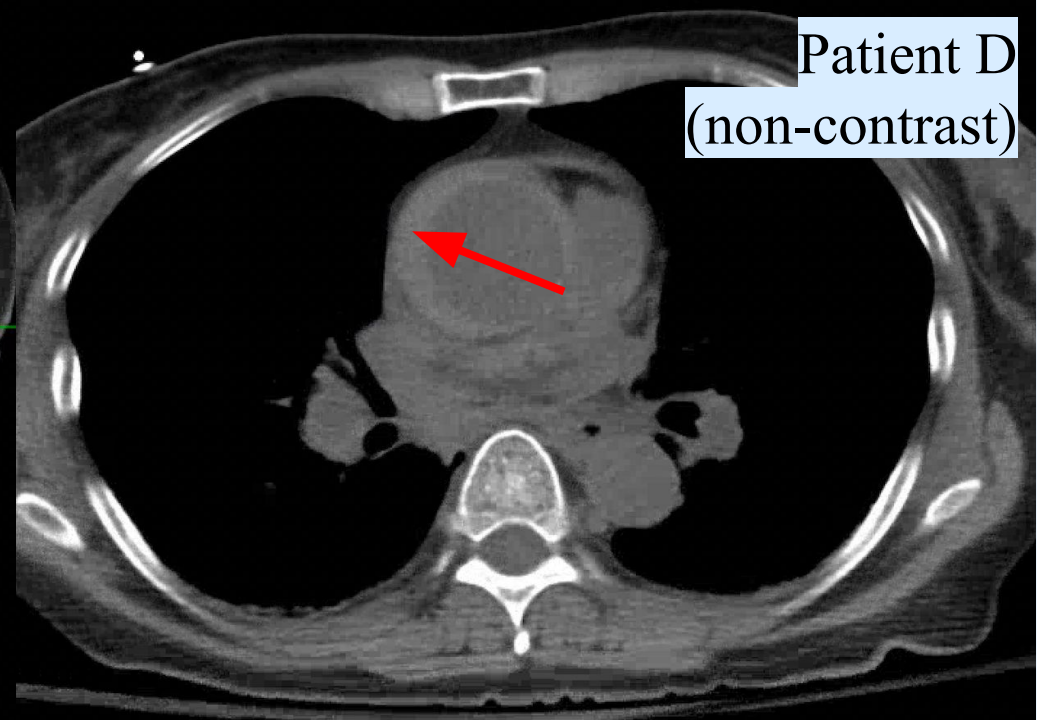
Patient C
(non-contrast)



Patient B
(contrast)



Patient D
(non-contrast)



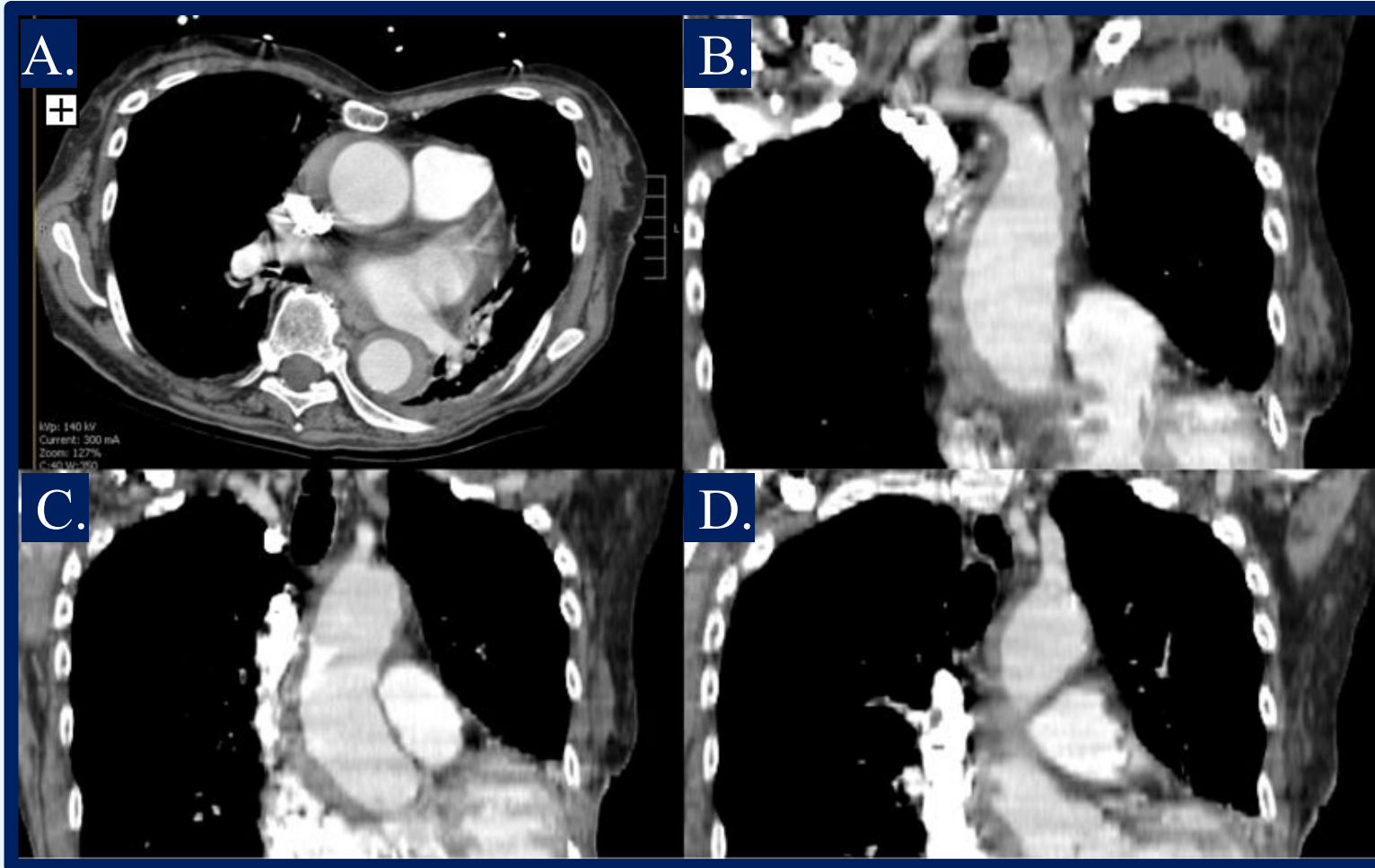
Results

- The distal extent of the IMH was limited to the ascending aorta in 5 cases, and extended to the descending aorta in 14 cases

Blood flow to the great vessels appeared **unimpaired in all cases.**

- 13 patients were treated surgically (12 survivors)
- 6 patients were treated medically
- 0 patients died directly of rupture.
- Of the medically managed discharged patients, 3 cases resolved spontaneously within 1.5-4 months, and 0 progressed to typical aortic dissection

Results



Note completely unimpacted flow channels of innominate, L carotid, L subclavian arteries.

This was the case in every patient: **NO ARCH VESSEL COMPROMISE** SEEN IN ANY PATIENT.

Conclusion

Branch vessel involvement from ascending IMH seems to be a rare occurrence.

* If experience from other institutions is similar, the surgical stipulation (for operation in case of branch vessel occlusion or compromise) in the Guidelines may not be necessary.

* Compromise of arch vessels from ascending IMH appears to be quite rare.

References:

1. Coady MA, Rizzo JA, Elefteriades JA. PATHOLOGIC VARIANTS OF THORACIC AORTIC DISSECTIONS. *Cardiology Clinics*. 1999;17(4):637-657. doi:10.1016/s0733-8651(05)70106-5
2. Elefteriades JA. *Thoracic aortic aneurysm: reading the enemy's play- book*. *Curr Probl Cardiol*. 2008;33:203-277
3. Elefteriades JA, Ziganshin BA. *Practical Tips in Aortic Surgery*.; 2021. doi:10.1007/978-3-030-78877-3
4. Isselbacher EM, Preventza O, Black JH, et al. 2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease: A report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. *Circulation*. 2022;146(24). doi:10.1161/cir.0000000000001106