

Table of Contents

1. Introduction and Differential Diagnosis

1.1 Type-A aortic dissection: PEA arrest	1
1.2 Motion artifact ascending aorta.....	3
1.3 Suspected aortic dissection on abdominal ultrasound	5
1.4 Differential diagnosis: acute coronary syndrome	7
1.5 Known TAA: acute ACS with myocardial hypoperfusion	9
1.6 Differential diagnosis: acute MI with myocardial perfusion defect	11
1.7 Submassive pulmonary embolism (PE)	13
1.8 Chronic history of repaired aortic dissection—admitted with massive pulmonary embolism	14
1.9 Focal atheroma at the aortic isthmus	17
1.10 Linear thrombus versus intimal uplifting	19
1.11 Infected surgical graft ascending aorta	21
1.12 Retro-peritoneal bleed and abdominal aortic aneurysm	23
1.13 Repaired Type-A aortic dissection	25

2. Type-A Aortic Dissection

2.1 Type-A Dissection (class 1)

2.1.1 Type-A aortic dissection: limited to ascending segment	27
2.1.2 Type-A aortic dissection, limited to ascending segment, prior CABG	29
2.1.3 Type-A aortic dissection, ascending aorta and proximal arch	31
2.1.4 Type-A aortic dissection, ascending aorta to distal arch	33
2.1.5 Type-A aortic dissection, calcified dissection flap	36
2.1.6 Type-A aortic dissection, non-calcified dissection flap	38
2.1.7 Type-A aortic dissection/intramural hematoma and hemopericardium	41
2.1.8 Type-A aortic dissection—confusion and right sided weakness	43

2.1.9 Type-A aortic dissection—history of abdominal aortic aneurysm	45
2.1.10 Type-A aortic dissection—history of cocaine abuse	47
2.1.11 Type-A aortic dissection with aortic insufficiency	49
2.1.12 Type-A aortic dissection 3 days after bike accident	51
2.1.13 Type-A aortic dissection—hemodynamic instability, PEA arrest	53
2.1.14 Type-A aortic dissection—frozen-elephant graft	55
2.1.15 Type-A aortic dissection—h/o hypertension	57
2.1.16 Type-A aortic dissection—3-D reconstruction	59
2.1.17 Initial acute type-A aortic dissection, with subsequent new type-B aortic dissection	62
2.1.18 Type-A aortic dissection—staged repair	66
2.1.19 Type-A aortic dissection—‘frozen-elephant- trunk’ repair	69
2.1.20 Type-A aortic dissection/IMH—endovascular stent and regression	71
 2.2 Type-A Dissection (class 2; intramural hematoma)	
2.2.1 Intramural hematoma with retrograde extension in the ascending aorta	73
2.2.2 Dilated ascending aorta with intramural hematoma and small dissecting flap at proximal aortic arch	76
2.2.3 Type-A intramural hematoma extending to level of diaphragm	78
2.2.4 Type-A intramural hematoma ulcer-like projection	80
 2.3 Type-A Aortic Dissection (class 3; focal intimal tear)	
2.3.1 Focal intimal tear/limited dissection c/w type-A aortic dissection	82
2.3.2 Type-A aortic dissection/focal intimal tear	85
 2.4 Type-A Dissection with Complications	
2.4.1 Acute type-A dissection and severe aortic regurgitation	88
2.4.2 Acute type-A aortic dissection with pericardial effusion	90
2.4.3 Type-A aortic dissection with hemorrhagic pericardial effusion and blood products/stranding in the mediastinum	92
2.4.4 Type-A IMH with cardiac tamponade	94

VIII		
2.4.5	Type-A aortic dissection with mediastinal hemorrhage—metastatic rectal cancer	96
2.4.6	Type-A aortic dissection with evidence of contained rupture	98
2.4.7	Type-A dissection with bilateral carotid artery occlusion	100
2.4.8	Type-A aortic dissection with compressed true lumen aorta and branch vessels	103
2.4.9	Type-A aortic dissection with iliac occlusion	105
2.4.10	Type-A aortic dissection with occluded right iliac arteries	107
2.4.11	Type A aortic dissection with occlusion of true lumen of right iliac artery	110
2.4.12	Type-A aortic dissection with complicated distal extension	112
2.4.13	Type-A aortic dissection with prolapsed flap	114
2.4.14	Type-A aortic dissection with prolapse of dissection flap	116
2.5 Iatrogenic Type-A Aortic Dissection		
2.5.1	LM dissection with retrograde extension into the root in the setting of STEMI	118
2.5.2	Iatrogenic type-A aortic dissection—medical management with interval improvement	120
2.5.3	Iatrogenic type-A aortic dissection post PCI	123
2.5.4	Iatrogenic dissection of the ascending aorta	126
2.5.5	Iatrogenic focal type-A dissection after LHC	128
2.6 Acute Presentation in Setting of Previously Repaired Aortic Dissection		
2.6.1	Chronic type-A dissection with previous supra-coronary graft and hemi-arch repair	130
2.6.2	Repaired type-A aortic dissection—hypertensive urgency	132
2.6.3	Repaired type-A aortic dissection—interval progression descending aorta	135
2.6.4	Repaired type-A aortic dissection—subsequent hybrid repair	138
2.6.5	Complex repair type-A aortic dissection	141
2.6.6	Complex aortic repair in patient with Marfan syndrome and aortic dissection	144
2.6.7	Repaired type-A dissection; ruptured TAA/residual dissection	146
2.6.8	H/o repaired type-A aortic dissection; subsequent admission with concern for peri-aortic graft hematoma <i>vs.</i> infection	148
2.6.9	Aortic root pseudo-aneurysm	152

2.6.10 Pseudoaneurysm of the ascending aorta	154
2.6.11 Pseudoaneurysm repaired aortic root	156
2.6.12 Large aortic root pseudoaneurysm/abscess cavities	158

3. Type-B Aortic Dissection

3.1 Type-B Aortic Dissection (class 1)

3.1.1 Aortic dissection beginning in the aortic arch and distal malperfusion	160
3.1.2 Distal arch and descending aortic intramural hematoma with possibly limited extension in the distal ascending aorta	162
3.1.3 Type-B aortic dissection—uncomplicated	165
3.1.4 Type-B aortic dissection—CFA pseudo-aneurysm	167
3.1.5 Complicated type-B aortic dissection—presentation with endoleak 2 month after endovascular stent placement	170
3.1.6 Type-B aortic dissection	173
3.1.7 Complicated type-B aortic dissection with mediastinal hemorrhage	176
3.1.8 Type-B aortic dissection with massive aneurysmal dilatation	178

3.2 Type-B Dissection (class 2; intramural hematoma)

3.2.1 Type-B distribution intramural hematoma—regression during follow-up	180
3.2.2 Type-B intramural hematoma—local discordant interval progression/regression	183
3.2.3 Intramural hematoma arch and descending aorta with evidence of leakage in mediastinum	186
3.2.4 Type-B intramural hematoma (IMH)	188

3.3 Acute Presentation in Setting of Previously Aortic Surgery

3.3.1 Type-B aortic dissection distal to surgical graft	190
3.3.2 Type-B aortic dissection—h/o Marfan syndrome	192
3.3.3 Type-B aortic dissection—several prior surgeries ascending aorta	195
3.3.4 Type-B aortic dissection—intermittent chest pain after discharge	197
3.3.5 Type-B aortic dissection—prior surgical graft ascending aorta	199

3.4 Other Pathologies

3.4.1 Spontaneous external iliac and femoral artery dissection with large thigh hematoma	201
3.4.2 Symptomatic penetrating thoracic aortic ulcer	204
3.4.3 Witnessed rupture of chronic type-B dissection with hemoptysis	206

4. Aortic Aneurysm

4.1 Extensive aortic aneurysmal disease, with interval growth of the thoracic aorta	208
4.2 Thoracic aortic aneurysm—endovascular repair	210
4.3 Symptomatic enlarging TAA—prior endovascular stent repair	212
4.4 Thoracoabdominal aortic aneurysm	216
4.5 TAA: type I endoleak	218
4.6 Enlarging descending thoracic aortic aneurysm—Takayasu’s arteritis	220
4.7 Type III thoracic abdominal aneurysm with contained rupture	222
4.8 Ruptured thoracoabdominal aneurysm	224
4.9 Ruptured thoracic aortic aneurysm	226
4.10 Ruptured thoracic aneurysm	228
4.11 Extensive thoracoabdominal aneurysmal disease, with evidence of rupture	230
4.12 Ruptured mycotic thoracic aortic aneurysm	232
4.13 Acute aortic rupture	235
4.14 Symptomatic aortic arch pseudoaneurysm, s/p TEVAR	237
4.15 Left subclavian artery rupture <i>vs.</i> dissection	241
4.16 Graft infection; s/p supra-coronary graft for Type-A dissection	243
4.17 Incidental finding of large abdominal aortic aneurysm	246
4.18 Juxtarenal abdominal aneurysm	248
4.19 Infrarenal abdominal aortic aneurysm (AAA)	250
4.20 Symptomatic abdominal aortic aneurysm, with increase in size	252
4.21 Large infrarenal abdominal aortic aneurysm	254

4.22 Ruptured abdominal aortic aneurysm—initial episode of unresponsiveness 256

4.23 Symptomatic abdominal aortic aneurysm (AAA)..... 258

4.24 Type-I endoleak of stented juxtarenal aortic aneurysm with evidence of rupture 260

4.25 Ruptured abdominal aortic aneurysm 262

4.26 Ruptured juxta-renal aortic aneurysm 264

4.27 Ruptured abdominal aortic aneurysm—known history of TAA 266

4.28 Ruptured abdominal aortic aneurysm—remote endovascular repair 268

4.29 Ruptured abdominal aortic aneurysm—PAD 270

4.30 Repaired Type-A aortic dissection—now with suspected ruptured mycotic aneurysm in the
dissected infrarenal abdominal aorta 272

4.31 Acute SMA embolus—h/o endovascular abdominal aortic aneurysm (AAA) repair 275

4.32 Large asymptomatic but expanding juxtarenal abdominal aortic aneurysm (AAA),
recent necrotizing pancreatitis with pancreatic pseudocyst 278

4.33 Abdominal aortic aneurysm (AAA) and metastatic bone lesions 281

4.34 Aortic dissection beginning in proximal arch, mesenteric ischemia 284