American College of Radiology ACR Appropriateness Criteria[®]

Soft Tissue Masses

Variant 1: Superficial soft tissue mass. Initial imaging.

	Appropriatene	SS			D.C				I	Final	Tabu	latio	ns		
Procedure	Category	SOE SOE	Adults RRL	2 Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US area of interest	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	2	2	2	7
		References		Study	Quality										
		17 (24848846)			3										
		19 (24848826)			4										
		18 (33058264)			2										
		16 (31900511)			2										
		15 (35412355)			4										
		14 (28987653)			3										
		13 (30928084)			4										
		12 (32438440)			4										
		9 (29846498)			4										
Radiography area of interest	Usually appropriate	Limited	Varies	Varies	9	9	1	0	1	0	0	0	0	1	11
		References		Study	/ Quality										
		11 (27726739)			4										
		10 (18566812)		4											
		9 (29846498)			4										
CT area of interest with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	2	2	7	4	2	0	0	1	0	0	0

CT area of interest without IV contrast	Usuall approp	Expert Consensus	Varies	Varies	2	2	6	4	2	0	0	0	1	0	0
CT area of interest without and with IV contrast	Usuall approp	Expert Consensus	Varies	Varies	2	2	7	2	2	0	1	1	1	0	0
MRI area of interest without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	, O 0 mSv [ped]	2	2	6	2	1	3	1	1	0	0	0
Image-guided biopsy area of interest	Usuall approp	te		Varies	1	1	10	1	1	1	0	0	1	0	0
		References		Stud	y Quality										
		23 (23971442)			4										
		24 (29752328)			4										
MRI area of interest without IV contrast	Usuall approp	ot Expert		, O 0 mSv [ped]	1	1	8	2	0	2	1	1	0	0	0
FDG-PET/CT area of interest	Usuall approp	Expert Consensus	େବେବେଟ 10- mSv	30	1	1	11	1	1	0	0	0	0	1	0
US area of interest with IV contrast	Usuall approp	Strong	O 0 mSv	, O 0 mSv [ped]	1	1	10	2	0	0	0	0	1	0	0
		References		Stud	y Quality										
		22 (22411306)			4										
		21 (27959625)			2										
		20 (25454097)			2										
Image-guided fine needle aspiration area of interest	Usuall approp	Limited	Varies	Varies	1	1	10	1	1	0	1	0	1	0	0
		References	Stud	y Quality											
		23 (23971442)			4										
		24 (29752328)			4										

Variant 2: Nonsuperficial (deep) soft tissue mass. Initial imaging.

	Appropriateness	~ ~ -			_				ŀ	inal	Tabu	ilatio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Radiography area of interest	Usually appropriate	Limited	Varies	Varies	9	9	1	0	0	0	0	0	2	1	10
		References		Study	y Quality										
		11 (27726739)			4										
		25 (23673552)			4										
		26 (35236592)			4										
		9 (29846498)			4										
CT area of interest with IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	2	1	6	3	0	0	0
		References		Study	y Quality										
		11 (27726739)			4										
		29 (25344599)			4										
		30 (20489097)			4										
		31 (33299004)			4					_					
CT area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	2	0	0	8	3	0	0	0
		References		Study	y Quality										
		11 (27726739)			4										
		29 (25344599)			4										
		30 (20489097)			4										
		31 (33299004)			4						_				
CT area of interest without and with IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	0	1	8	3	0	0	0
		References		Study	y Quality										
		11 (27726739)			4										
		29 (25344599)			4										
		30 (20489097)			4										
		31 (33299004)			4										

US area of interest	May approp		Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	1	10	2	0	0	0
			References		Study	y Quality			•						•	
			13 (30928084)			4										
			27 (19414084)			3										
			28 (32591891)			2						-	-			
MRI area of interest without and with IV contrast	Usually approp				O 0 mSv [ped]	2	2	6	3	1	2	1	0	0	0	1
US area of interest with IV contrast	Usually approp		ate Limited 0.0 mSv		O 0 mSv [ped]	2	2	7	0	3	1	2	0	1	0	0
			References	Study	y Quality											
			27 (19414084)			3										
Image-guided biopsy area of interest	Usually approp		10t Limited Varies		Varies	1	1	12	1	0	0	0	0	1	0	0
			References		Study	y Quality										
			23 (23971442)			4										
			24 (29752328)			4										
MRI area of interest without IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	3	0	0	3	0	0	0	0
FDG-PET/CT area of interest	Usually approp		Expert Consensus	Expert $\textcircled{Consensus}$ 10-30		1	1	11	2	0	0	0	0	1	0	0
Image-guided fine needle aspiration area of interest	Usually approp		Limited	Varies	Varies	1	1	12	0	0	1	0	0	1	0	0
			References		Study	y Quality			-		-	-	-	-	-	
		23 (23971442)			4											
		24 (29752328)			4											

Variant 3: Soft tissue mass. Nondiagnostic radiograph and noncontrast enhanced ultrasound. Next imaging study.

	Appropria	ateness	<i></i>			-				F	inal	Tabu	ilatio	ns		
Procedure	Catego	ory	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI area of interest without and with IV contrast	Usual appropr	ly riate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	1	0	0	0	0	0	2	0	11
			References		Study	v Quality										
			42 (33814107)			4										
			41 (28655433)			4										
			40 (31834812)			2										
			39 (32885297)			2										
	_		38 (30949892)			4										
			37 (32649224)			2										
	_		36 (32379793)			2										
	_		35 (30663160)			2										
			34 (33542870)			2										
	_		33 (15459325)			1										
	_		11 (27726739)			4										
			3 (33852362)			4			1			1	_			,
MRI area of interest without IV contrast	May b appropr	be riate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	4	4	3	1	0
			References		Study	v Quality										
			42 (33814107)			4										
			41 (28655433)			4										
			40 (31834812)			2										
			39 (32885297)			2										
			38 (30949892)			4										
			37 (32649224)			2										
	_		36 (32379793)			2										
			35 (30663160)			2										
			34 (33542870)			2										
			33 (15459325)			1										
			11 (27726739)			4										

		3 (33852362) 4													
CT area of interest with IV contrast	May be appropriate	Moderate	Varies	Varies	5	5	0	0	0	0	7	1	2	1	2
		References		Study	y Quality				•						
		32 (8988217)			2										
		29 (25344599)			4										
		30 (20489097)			4										
		31 (33299004)		1	4										
CT area of interest without and with IV contrast	May be appropriate	Moderate	Varies	Varies	5	5	0	0	0	0	8	5	0	0	0
		References		Study	y Quality										
		32 (8988217)			2										
		31 (33299004)		-	4					1					
CT area of interest without IV contrast	Usually not appropriate	Moderate	Varies	2	2	6	1	4	1	1	0	0	0	0	
		References		Study	y Quality										
		32 (8988217)			2										
FDG-PET/CT area of interest	Usually not appropriate	Strong	ତତତତ 10-30 mSv		2	2	5	5	1	0	1	0	1	0	0
		References		Study	y Quality										
		47 (26990930)			2										
		45 (32711449)			2										
		46 (20660389)			3										
		43 (19636577)			3										
		48 (26053718)			3										
		44 (18756363)		i	3			1	1	1					
US area of interest with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	2	2	6	2	3	1	0	1	1	0	0
		References			y Quality										
		16 (31900511)			2										
		28 (32591891) 2													

Image-guided biopsy area of interest	Usually approp	y not priate	Limited	Varies		Varies	1	1	10	1	1	0	0	0	1	0	0
			References			Study	Quality										
			23 (23971442)				4										
			23 (23971442) 24 (29752328)				4			-							
Image-guided fine needle aspiration area of interest	Usually approp	y not riate	Limited	Varies		Varies	1	1	10	1	1	0	0	0	1	0	0
			References			Study	Quality										
			23 (23971442)				4										
			24 (29752328)				4										

Variant 4: Soft tissue mass. Nondiagnostic radiograph and noncontrast enhanced ultrasound. MRI contraindicated. Next imaging study.

	Appropri	iateness	005							F	inal	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RRI	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT area of interest with IV contrast	Usua approp		Strong	Varies	Varies	9	9	0	1	0	0	0	1	0	2	9
			References		Study	Quality										
			49 (21249370)		3											
			52 (24834889)			4										
			51 (26025120)			3										
			53 (25340586)			3										
			29 (25344599)			4										
			54 (25819070)			2										
	-		50 (30919651)			4		-								
CT area of interest without and with IV contrast	May approp	be oriate	Limited	Varies	Varies	5	5	0	0	0	1	11	0	1	0	0
			References		Study	Quality										
		31 (33299004)				4										

CT area of interest without IV contrast	Usually	y not riate	Limited	Varies	Varies	3	3	5	1	2	2	2	1	1	0	0
			References		Study	y Quality				1						
			29 (25344599)			4							_			
US area of interest with IV contrast	Usually approp	y not riate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	6	0	5	2	0	0	1	0	0
FDG-PET/CT area of interest	Usually approp	y not riate	Strong	ଡଡଡଡ 10-30 mSv		2	2	5	5	1	1	0	0	1	0	0
	l.		References		Study	y Quality										•
			47 (26990930)			2										
			45 (32711449)			2										
			46 (20660389)			3										
			43 (19636577)			3										
			48 (26053718)			3										
			44 (18756363)			3							-			
Image-guided biopsy area of interest	Usually approp		Limited	Varies	Varies	1	1	8	0	3	0	1	2	0	0	0
			References		Study	y Quality			•			•		•	•	•
			29 (25344599)			4										
			24 (29752328)			4						-		-		
Image-guided fine needle aspiration area of interest	Usually approp		Limited	Varies	Varies	1	1	7	3	2	0	0	0	1	0	0
		References			Study	y Quality										
		29 (25344599)				4										
		24 (29752328)				4										

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.