



The Surgical Outcomes of Patients with  
Intramural Hematoma versus Aortic Dissection  
Undergoing Ascending Aortic Arch Repair

# Background

- Acute aortic syndromes include life-threatening pathologies such as Aortic Dissection and Intramural Hematoma
- Both acute Type A Aortic Dissections and Intramural Hematomas are treated with similar surgical techniques, which involves an ascending Aortic repair
- Although Intramural Hematomas comprise approximately 10-30% of all acute aortic syndromes, the precise surgical management of this pathology is controversial

# Objective

- This study aims to investigate the differences in outcomes for patients with Intramural Hematoma vs. Type A Aortic Dissection who underwent Ascending Aortic Repair at a single institution from January 2018 to May 2023

# Methods

- This was a retrospective review included patients with acute Intramural Hematoma or Type A Aortic Dissection who underwent emergent Ascending Aortic Arch Repair from January 2018 to May 2023
- Primary outcomes included intraoperative mortality, 30-Day mortality, and postoperative stay
- Secondary outcomes included postoperative complications
- Outcomes were analyzed using Chi-squared, Fisher's Exact, and t-tests, with significance set at  $p < 0.05$

# Results

- A total of 107 patients were included, 27 of whom (25%) had Intramural Hematoma and 80 (75%) had Type A Aortic Dissection
- No differences in characteristics such as age, gender, race, and Body Mass Index
- No differences in preoperative comorbidities such as hypertension, dyslipidemia, diabetes mellitus Type 2, smoking history, and drug abuse history

<b>Table 1: Baseline Characteristics</b>					
<b>Variable</b>		<b>Overall (n = 107)</b>	<b>Intramural Hematoma (n = 27)</b>	<b>Aortic Dissection (n = 80)</b>	<b>P-Value</b>
<b>Baseline Characteristics</b>					
	Age (years) (Median, IQR)	63 (54 - 74)	64 (58 - 75)	63 (53 - 73)	0.184
	Gender (male) n (%)	44 (74%)	15 (75%)	29 (74%)	0.782
	Race (White Non-Hispanic) n (%)	66 (62%)	19 (70%)	47 (59%)	0.283
	Body Mass Index (Median, IQR)	27 (24 - 32)	27 (22 - 32)	28 (24 - 32)	0.162
<b>Comorbidities</b>					
	Hypertension n (%)	99 (93%)	27 (100%)	72 (90%)	0.09
	Dyslipidemia n (%)	46 (43%)	9 (33%)	37 (46%)	0.241
	Diabetes Mellitus Type I/II n (%)	8 (7%)	2 (7%)	6 (8%)	0.987
	Smoking History n (%)	41 (38%)	10 (37%)	31 (39%)	0.874
	Drug Abuse History n (%)	6 (6%)	2 (7%)	4 (8%)	0.641
*Indicates significance at p < 0.05					

# Results

**Table 2: Outcomes and Complications**

Variable	Overall (n = 107)	(Intramural Hematoma (n = 27)	Aortic Dissection (n = 80)	P-value
<b>Outcomes</b>				
Intraoperative Mortality n (%)	6 (6%)	0 (0%)	6 (8%)	0.334
30-Day Mortality n (%)	21 (19%)	3 (11%)	18 (23%)	0.198
Postoperative Length of Stay n (%)	9 (5 - 15)	10 (7 - 18)	8 (5 - 13)	0.08
<b>Perioperative Characteristics</b>				
Case Length (minutes)	278 (238 - 356)	278 (243 - 346)	278 (231 - 362)	0.420
Cardiopulmonary Bypass Time (minutes)	143 (122 - 190)	144 (122 - 202)	143 (120 - 185)	0.449
Circulatory Arrest Time (minutes)	22 (18 - 28)	24 (17 - 30)	22 (18 - 27)	0.336
Aortic Cross-clamp Time (minutes)	92 (75 - 125)	92 (75 - 147)	92 (75 - 125)	0.426
<b>Postoperative Complications</b>				
Postoperative Bleeding Requiring Intervention n (%)	30 (28%)	7 (26%)	23 (29%)	0.489
Postoperative Cerebrovascular Accident n (%)	21 (20%)	8 (30%)	13 (16%)	0.231
Postoperative Atrial Fibrillation n (%)	27 (25%)	7 (26%)	20 (25%)	0.782
Postoperative Pericardial Window n (%)	6 (6%)	4 (15%)	2 (3%)	<b>0.020*</b>
Postoperative Thoracentesis n (%)	25 (23%)	7 (26%)	18 (23%)	0.990
Surgery-Related Emergency Department Visit n (%)	43 (40%)	11 (41%)	32 (40%)	0.631

\*Indicates significance at  $p < 0.05$

# Results

- No differences in other primary outcomes such as intraoperative mortality, 30-Day mortality, and postoperative length of stay, or in perioperative characteristics such as case length, bypass time, circulatory arrest time, and cross-clamp time
- There was a higher rate of pericardial effusions requiring pericardial window in the Intramural Hematoma cohort compared to the Aortic Dissection cohort (15% [n=27] vs. 3% [n=80]; p=0.02)
- No differences in postoperative complications such as bleeding requiring reoperation, cerebrovascular accident, atrial fibrillation, pleural effusion requiring thoracentesis, and surgery-related Emergency Department visits

# Conclusions

- We observed similar outcomes for patients undergoing Ascending Aortic Arch repair between patients with Intramural Hematoma and Type A Aortic Dissection
- Despite the higher rate of required postoperative pericardial windows in the Intramural Hematoma cohort, the overall primary outcomes remained comparable
- These findings better elucidate the standard of care for patients with acute Intramural Hematoma undergoing Ascending Aortic Arch repair