

**American College of Radiology  
ACR Appropriateness Criteria®**

**Radiologic Management of Infected Fluid Collections**

**Variant 1: Patient with right lower quadrant abdominal pain, fever, and leukocytosis for 7 days. Physical examination shows no peritoneal signs. CT scan shows a thin-walled fluid collection, greater than 3 cm, adjacent to the cecum, nonvisualization of the appendix, and an appendicolith. Imaging findings are highly suspicious for appendicitis. Treatment includes antibiotics.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Conservative management only	Usually not appropriate	Limited	N/A	N/A	3	3	1	4	5	1	2	1	0	0	0
		References		Study Quality											
		28 (16498095)		3											
		27 (16322960)		2											
		2 (24293807)		4											
Surgical drainage	May be appropriate	Limited	N/A	N/A	4	n/a	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		30 (6709901)		4											
		29 (21299091)		2											
		31 (29180172)		4											
Needle aspiration	May be appropriate	Limited	N/A	N/A	5	5	0	1	0	1	6	2	3	0	0
		References		Study Quality											
		28 (16498095)		3											
		27 (16322960)		2											
		2 (24293807)		4											

Percutaneous catheter drainage followed by delayed surgery	Usually appropriate	Strong	N/A	N/A	7	7	0	0	0	0	1	3	3	3	3
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References	Study Quality
17 (20149402)	Inadequate
26 (22249438)	2
16 (16175691)	3
20 (17390174)	4
22 (22052039)	2
23 (11867780)	4
24 (17032194)	2
25 (21286921)	4
18 (27756361)	3
19 (29431586)	4
21 (29361105)	4

Percutaneous catheter drainage only	Usually appropriate	Strong	N/A	N/A	8	8	0	0	1	0	1	3	1	6	1
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References	Study Quality
12 (10826415)	3
13 (8320186)	3
11 (12093344)	2
14 (12525909)	3
8 (22821308)	2
15 (23575402)	2
2 (24293807)	4
9 (28151844)	3
10 (16091990)	3

**Variant 2: Patient with a history of left hemicolectomy 2 months ago for colon carcinoma. Two weeks after placement of a drain into an abdominal abscess; the patient presents with abdominal pain and fever. Drain output is 25 cc per day and the collection is unchanged in size by CT. Treatment includes antibiotics.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations									
							1	2	3	4	5	6	7	8	9	
Catheter upsizing	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	3	7	3	
		References	Study Quality													
		33 (20173165)	2													
		32 (14736682)	3													
Continued antibiotics and drain removal	Usually not appropriate	Limited	N/A	N/A	2	2	4	7	2	0	0	0	0	0	0	
		References	Study Quality													
		2 (24293807)	4													
Continued antibiotics and drainage (no change in care)	May be appropriate	Limited	N/A	N/A	5	5	0	3	2	1	6	1	0	0	0	
		References	Study Quality													
		47 (1719787)	2													
		48 (1627886)	4													
		23 (11867780)	4													
Intracavitary thrombolytic therapy and drainage	Usually appropriate	Strong	N/A	N/A	7	7	0	0	0	1	1	1	8	2	0	
		References	Study Quality													
		40 (21482136)	4													
		34 (18372451)	4													
		36 (18309017)	3													
		37 (20036149)	4													
		38 (19190912)	1													
		39 (18503906)	1													
		41 (17867950)	1													
		35 (30202126)	4													
Laparoscopic drainage	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	0	3	11	0	0	0	

		References	Study Quality												
		42 (11083215)	4												
		43 (15616752)	4												
Open surgical drainage	May be appropriate	Limited	N/A	N/A	6	6	0	0	2	4	0	7	0	0	0
		References	Study Quality												
		46 (2479049)	4												
		44 (8607582)	4												
		45 (-3148208)	4												

**Variant 3: Patient who is an intravenous drug abuser presents with fever and tachycardia and on imaging is found to have 2 noncommunicating splenic abscesses accessible percutaneously through a 1 cm rim of normal splenic tissue. Treatment includes antibiotics.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Conservative management only	Usually not appropriate	Limited	N/A	N/A	3	3	2	3	5	1	2	0	0	0	0
		References	Study Quality												
		55 (29666665)	4												
		57 (30326233)	4												
Needle aspiration	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	1	4	7	1	0	0
		References	Study Quality												
		54 (19070526)	4												
		56 (30244225)	4												
Percutaneous catheter drainage only	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	1	0	1	4	7	0
		References	Study Quality												
		51 (16489650)	3												
		52 (16676856)	2												



Percutaneous catheter drainage only	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	0	3	4	3	3	0
		References			Study Quality										
		67 (8995072)			4										
		62 (11818936)			3										
		68 (1734573)			4										
		69 (3357953)			4										
		64 (1702557)			4										
		65 (24315454)			3										
		66 (30146334)			3										
Percutaneous needle aspiration	May be appropriate	Limited	N/A	N/A	4	4	0	2	2	4	4	1	0	0	0
		References			Study Quality										
		73 (12607787)			4										
		74 (24955337)			4										
		75 (12911171)			4										
Surgical cystenterostomy	May be appropriate	Limited	N/A	N/A	6	6	0	0	1	0	5	2	3	1	1
		References			Study Quality										
		60 (26900288)			4										

**Variant 5: Patient with a 2 week history of cough, fever, and foul-smelling sputum. Worsening condition despite a full course of broad-spectrum antibiotics. Sputum cultures negative. CT scan shows a right lower lobe abscess. Treatment includes antibiotics.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Another course of antibiotics and postural drainage	May be appropriate (Disagreement)	Expert Opinion	N/A	N/A	5	5	0	4	4	2	0	3	1	0	0
		References			Study Quality										
		83 (17273583)			4										



		86 (22459772)			Good													
Needle aspiration	Usually not appropriate	Strong	N/A	N/A	3	3	2	3	4	2	0	1	1	0	0			
		References			Study Quality													
		84 (28840000)			Good													
		86 (22459772)			Good													
Open decortication	May be appropriate	Moderate	N/A	N/A	6	6	0	0	0	3	2	6	1	1	0			
		References			Study Quality													
		84 (28840000)			Good													
		87 (30370082)			4													
Percutaneous catheter drainage with administration of thrombolytic therapy	Usually appropriate	Moderate	N/A	N/A	8	8	0	0	0	0	1	1	4	3	4			
		References			Study Quality													
		36 (18309017)			3													
		84 (28840000)			Good													
		85 (28274565)			4													
Video-assisted thoracic surgery decortication	Usually appropriate	Moderate	N/A	N/A	7	7	0	0	0	0	0	4	6	2	1			
		References			Study Quality													
		84 (28840000)			Good													
		87 (30370082)			4													

**Variant 7: Woman of childbearing age with abdominal pain, fever, and leukocytosis. Marked tenderness on pelvic examination. CT scan shows a walled-off, probable tubo-ovarian abscess (TOA) greater than 3 cm. Treatment includes antibiotics.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations											
							1	2	3	4	5	6	7	8	9			
Conservative management only	May be appropriate	Limited	N/A	N/A	5	5	0	0	5	2	6	1	0	0	0			



					References		Study Quality									
					100 (23539877)		2									
					99 (26848871)		4									
Endoscopic US-guided drainage	May be appropriate	Limited	N/A	N/A	5	5	0	0	0	1	7	6	0	0	0	
					References		Study Quality									
					105 (20659232)		4									
					104 (28918808)		4									
Surgical/laparoscopic drainage	May be appropriate	Strong	N/A	N/A	5	5	0	0	0	0	11	3	0	0	0	
					References		Study Quality									
					103 (19393776)		2									
					101 (21419651)		2									
					102 (-3148231)		4									
Transabdominal needle aspiration	May be appropriate	Expert Consensus	N/A	N/A	6	6	0	0	0	0	2	10	2	0	0	
Transabdominal percutaneous catheter drainage	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	0	3	10	1	
					References		Study Quality									
					90 (12881584)		2									
					91 (12099560)		4									
					92 (10871453)		4									
					93 (9646800)		3									
					95 (15516608)		4									
					89 (15665222)		3									
					88 (27106643)		4									
					94 (26591964)		4									
Transgluteal needle aspiration	May be appropriate	Expert Consensus	N/A	N/A	6	6	0	0	0	0	2	10	2	0	0	

Transgluteal percutaneous catheter drainage	Usually appropriate	Limited	N/A	N/A	8	8	0	0	0	0	0	1	2	10	1	
		References		Study Quality												
		90 (12881584)		2												
		91 (12099560)		4												
		92 (10871453)		4												
		93 (9646800)		3												
		95 (15516608)		4												
		89 (15665222)		3												
		88 (27106643)		4												
		94 (26591964)		4												
Transrectal needle aspiration	May be appropriate	Expert Consensus	N/A	N/A	6	6	0	0	0	0	2	10	2	0	0	
Transrectal percutaneous catheter drainage	Usually appropriate	Limited	N/A	N/A	7	7	0	0	0	0	0	2	10	2	0	
		References		Study Quality												
		90 (12881584)		2												
		91 (12099560)		4												
		92 (10871453)		4												
		93 (9646800)		3												
		95 (15516608)		4												
		89 (15665222)		3												
		98 (15219951)		4												
		88 (27106643)		4												
		94 (26591964)		4												
Transvaginal needle aspiration	May be appropriate	Limited	N/A	N/A	6	6	0	0	0	0	2	10	2	0	0	
		References		Study Quality												
		99 (26848871)		4												
Transvaginal percutaneous catheter drainage	Usually appropriate	Strong	N/A	N/A	7	7	0	0	0	0	0	1	8	5	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](http://www.acr.org/ac).