

American College of Radiology
ACR Appropriateness Criteria®

Thoracoabdominal Aneurysm or Dissection: Treatment Planning and Follow-Up

Variant 1: Follow-up of known thoracoabdominal aortic aneurysm or dissection without repair. Without or with new symptoms.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest abdomen pelvis with IV contrast	Usually appropriate	Limited	☹☹☹☹☹ 30-100 mSv		9	9	0	0	0	0	0	1	1	2	18
		References		Study Quality											
		35 (24625611)		4											
		36 (28027791)		4											
		34 (19884165)		3											
		31 (24503676)		4											
		33 (25623219)		4											
MRA chest abdomen pelvis without and with IV contrast	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	1	1	0	2	12	6
		References		Study Quality											
		51 (24399340)		2											
		50 (20200628)		2											
		49 (20171907)		1											
		48 (24740558)		3											
		45 (27553926)		1											
		44 (28388971)		2											
		43 (31054559)		4											
		41 (7824707)		2											
		40 (28987425)		4											

39 (20013276)	3
38 (22386146)	2
34 (19884165)	3
33 (25623219)	4
37 (17968882)	3
46 (30664117)	2
47 (28905233)	2

MRA chest abdomen pelvis without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	1	0	0	2	0	13	5	1
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References	Study Quality
52 (30694008)	3
53 (22415593)	3
51 (24399340)	2
45 (27553926)	1
37 (17968882)	3
39 (20013276)	3
44 (28388971)	2
50 (20200628)	2

CTA chest and abdomen with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		6	6	0	0	1	0	7	10	3	0	1
MRA chest and abdomen without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	0	6	9	3	3	0
MRA chest and abdomen without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	4	10	4	3	1
CT chest abdomen pelvis with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	0	1	12	2	7	0	0
CT chest abdomen pelvis without IV contrast	May be appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	3	6	11	1	1	0	0

References	Study Quality
30 (30835189)	1

33 (25623219)	4
31 (24503676)	4
29 (22451563)	2

CT chest abdomen pelvis without and with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	5	5	0	0	0	1	11	6	3	1	0
CT chest and abdomen without and with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		4	4	0	2	8	4	6	1	1	0	0
CT chest and abdomen with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		4	4	0	2	9	2	6	2	1	0	0
US duplex Doppler aorta abdomen	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	3	3	4	5	9	3	1	0	0	0	0

References	Study Quality
43 (31054559)	4
56 (15838577)	3

US echocardiography transthoracic resting	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	3	3	3	8	9	1	1	0	0	0	0
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References	Study Quality
58 (25529153)	4
33 (25623219)	4
57 (20823280)	4

Radiography chest	Usually not appropriate	Limited	⊕ <0.1 mSv	⊕ <0.03 mSv [ped]	3	3	5	5	9	2	1	0	0	0	0
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References	Study Quality
55 (14715319)	1
54 (26724510)	4
53 (22415593)	3

CT chest and abdomen without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		3	3	2	4	6	3	5	1	1	0	0
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Aortography chest abdomen pelvis	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv		3	3	5	4	7	2	2	2	0	0	0
		References		Study Quality											
		27 (29613964)		4											
		28 (12694105)		2											
Radiography chest abdomen pelvis	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	9	6	7	0	0	0	0	0	0
		References		Study Quality											
		55 (14715319)		1											
		54 (26724510)		4											
		53 (22415593)		3											

Variant 2: Planning for endovascular or open repair of thoracoabdominal aorta aneurysm or dissection.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest abdomen pelvis with IV contrast	Usually appropriate	Strong	☹☹☹☹☹ 30-100 mSv		9	9	1	0	0	0	0	1	0	2	18
		References	Study Quality												
		68 (31705825)	3												
		72 (29080918)	2												
		71 (26344681)	3												
		70 (17306951)	1												
		69 (26497024)	3												
		67 (22021522)	2												
		66 (22459348)	2												
		65 (31635962)	2												
		64 (30855116)	4												
		63 (22176725)	4												
		62 (12618702)	1												

CT chest abdomen pelvis without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	5	5	2	3	7	2	4	2	1	1	0
MRA chest and abdomen without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	3	2	6	4	2	4	1	0	0
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	4	8	3	4	0	0	0	0
MRA chest and abdomen without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	4	2	8	6	1	1	0	0	0
CT chest and abdomen without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv		3	3	5	4	7	4	2	0	0	0	0
CT chest and abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv		3	3	3	4	7	4	3	1	0	0	0
CT chest and abdomen with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv		3	3	3	4	7	5	2	1	0	0	0
Aortography chest abdomen pelvis	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv		3	3	2	7	5	2	4	1	1	0	0

		References	Study Quality												
		27 (29613964)	4												
		59 (19251176)	4												

US duplex Doppler aorta abdomen	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	8	5	5	1	3	0	0	0	0
US echocardiography transthoracic resting	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	7	5	4	2	2	0	0	1	1

		References	Study Quality												
		33 (25623219)	4												

Radiography chest	Usually not appropriate	Expert Consensus	☼ <0.1 mSv	☼ <0.03 mSv [ped]	2	2	11	6	3	0	1	0	1	0	0
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Radiography chest abdomen pelvis	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv		1	1	15	4	3	0	0	0	0	0	0
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Variant 3: Follow-up after endovascular repair of thoracoabdominal aortic aneurysm or dissection.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest abdomen pelvis with IV contrast	Usually appropriate	Strong	⊕⊕⊕⊕⊕ 30-100 mSv		9	9	0	0	1	0	0	1	0	3	17

References	Study Quality
83 (20924762)	3
84 (28662928)	4
82 (27542700)	4
81 (27436027)	1
80 (23465175)	4
79 (23403221)	4
78 (19104821)	2
32 (23711975)	3
17 (24246537)	3
14 (26792544)	1
77 (24480084)	2

MRA chest abdomen pelvis without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	1	2	1	6	8	4
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References	Study Quality
88 (27357219)	1
87 (14718808)	2
86 (16630731)	3
85 (18307209)	4
84 (28662928)	4
83 (20924762)	3

CT chest and abdomen without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		3	3	2	4	9	0	6	1	0	0	0
CT chest and abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		3	3	2	4	7	3	5	0	0	1	0
CT chest and abdomen with IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		3	3	2	4	7	4	4	1	0	0	0

Variant 4: Follow-up after open repair of thoracoabdominal aortic aneurysm or dissection.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA chest abdomen pelvis with IV contrast	Usually appropriate	Limited	⊕⊕⊕⊕⊕ 30-100 mSv		9	9	0	2	0	0	0	1	1	4	14
		References		Study Quality											
		35 (24625611)		4											
		34 (19884165)		3											
		31 (24503676)		4											
		33 (25623219)		4											
MRA chest abdomen pelvis without and with IV contrast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	0	2	1	4	9	6
		References		Study Quality											
		23 (32772927)		3											
		24 (21103933)		4											
		33 (25623219)		4											
CTA chest and abdomen with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		6	6	0	0	0	0	9	6	6	1	0
MRA chest and abdomen without and with IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	6	6	0	0	0	0	9	9	4	0	0
MRA chest abdomen pelvis without IV contrast	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	6	6	0	0	0	1	4	9	6	1	1

References	Study Quality
51 (24399340)	2
45 (27553926)	1
39 (20013276)	3
38 (22386146)	2
34 (19884165)	3
33 (25623219)	4
37 (17968882)	3
44 (28388971)	2
50 (20200628)	2

CT chest abdomen pelvis with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	1	0	3	14	3	1	0	0
CT chest abdomen pelvis without IV contrast	May be appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	2	7	12	1	0	0	0

References	Study Quality
31 (24503676)	4
30 (30835189)	1
29 (22451563)	2

CT chest abdomen pelvis without and with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	5	5	0	0	0	1	15	5	0	0	1
MRA chest and abdomen without IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	5	5	0	1	0	2	12	5	2	0	0
CT chest and abdomen without and with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		5	5	0	0	1	5	14	2	0	0	0
CT chest and abdomen with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		5	5	0	0	1	8	11	2	0	0	0
CT chest and abdomen without IV contrast	Usually not appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv		3	3	3	3	9	0	6	1	0	0	0

US duplex Doppler aorta abdomen	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	6	7	9	0	0	0	0	0	0
		References		Study Quality											
		43 (31054559)		4											
		56 (15838577)		3											
US echocardiography transthoracic resting	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	6	6	6	1	3	0	0	0	0
		References		Study Quality											
		58 (25529153)		4											
Aortography chest abdomen pelvis	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv		2	2	7	7	8	0	0	0	0	0	0
		References		Study Quality											
		27 (29613964)		4											
Radiography chest	Usually not appropriate	Expert Consensus	☢ <0.1 mSv	☢ <0.03 mSv [ped]	1	1	12	2	7	1	0	0	0	0	0
Radiography chest abdomen pelvis	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	13	2	7	0	0	0	0	0	0

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.