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, 3 × 4 cm fluid collection adjacent to the cecum, nonvisualization of the appendix, and an appendicolith. Imaging findings are highly suspicious for appendicitis. Treatment includes antibiotics.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>SOE</th>
<th>Adults RRL</th>
<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous catheter drainage (PCD) only</td>
<td>Usually appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>PCD followed by delayed surgery</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>6</td>
<td>n/a</td>
<td></td>
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</tr>
<tr>
<td>Needle aspiration</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>4</td>
<td>n/a</td>
<td></td>
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</tr>
<tr>
<td>Conservative management only</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td></td>
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<tr>
<td>Immediate surgical drainage</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>n/a</td>
<td></td>
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</tbody>
</table>

**Variant 2:** Patient with a history of left hemicolectomy 2 months ago for colon carcinoma. The patient presents with abdominal pain and fever 2 weeks after placement of a 12-French drain into a complex, 5-cm abdominal fluid collection. Catheter output is 25 cc per day, and the collection is unchanged in size by CT. No fistula. Complex purulent collection. Treatment includes antibiotics.

<table>
<thead>
<tr>
<th>Procedure</th>
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<th>SOE</th>
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<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter upsizing</td>
<td>Usually appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
<td>n/a</td>
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</tr>
</tbody>
</table>
### Intradacitary thrombolytic therapy and drainage
- **May be appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 6
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Laparoscopic drainage
- **May be appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 5
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Open surgical drainage
- **May be appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 5
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Continued antibiotics and drainage
- **Usually not appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 3
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Continued antibiotics and drain removal
- **Usually not appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 1
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

**Variant 3:** Patient who is an IV drug abuser presents with fever and tachycardia and on imaging is found to have 2 noncommunicating splenic abscesses measuring 4 cm in diameter, accessible percutaneously through a 1-cm rim of normal splenic tissue. Appropriate management includes antibiotics.

### Percutaneous catheter drainage (PCD) only
- **Usually appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 7
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Splenectomy
- **May be appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 6
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Needle aspiration
- **May be appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 5
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0

### Conservative management only
- **Usually not appropriate**
- **SOE**: N/A
- **Adults RRL**: N/A
- **Peds RRL**: 3
- **Rating**: n/a
- **Median**: 0
- **Final Tabulations**: 0 0 0 0 0 0 0 0 0
Variant 4:  Patient with abdominal pain radiating to the back 5 weeks after hospitalization for acute pancreatitis. Afebrile. CT scan shows a 5-cm walled-off collection in the body of the pancreas indenting a broad portion of the body of the stomach. The collection is percutaneously accessible with a 3-cm window. MRCP shows a patent pancreatic duct.

<table>
<thead>
<tr>
<th>Procedure</th>
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<th>SOE</th>
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<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endoscopic cystgastrostomy</td>
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<td>N/A</td>
<td>N/A</td>
<td>8</td>
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<tr>
<td>Percutaneous catheter drainage (PCD) only</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>6</td>
<td>n/a</td>
<td></td>
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<tr>
<td>Surgical cystenterostomy</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>5</td>
<td>n/a</td>
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</tr>
<tr>
<td>Conservative management only</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Percutaneous needle aspiration</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

Variant 5:  Patient with a 2-week history of cough, fever, and foul-smelling sputum. Worsening despite a full course of broad-spectrum antibiotics. Sputum cultures negative. CT scan shows a 4-cm fluid collection in the lower lobe of the right lung.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>SOE</th>
<th>Adults RRL</th>
<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous catheter drainage (PCD) only</td>
<td>Usually appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
<td>n/a</td>
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<tr>
<td>Surgery</td>
<td>May be appropriate</td>
<td>TBD TBD</td>
<td>4</td>
<td>n/a</td>
<td></td>
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<tr>
<td>Another course of antibiotics and postural drainage</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td></td>
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</tbody>
</table>
### Variant 6: Woman of childbearing age with abdominal pain, fever, and leukocytosis. Marked tenderness on pelvic examination. CT scan shows a 4-cm walled-off probable tubo-ovarian abscess (TOA), safely accessible from the transgluteal, transvaginal, and transrectal approaches. Appropriate first-line treatment includes antibiotics.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>SOE</th>
<th>Adults RRL</th>
<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle aspiration</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td>0</td>
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</tr>
<tr>
<td>Transgluteal PCD</td>
<td>Usually appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
<td>n/a</td>
<td>0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Transvaginal PCD</td>
<td>Usually appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
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<tr>
<td>Transgluteal needle aspiration</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>6</td>
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<tr>
<td>Transvaginal needle aspiration</td>
<td>May be appropriate</td>
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<td>N/A</td>
<td>6</td>
<td>n/a</td>
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<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Conservative management only</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>5</td>
<td>n/a</td>
<td>0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Surgical/laparoscopic drainage</td>
<td>May be appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>4</td>
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<td>0</td>
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</tr>
<tr>
<td>Transrectal needle aspiration</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td>0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Transrectal PCD</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td>0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Endoscopic US-guided drainage</td>
<td>Usually not appropriate</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
<td>n/a</td>
<td>0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>
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).