

American College of Radiology ACR Appropriateness Criteria®

Thoracic Venous Occlusions-Suspected Superior Vena Cava Syndrome

Variant 1: Adult. Suspected acute superior vena cava or brachiocephalic vein occlusion. Initial Imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTV chest with IV contrast	Usually appropriate	Limited	⊕⊕⊕⊕⊕ 10-30 mSv		9	9	0	0	0	0	1	0	2	5	10
		References	Study Quality												
		9 (25724223)	4												
CT chest with IV contrast	Usually appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕⊕ 3-10 mSv [ped]	8	8	0	0	0	1	0	0	4	6	8
		References	Study Quality												
		8 (26452112)	4												
		7 (35297100)	4												
		6 (25082145)	4												
CT chest without and with IV contrast	Usually appropriate	Expert Consensus	⊕⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	0	0	0	0	1	2	9	6	0
MRV chest without and with IV contrast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	7	7	0	0	0	1	3	3	4	4	3
		References	Study Quality												
		8 (26452112)	4												
CT neck and chest with IV contrast	Usually appropriate	Expert Consensus	⊕⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	0	0	0	1	3	2	6	5	2

CT neck and chest without and with IV contrast	Usually appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	7	7	0	0	1	1	1	3	7	4	1
CTA and CTV chest with IV contrast	Usually appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	7	7	0	0	1	0	6	1	2	4	4
		References	Study Quality												
		9 (25724223)	4												
MRA and MRV chest without and with IV contrast	Usually appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	7	7	0	0	1	0	6	1	5	3	2
		References	Study Quality												
		8 (26452112)	4												
MRI chest without and with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	0	0	1	1	5	4	4	3	0
		References	Study Quality												
		8 (26452112)	4												
MRI chest with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	0	0	0	0	5	6	4	3	0
		References	Study Quality												
		8 (26452112)	4												
CTA chest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼☼ 1-10 mSv	☼☼☼☼☼ 3-10 mSv [ped]	5	5	0	0	3	3	4	1	4	3	0
		References	Study Quality												
		9 (25724223)	4												
MRA chest without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ ○ mSv	○ ○ mSv [ped]	5	5	0	0	3	5	1	4	3	2	0
		References	Study Quality												
		8 (26452112)	4												
MRV chest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ ○ mSv	○ ○ mSv [ped]	5	5	0	0	1	2	6	3	4	1	1

		References	Study Quality													
		8 (26452112)	4													
Radiography chest	May be appropriate (Disagreement)	Expert Opinion	☼ <0.1 mSv	☼ <0.03 mSv [ped]	5	5	1	5	4	0	1	2	3	2	0	
		References	Study Quality													
		10 (33357528)	4													
		11 (22560123)	4													
MRA chest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	3	5	2	1	5	2	0	
		References	Study Quality													
		8 (26452112)	4													
CTA chest without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼☼ 1-10 mSv		5	5	0	0	6	3	1	1	4	3	0	
		References	Study Quality													
		9 (25724223)	4													
MRA chest without IV contrast	May be appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	4	4	1	1	5	6	4	0	1	0	0	
MRI chest without IV contrast	May be appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	4	4	0	1	5	5	6	1	0	0	0	
		References	Study Quality													
		8 (26452112)	4													
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	2	2	5	9	0	1	0	0	0	
Catheter venography upper extremity and SVC	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		3	3	4	3	6	3	0	1	0	1	0	
		References	Study Quality													
		5 (32928071)	3													
CT neck and chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	2	3	5	5	3	1	0	0	0	

US duplex Doppler upper extremity and chest	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	0	2	8	1	4	2	0	1	0
		References	Study Quality												
		7 (35297100)	4												
		10 (33357528)	4												

Variant 2: Adult. Suspected chronic superior vena cava or brachiocephalic vein occlusion. Initial Imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT chest with IV contrast	Usually appropriate	Limited	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	8	8	1	0	0	0	1	1	3	7	6
		References	Study Quality												
		5 (32928071)	3												
		6 (25082145)	4												
		8 (26452112)	4												
CTA and CTV chest with IV contrast	Usually appropriate	Limited	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	8	8	1	0	0	0	1	2	5	6	3
		References	Study Quality												
		9 (25724223)	4												
CT chest without and with IV contrast	Usually appropriate	Expert Consensus	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	7	7	0	0	0	0	1	1	8	7	1
CTV chest with IV contrast	Usually appropriate	Limited	⊗⊗⊗⊗ 10-30 mSv		7	7	0	0	0	0	0	4	3	4	8
		References	Study Quality												
		9 (25724223)	4												
MRV chest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	5	2	4	4	3

		References		Study Quality											
		8 (26452112)		4											
CT neck and chest with IV contrast	Usually appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	7	7	0	0	0	0	0	0	10	8	0
CT neck and chest without and with IV contrast	Usually appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	7	7	0	0	0	0	1	5	8	4	0
MRA and MRV chest without and with IV contrast	Usually appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	7	7	0	1	0	1	4	3	3	3	3
		References		Study Quality											
		8 (26452112)		4											
MRA chest without and with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	0	1	0	5	3	3	5	1	0
		References		Study Quality											
		8 (26452112)		4											
MRI chest without and with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	0	0	0	1	3	6	5	3	0
		References		Study Quality											
		8 (26452112)		4											
MRA chest with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	0	1	0	2	6	3	5	1	0
		References		Study Quality											
		8 (26452112)		4											
MRI chest with IV contrast	May be appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	6	6	1	1	0	4	4	6	2	1	0
		References		Study Quality											
		8 (26452112)		4											
CTA chest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	5	5	0	1	3	2	2	3	4	3	0
		References		Study Quality											

		9 (25724223)		4											
Catheter venography upper extremity and SVC	May be appropriate (Disagreement)	Expert Opinion	☼☼☼ 1-10 mSv		5	5	2	3	5	0	1	5	2	0	0
		References		Study Quality											
		5 (32928071)		3											
MRV chest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	1	6	2	4	3	1	1
		References		Study Quality											
		8 (26452112)		4											
Radiography chest	May be appropriate (Disagreement)	Expert Opinion	☼ <0.1 mSv	☼ <0.03 mSv [ped]	5	5	1	5	4	0	1	2	2	2	1
		References		Study Quality											
		10 (33357528)		4											
		11 (22560123)		4											
CTA chest without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☼☼☼ 1-10 mSv		5	5	0	0	3	3	3	2	4	3	0
		References		Study Quality											
		9 (25724223)		4											
US duplex Doppler upper extremity and chest	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	1	4	4	1	1	1	3	1	2
		References		Study Quality											
		7 (35297100)		4											
		10 (33357528)		4											
MRI chest without IV contrast	May be appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	4	4	1	2	6	6	2	2	0	0	0
		References		Study Quality											
		8 (26452112)		4											
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	2	5	5	2	0	1	0	0

MRA chest without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	1	4	5	5	1	3	0	0	0
		References		Study Quality											
		8 (26452112)		4											
CT neck and chest without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	3	9	0	3	0	1	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.