

[4-6].
 CT
 CT
 [7].
 CT
 가
 가
 가
 [8-11].
 CT
 가
 가
 CT
 3
 CT 58
 42
 , 16

25:33 , 15 - 85 (48)
 58 , 42 CT
 , 16 CT
 CT 4
 , 29 , 9
 가 , CT
 CT 가 , CT
 9 CT
 , 7 CT 가
 가
 [8-11]. CT 12 (1-
 12 , 3.6)
 5 가 2
 LOGIQ 7 (General Electric Medical System, Milwaukee, WI. U.S.A.), HDI 5000 (Philips, Bothell, WA. U.S.A.), iU22 (Philips, Bothell, WA. U.S.A) , 5-7 MHz , Puylaert . [12]
 . CT LightSpeed Ultra (GE Medical System, Milwaukee, WI, U.S.A.)
 , CT , 120 mL
 (Iomeprol, Bracco, Milano, Italy) 3 mL
 80 CT
 5 mm, 5 mm, 13.5

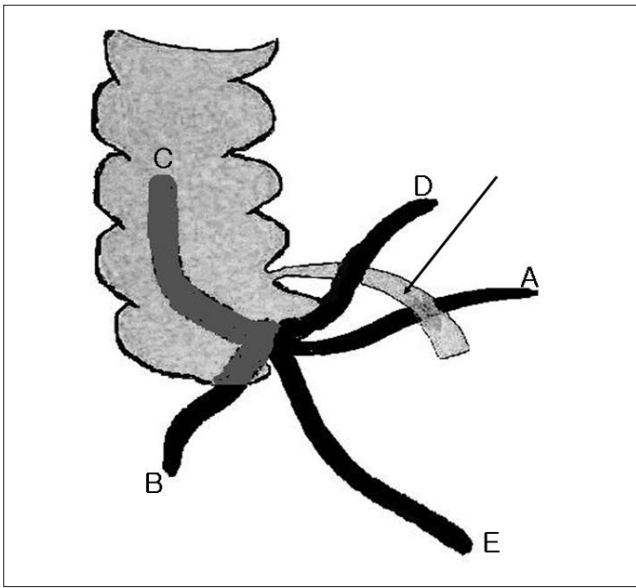


Fig. 1. Schematic drawing of the location of the inflamed appendix. The location of the appendix is subjectively classified as retroileal (A), subcecal (B), retrocolic (C), preileal (D), and pelvic (E). Note the relationship between the appendiceal orifice, cecum and terminal ileum (arrow).

Table 1. Detection Rates of An Inflamed Appendix between Ultrasonography and CT According to Factors

Factors	US (n = 58)	CT (n = 58)	p-value
Locations			
Retroileal (n = 18)	100 (18/18)	88.9 (16/18)	NS
Subcecal (n = 12)	100 (12/12)	100 (12/12)	NS
Retrocolic (n = 6)	66.7 (4/6)	83.3 (5/6)	NS
Preileal (n = 6)	83.3 (5/6)	100 (6/6)	NS
Pelvic (n = 16)	93.8 (15/16)	62.5 (10/16)	<0.05
Amount of mesenteric fat			
Prominent (n = 15)	93.3 (14/15)	100 (15/15)	NS
Moderate (n = 26)	92.3 (24/26)	84.6 (22/26)	NS
Minimal (n = 17)	94.1 (16/17)	70.6 (12/17)	NS
Cecal wall thickening			
Present (n = 20)	90 (18/20)	85 (17/20)	NS
Absent (n = 38)	94.7 (36/38)	84.2 (32/38)	NS
Pericecal fluid or abscess			
Present (n = 23)	100 (23/23)	69.6 (16/23)	<0.05
Absent (n = 35)	88.6 (31/35)	94.3 (33/35)	NS

n: number of patients
 Data are expressed as percentages with proportions in parentheses.
 NS indicates not significant.

mm/rotation, pitch 1.35, 120 kV, 220 mA
 CT
 . CT 5
 2 가
 , CT
 , CT 7 mm
 CT
 ; 1)
 , 2) , 3) , 4)
 (retroileal), (subcecal),
 (retrocolic), (preileal), (pelvic) 5가

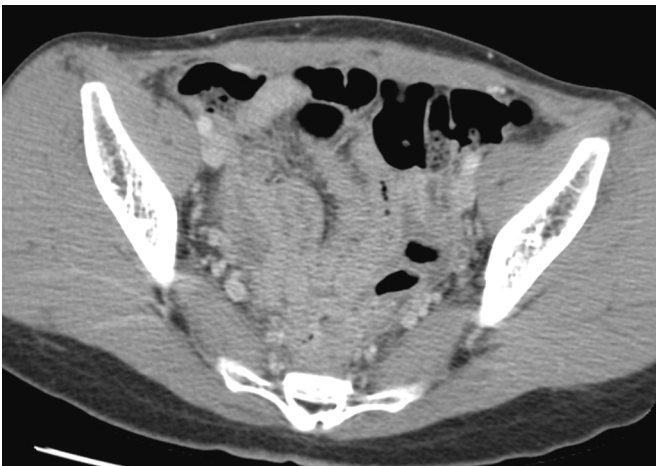
가 가?
 (Fig. 1).
 가 , CT
 가 , 2
 , 3
 (Fig. 2). CT
 CT
 CT
 exact test , p value 0.05 Fisher's



A



B



C

Fig. 2. Examples of mesenteric fat content in lower abdominal cavity. **A.** An example of prominent mesenteric fat content. **B.** An example of moderate mesenteric fat content. **C.** An example of minimal mesenteric fat content.

CT 54 (93.1%), CT 58 54 (93.1%)

2 , 1 , 1 4

CT 4

3 , 1

54 (93.1%), CT

49 (84.5%) 가

CT 가 (p > 0.05).

42

39 (92.9%), CT

35 (83.3%)

(p > 0.05),

16 15

(93.8%), CT 14 (87.5%)

CT

가

Table 1

가 CT

(p < 0.05) (Fig. 3).

가

가

CT 4). 가 (Fig. CT

가 , CT (Fig. 5).

CT (p < 0.05) (Fig. 6).

가 , 71%

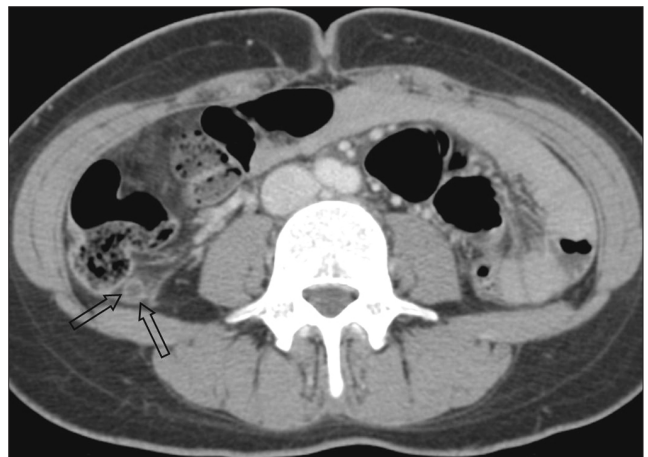
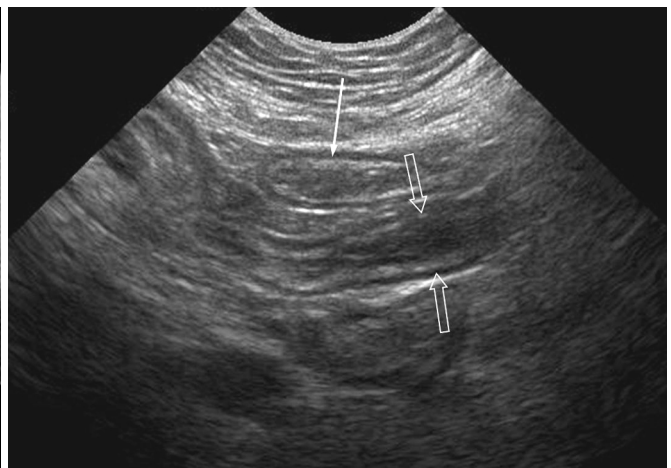


Fig. 4. Acute appendicitis. Contrast-enhanced CT scan easily shows distended, inflamed appendix (open arrows) in the retro-colic area. The inflamed appendix was not detected on ultrasonography (not shown).



A



B

Fig. 3. Acute appendicitis. **A.** Contrast-enhanced CT scan at the pelvic level shows visualization of terminal ileum (arrows). However, the appendix is not detected in this CT scan. **B.** Subsequent longitudinal ultrasonographic scan easily detects an inflamed appendix (open arrows) posterior to the terminal ileum (arrow).

97% [13].

[7]. CT

[10]. CT

가 CT

가 CT

가 CT

가 CT

가 75% - 90%, 가

86% - 100%, 가 87% - 96%, 가 69% - 94%, 가 89% - 97% [2, 9, 14, 15].

가 가?

93.1%

가 가

[16]. 가 93.1% 가

92.9%

38% - 55%

[17, 18]. 가

가 CT



A



B

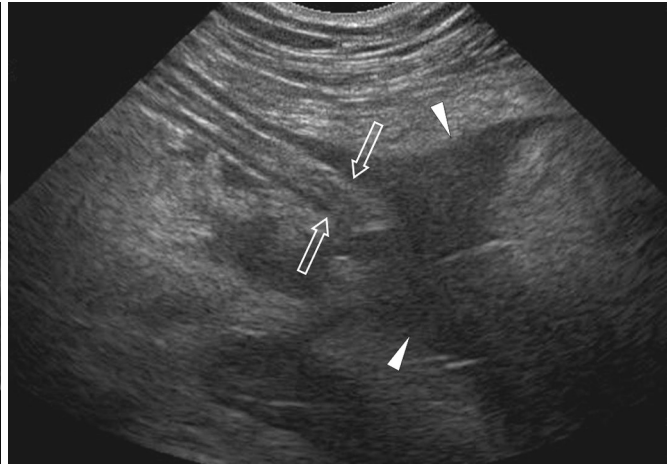


C

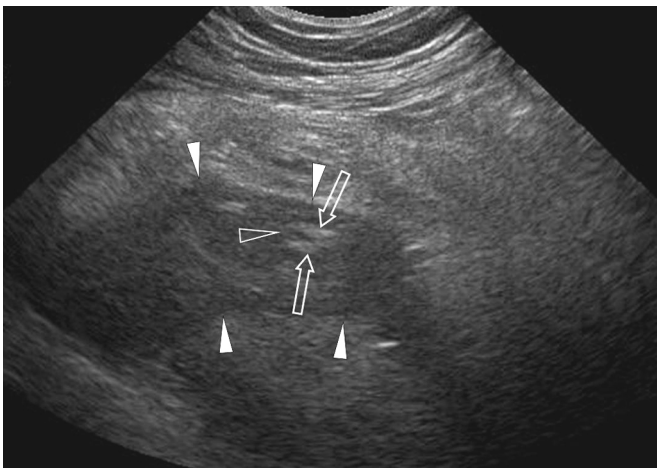
Fig. 5. Perforated appendicitis. **A.** Contrast-enhanced CT scan shows minimal pelvic mesenteric fat content, contributing to the difficulty in detecting the inflamed appendix. **B.** Contrast-enhanced CT scan obtained at a lower level than (A) shows triangular-shaped fluid collection (arrowheads) in the right side of the pelvic cavity, which suggest periappendiceal abscess as a differential diagnosis. **C.** In longitudinal ultrasonographic scan, the inflamed appendix (open arrows) with surrounding abscess (arrowheads) is well-visualized.



A



B



C

Fig. 6. Perforated appendicitis. **A.** Contrast-enhanced CT scan shows pelvic abscess (arrowheads) abutting the uterus (arrows) without detection of the appendix and right ovary. This scan was interpreted as ovarian abscess rather than periappendiceal abscess. **B.** Subsequent longitudinal ultrasonographic scan shows the inflamed appendix (open arrows) with surrounding ill-defined fluid collection (arrowheads) suggesting abscess. **C.** Another longitudinal ultrasonographic scan shows suspicious focal wall defect (open arrowhead) in the inflamed appendix (open arrows) within the abscess (arrowheads), which enable a confident diagnose of appendiceal perforation.

가 [28]. CT
 , CT 가
 [4, 6, 9, 19, 20].
 CT 가
 90% - 100%, 가 91% - 99%, 가 94% - 100%,
 가 95% - 97%, 가 95% - 100%
 [19 - 24]. CT
 93.1% , 가 . ,
 84.5%
 92.5% ,
 가 CT
 [25].
 CT가 , , 가
 , , 가
 가
 [26, 27]. 가
 29]. CT 가
 CT
 가 CT

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= Abstract =

Which Factors Influence the Detection of an Inflamed Appendix: Comparative Assessment of Ultrasonography and CT

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PURPOSE : To compare and assess factors influencing the detection of an inflamed appendix by both ultrasonography (US) and CT.

MATERIALS and METHODS : We retrospectively analyzed US and CT findings of 58 patients with confirmed acute appendicitis (42 patients with perforation and 16 patients without perforation), in which both preoperative US and CT scans were performed. We compared the use of US and CT for the diagnostic accuracy of acute appendicitis, and determined the detection rate for an inflamed appendix. According to the location of the appendix, the amount of mesenteric fat content in lower abdominal cavity, the presence of cecal wall thickening, and the presence of pericecal fluid or an abscess, the use of US and CT were compared for the determination of the detection rate of an inflamed appendix.

RESULTS : The diagnostic accuracies for US and CT for acute appendicitis in our study group were both 93.1%, and there was no difference between the use of the two modalities. Although the detection rate of an inflamed appendix was slightly higher for US (93.1%) than for CT (84.5%), the difference between the use of the two modalities was not significant ($p > 0.05$). There was no significant difference in the detection rate of an inflamed appendix between the use of US and CT according to location of appendix, the amount of mesenteric fat content and the presence of cecal wall thickening. A pelvic location of the inflamed appendix and the presence of pericecal fluid or an abscess, were factors that significantly increased the detection rate for US than for CT ($p < 0.05$).

CONCLUSION : The use of US for diagnosis of acute appendicitis is as useful as the use of CT. US is especially useful to detect an inflamed appendix more effectively than CT in cases where the appendix is in a pelvic location and presents with pericecal fluid or an abscess.

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