JPN Guidelines for the Management of Acute Abdomen 2015
Background

• No guidelines for acute abdomen in the world.

• The Japanese Society for Abdominal Emergency Medicine and collaborated four other societies began to make the practical guidelines for the management of acute abdomen (JPN guidelines for acute abdomen) in 2012.

• Published in 2015 in Japanese.

• Will be published in English in 2016.
JPN Guidelines for the Management of Acute Abdomen 2015

Chapter

I  List of clinical questions
II  Methods of making guidelines
III  Definition of Acute Abdomen (CQ1)
IV  Epidemiology of Acute Abdomen (CQ2-15)
V  Algorithm of Acute Abdomen, Site & Diseases
VI  History taking of acute abdomen (CQ16-30)
VII  Medical examination of acute abdomen (CQ31-48)
VIII  Laboratory test & Imaging of acute abdomen (CQ49-75)
IX  Differential diagnosis of acute abdomen (CQ76-101)
X  Initial treatment for acute abdomen (CQ102-106)
XI  Educational program of acute abdomen (CQ107-108)

Index
### Evidence Level

**Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence**

<table>
<thead>
<tr>
<th>Question</th>
<th>Step 1 (Level 1*)</th>
<th>Step 2 (Level 2*)</th>
<th>Step 3 (Level 3*)</th>
<th>Step 4 (Level 4*)</th>
<th>Step 5 (Level 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How common is the problem?</td>
<td>Local and current random sample surveys (or censuses)</td>
<td>Systematic review of surveys that allow matching to local circumstances**</td>
<td>Local non-random sample**</td>
<td>Case-series**</td>
<td>n/a</td>
</tr>
<tr>
<td>Is this diagnostic or monitoring test accurate? (Diagnosis)</td>
<td>Systematic review of cross sectional studies with consistently applied reference standard and blinding</td>
<td>Individual cross sectional studies with consistently applied reference standard and blinding</td>
<td>Non-consecutive studies, or studies without consistently applied reference standards**</td>
<td>Case-control studies, or poor or non-independent reference standard**</td>
<td>Mechanism-based reasoning</td>
</tr>
<tr>
<td>What will happen if we do not add a therapy? (Prognosis)</td>
<td>Systematic review of inception cohort studies</td>
<td>Inception cohort studies</td>
<td>Cohort study or control arm of randomized trial*</td>
<td>Case-series or case-control studies, or poor quality prognostic cohort study**</td>
<td>n/a</td>
</tr>
<tr>
<td>Does this intervention help? (Treatment Benefits)</td>
<td>Systematic review of randomized trials or n-of-1 trials</td>
<td>Randomized trial or observational study with dramatic effect</td>
<td>Non-randomized controlled cohort/follow-up study**</td>
<td>Case-series, case-control studies, or historically controlled studies**</td>
<td>Mechanism-based reasoning</td>
</tr>
<tr>
<td>What are the COMMON harms? (Treatment Harms)</td>
<td>Systematic review of randomized trials, systematic review of nested case-control studies, n-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect</td>
<td>Individual randomized trial or (exceptionally) observational study with dramatic effect</td>
<td>Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**</td>
<td>Case-series, case-control, or historically controlled studies**</td>
<td>Mechanism-based reasoning</td>
</tr>
<tr>
<td>What are the RARE harms? (Treatment Harms)</td>
<td>Systematic review of randomized trials or n-of-1 trial</td>
<td>Randomized trial or (exceptionally) observational study with dramatic effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is this (early detection) test worthwhile? (Screening)</td>
<td>Systematic review of randomized trials</td>
<td>Randomized trial</td>
<td>Non-randomized controlled cohort/follow-up study**</td>
<td>Case-series, case-control, or historically controlled studies**</td>
<td>Mechanism-based reasoning</td>
</tr>
</tbody>
</table>

* Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.

** As always, a systematic review is generally better than an individual study.

How to cite the Levels of Evidence Table
# Recommendations Grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
</table>
| A     | **Recommended strongly** to perform.  
Evidence is strong and clear clinical effectiveness can be expected. |
| B     | **Recommended** to perform.  
Evidence is moderate or strong, although evidence of effectiveness is sparse. |
| C1    | Evidence is sparse, but **may be considered to perform**.  
Effectiveness can possibly be expected. |
| C2    | Scientific evidence is not sufficient, so **clear recommendation cannot be made**.  
Evidence is not sufficient to support or deny effectiveness. |
| D     | Considered to be **unacceptable**.  
There is evidence to deny effectiveness (to show harm) |

With considering levels of evidence & medical circumstances in Japan
Initial Treatment for Acute Abdomen: 2 Step Methods

**Step 1 (Check vital signs)**

- Assessment of Vital signs (ABCD)
  - A: Airway
  - B: Breathing (SpO₂, respiratory rate)
  - C: Circulation (heart rate, BP)
  - D: Dysfunction of central nervous system

<table>
<thead>
<tr>
<th>Normal</th>
<th>Abnormal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Securing of airway / ventilation (O₂)</td>
<td></td>
</tr>
<tr>
<td>• IV route (rapid transfusion)</td>
<td></td>
</tr>
<tr>
<td>• Portable chest X-P</td>
<td></td>
</tr>
<tr>
<td>• ECG / ECG monitor</td>
<td></td>
</tr>
<tr>
<td>• Abdominal US</td>
<td></td>
</tr>
<tr>
<td>• Abdominal CT (may not be able to perform)</td>
<td></td>
</tr>
</tbody>
</table>

Attention: parallel to treatment, history taking / minimum test

**Urgent disease**
- AMI
- raptured AAA
- pulmonary embolism
- aortic dissection (cardiac tamponade)

**Emergent disease**
- HCC rapture
- ectopic pregnancy
- intestinal ischemia
- severe acute cholangitis
- panperitonitis with the septic shock

**Emergency surgery / IVR, transfer to a specialized institution, ICU**

**Step 2 (Assessment with history & physical examination)**
Initial Treatment for Acute Abdomen: 2 Step Methods

Step 2 (Assessment with history & physical examination)

Evaluate the need of surgery / IVR
1. History (acute pain, sudden onset, progressive exacerbation)
2. Physical Examination
   • visceral or somatic pain?
   • location
3. Need surgery / IVR?
   • Bleeding
   • organ ischemia
   • Pan-peritonitis
   • Acute inflammation of abdominal viscus

History
• Chief complaint (pain / fever / nausea, vomiting / diarrhea / melena / anuria)
• Oral medicine
• Medical history (surgery, coronary artery disease, diabetes / hypertension, allergy)
• Smoking / alcohol, others

Physical examination
• Sings of peritonitis
• operative scar, hernia, pulsatile mass, palpitation of radial/femoral artery

Laboratory test and Imaging
• ECG
• ABG
  PaO$_2$ • PaCO$_2$ • PH • BE • HCO$_3^-$ • BS • Lactate
• Blood / urinalysis
  CBC / electrolyte / liver function / renal function / lipase / amylase / blood glucose level / CRP / Troponin / HBV, HCV / blood cultures / gestation test
• Abdominal ultrasonography
  Intraabdominal effusion (bleeding / ascites), inflammation of abdominal viscus, gallstones, hydronephrosis
• (enhanced) CT or plain X-P
  Ischemia or inflammation of abdominal viscus, Intraabdominal effusion (bleeding / ascites), free air

Additional examination, Conservation

Emergency surgery / IVR, transfer to a specialized institution, ICU
Clinical questions in initial treatment for acute abdomen

CQ102: Initial treatment for acute abdomen?
CQ103: How to transfuse in acute abdomen?
CQ104: Transfusion route for acute abdomen?
CQ105: Analgesics for acute abdomen?
CQ106: Antimicrobial agent for acute abdomen?
In hemorrhagic or septic shock, start rapid transfusion using extracellular fluid (Level 1, Recommendation A).

When intraperitoneal infections is suspected even if hemodynamically stable, starts initial transfusion immediately (Level 3, Recommendation A).

Hydroxyethyl starch (HES) is not recommended (Level 1, Recommendation D).

In the patients who require massive transfusion or who had hypoalbuminemia, albumin preparation may be considered (Level 1, Recommendation C1).
How to use analgesics for acute abdomen?

- Analgesics can be used before definite diagnosis. (Level 1, Recommendation A)
- Early pain-killer eases diagnosis and treatment in acute abdomen.
- Intravenous acetaminophen (1,000 mg) is recommended with independence on the strength of the pain. (Level 1, Recommendation B)
- Intravenous narcotic analgesic can be added by the strength of the pain. (Level 1, Recommendation A)
- Butylscopolamine bromide is used as adjuvant therapy for colic pain. (Level 1, Recommendation B)
- Opioids (morphine, fentanyl, pethidine), and antagonistic analgesic (pentazocine, buprenorphine) can be used in acute abdomen (Level 1, Recommendation B)
JPN Guidelines for the Management of Acute Abdomen 2015

Chapter

I List of clinical questions
II Methods of making guidelines
III Definition of Acute Abdomen (CQ1)
IV Epidemiology of Acute Abdomen (CQ2-15)
V Algorithm of Acute Abdomen, Site & Diseases
VI History taking of acute abdomen (CQ16-30)
VII Medical examination of acute abdomen (CQ31-48)
VIII Laboratory test & Imaging of acute abdomen (CQ49-)
IX Differential diagnosis of acute abdomen (CQ76-101)
X Initial treatment for acute abdomen (CQ102-106)
XI Educational program of acute abdomen (CQ107-108)

Index
CQ37  Auscultation : single or plural?

- Auscultation; essential examination, but No standard.
- Peristalsis sound is carried well→1 point is enough（Level 4, Recommendation C1）
- Since clinical significance of auscultation is restrictive in acute abdomen, multiple site or longer auscultation is not recommended.（Level 5, Recommendation C2）

CQ38  Is auscultation useful in acute abdomen?

Abnormal intestinal murmur: useful in a diagnosis of bowel obstruction（Level 3, Recommendation B）

Bruit: Significance is unknown（Level 5, Recommendation C2）
Findings to detect peritonitis (Level 3)

(McGee S. Evidence-based physical diagnosis, 3rd edition, Elsevier)

<table>
<thead>
<tr>
<th>(n: number of study)</th>
<th>cases</th>
<th>sensitivity</th>
<th>specificity</th>
<th>positive LR</th>
<th>negative LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guarding (n=13)</td>
<td>6125</td>
<td>13-90%</td>
<td>40-97%</td>
<td>2.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Rigidity (n=9)</td>
<td>6066</td>
<td>6-66%</td>
<td>76-100%</td>
<td>3.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Rebound tenderness (n=25)</td>
<td>8910</td>
<td>37-95%</td>
<td>13-91%</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Percussion tenderness (n=3)</td>
<td>277</td>
<td>57-65%</td>
<td>61-86%</td>
<td>2.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Positive cough test (n=6)</td>
<td>2002</td>
<td>50-85%</td>
<td>38-79%</td>
<td>1.6</td>
<td>0.4</td>
</tr>
</tbody>
</table>
CQ43  Peritoneal irritation sign useful in acute abdomen?

- If **percussion pain** is positive, rebound tenderness is not necessary (Level 3, Recommendation C2)
- Peritoneal irritation sign suggests **peritonitis** (Level 2, Recommendation B)
- Add **imaging study** when peritonitis or mesenteric vascular disorder is clinically suspected (Level 5, Recommendation B)
CQ46 Rectal examination useful in acute abdomen?

- Since the information obtained by rectal examination is extremely limited and sometimes noxious, not recommended for a routine examination (Level 3, Recommendation C2)

- When check the stool, or anus diseases (haemorrhoids / anal fistula), gastrointestinal hemorrhage, rectal / prostate cancer or prostatitis are suspected, the rectal examination is indicated (Level 3, Recommendation B)
JPN Guidelines for the Management of Acute Abdomen 2015

Chapter
I List of clinical questions
II Methods of making guidelines
III Definition of Acute Abdomen (CQ1)
IV Epidemiology of Acute Abdomen (CQ2-15)
V Algorithm of Acute Abdomen, Site & Diseases
VI History taking of acute abdomen (CQ16-30)
VII Medical examination of acute abdomen (CQ31-48)
VIII Laboratory test & Imaging of acute abdomen (CQ49-75)
IX Differential diagnosis of acute abdomen (CQ76-101)
X Initial treatment for acute abdomen (CQ102-106)
XI Educational program of acute abdomen (CQ107-108)
Index
Since the diagnosability of abdominal X-ray is restrictive, not perform as a routine examination. Even if without abnormal findings in abdominal X-ray, US or CT are considered depending on clinical manifestations （Level 2, Recommendation C2）

However, perform X-ray, if US or CT is not available and bowel obstruction, ileus, GI perforation, ureteral calculus, emphysematous lesion and a foreign body are suspected (Level 2, Recommendation C1）

volvulus of sigmoid colon (90y.o. male)
US is recommended as a screening test for acute abdomen.

Strongly recommended if AAA rupture, acute cholecystitis is suspected, or in the pregnant/young woman, and children that is desirable to avoid the radioactive exposure (Level 2, Recommendation A).

However, master US (Level 2, Recommendation A)
CT may be indicated in all patients with acute abdomen (Level 2, Recommendation A)

However, CT can be omitted when a diagnosis is found on a precedent examination of US.

Also, consider radiation exposure.
CQ67 Diseases that abdominal plain CT is useful?

Calculus urinary, common bile duct stone, acute appendicitis, free air are diagnosable by simple CT (Level 3)

CQ68 Diseases that enhanced (E-) CT is useful?

E-CT (2 phase scan: arterial & venous phase) is recommended in organ ischemia, vascular lesion, severity assessment of acute pancreatitis, etc.

Most disease is diagnosable only by E-CT, but both plain & E-CT is desirable for an evaluation of blood circulation in strangulation ileus and thrombosed type aortic dissection (Level 3, Recommendation B)
Incidence of fetal malformation, central nerve disorder do not increase in low radiation exposure ($< 50-100$ mGy) by plain X-rays or abdominal pelvic CT in pregnant women (Level 3)

However, the risk of the carcinogenesis rises in fetus and children than in adults (Level 3)
JPN Guidelines for the Management of Acute Abdomen 2015

Chapter
I  List of clinical questions
II  Methods of making guidelines
III Definition of Acute Abdomen (CQ1)
IV  Epidemiology of Acute Abdomen (CQ2-15)
V   Algorithm of Acute Abdomen, Site & Diseases
VI  History taking of acute abdomen (CQ16-30)
VII Medical examination of acute abdomen (CQ31-48)
VIII Laboratory test & Imaging of acute abdomen (CQ49-
IX  Differential diagnosis of acute abdomen (CQ76-101)
X   Initial treatment for acute abdomen (CQ102-106)
XI  Educational program of acute abdomen (CQ107-108)
Index
The differential diagnosis according to the pain site (Q77-86)

CQ77 What is the differential diagnosis in RUQ pain?

| Common: esophagus, stomach/duodenal disease, hepato-biliary system (Level 3) |
|-----------------|----------------------------------|
| GI                           |                                  |

| z-Hugh-Curtis syndrome |
Future problems

✓ Distribution (in English, Home page, etc)
✓ Used in clinical settings
✓ Evaluation
✓ Feedback
✓ Revision
Summary

✓ First practice guidelines in acute abdomen
✓ 2 step methods
  ✓ Evaluation from vital signs
  ✓ Evaluation from clinical signs
✓ Distribution, Used in clinical settings
✓ Evaluation & Feedback
✓ Revision