

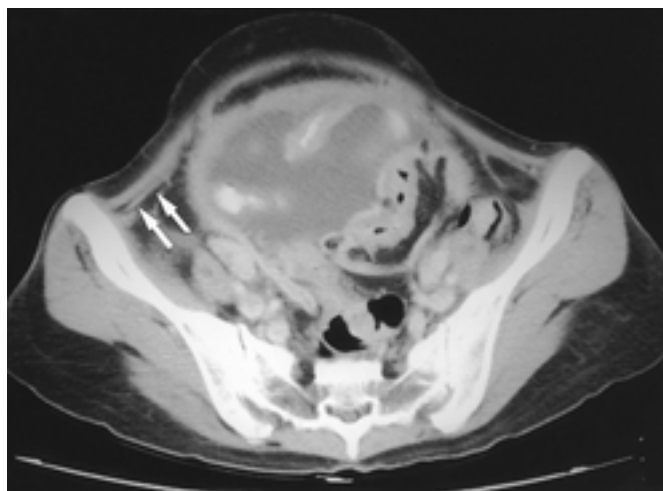


27 (n=9), (n=11), 50 (n=7) 1.7:1) 5 - MHz 18 - G (n=23) / 20 - G (n=4) (n=17) (n=10)

: 27 (n=8), (n=4) (n=15), 4 23 (85.2%) 가 100% 가 24 0.9g/dL, 3.0%

가 가 (1 - 3). 1996 10 1999 10 CT 가 (1 - 4). 27 가 17 , 가 10 17 82 50 CT 가 CT 가 (5 - 11).

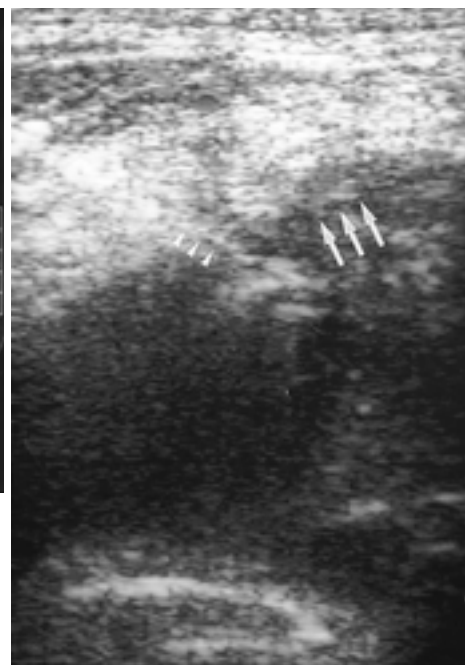
5 mm      3.4 mm      11 mm      25 mm      2 mm      (Fig. 1B).  
 17 mm      8 mm      18 mm      5      1      4      ( , 2.6 )  
 13 mm      . 24      가      3  
 가  
 (PT, aPTT)  
 5 - MHz      -      가      가      가  
 (Gateway; Dasonics, Milpitas, U.S.A.)      (      )      가  
 17 mm      (Manan pro -  
 mag 2.2; Manan medical products, Northbrook, U.S.A.)      (      )      가  
 4      20 - G      가  
 23      18 - G      가  
 (n=10) ,  
 6  
 2%  
 (Fig. 2B)  
 (Fig. 3B)  
 가  
 가      가      (100%).  
 15 ,      12  
 9      15      가      (



**A**

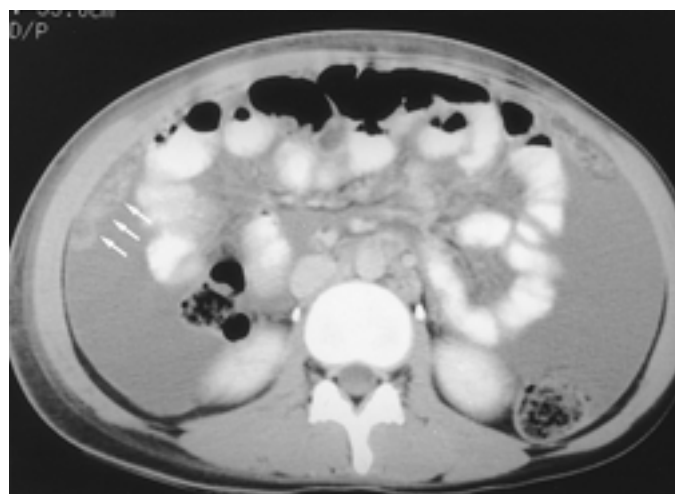
**Fig. 1.** A 45-year-old woman with peritoneal carcinomatosis of adenocarcinoma of unknown origin.

**A.** A contrast enhanced CT scan through the pelvis shows thickening of the parietal peritoneum (arrows) with marked contrast enhancement and ascites.



**B**

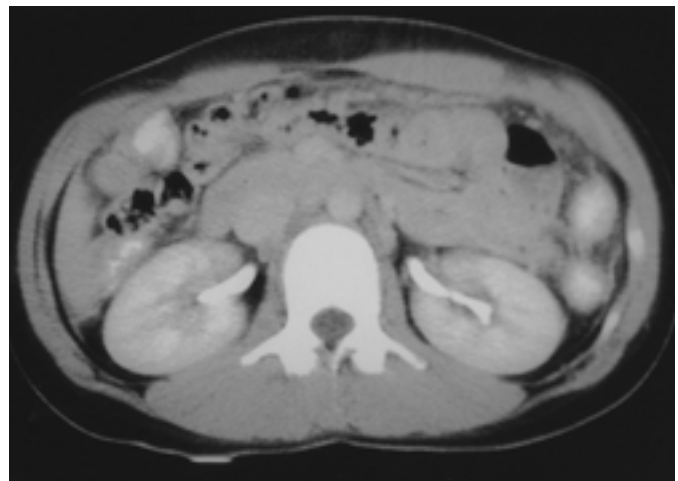
**B.** Ultrasonogram reveals the thickened parietal peritoneum (arrows) and ascites which is separating bowel loops from the parietal peritoneum. We perform a biopsy of the thickened parietal peritoneum with an oblique approach of the needle (arrow heads) to obtain a sufficient amount for specimen.



A



B

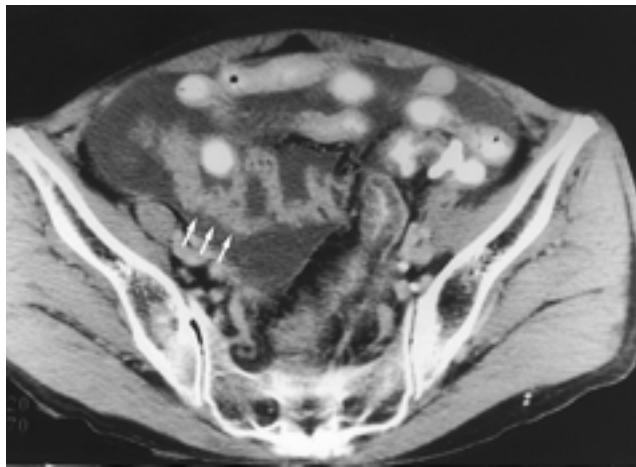


C

**Fig. 2.** A 22-year-old woman with peritoneal tuberculosis.  
**A.** A CT section through the abdomen shows mild thickening of the greater omentum (arrows) and ascites.  
**B.** Ultrasonogram obtained during the biopsy reveals the thickened omentum (arrows) and the biopsy needle (arrow heads) placed in the omentum with oblique approach.  
**C.** On follow-up CT scan obtained 6 month after the administration of anti-tuberculous medication, no sign of peritoneal disease is found.

: 100%) 12 , , 15 10  
1 . 5 3  
, 15 12  
5 가  
3 8 4  
가  
- 가 . 27  
- 가  
(specific accuracy: 100%),  
4 24 (85.2%) 가 .  
12  
8 (66.7%) 가 .

12 5 CT  
CT  
(Fig. 2C).  
100% .  
가  
24 5  
(Fig. 3C).  
0.9g/dL (0.1 - 2.6g/dL) ,  
3.0% (0.2 - 10%)  
가 24  
1.1g/dL (0.2 -  
2.5g/dL), 3.2% (0.4 - 10%) 가 3  
0.8g/dL (0.1 - 2.6g/dL), 3.1% (0.2 - 9%)  
가 가 .



A



B



C

**Fig. 3.** A 69-year-old woman with peritoneal carcinomatosis of adenocarcinoma of unknown origin.  
**A.** CT scan of the abdomen shows thickening of the small bowel mesentery (arrows) and ascites.  
**B.** Ultrasonogram obtained during the biopsy reveals the thickened small bowel mesentery (arrows) and well-placed biopsy needle (arrow heads).  
**C.** Ultrasonogram obtained immediately after biopsy shows rapidly moving echogenic dots (arrows) emerging from the biopsy site suggesting active bleeding. This bleeding is spontaneously stopped in three minutes without any management.

- (12). 5 - 가 25 mm
- MHz
- CT 15
- (17, 18). 10
- 5 - MHz - 10
- 가
- CT 14 - G
- 가 24 가 가 (24, 25).
- 가 가 (12, 17, 18).
- 가 24
- 가 가
- 가 가
- 가 가
- 가 가
- 25 mm 11 가
- 7 , 7 5 17
- mm 가
- 4
- 20 - G 가
- 3.8 (3 - 4 )
- 23
- 18 - G 2.8 (2 - 4
- 가
- 20 - G 가
- 18 - G
- Gottlie (18) Sistrom (17)
- 96%
- 100%
- 100%
- 15
- (n=10) 100%
- (cytology)
- 가
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## Ultrasound-guided Biopsy of the Thickened Peritoneal Reflections: Efficacy and Diagnostic Role in the Differential Diagnosis of Peritoneal Tuberculosis and Peritoneal Carcinomatosis<sup>1</sup>

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**Purpose:** To evaluate the accuracy and safety of ultrasound-guided biopsy of the thickened peritoneal reflections and to determine the efficacy and diagnostic role of this procedure in the differential diagnosis of peritoneal tuberculosis and peritoneal carcinomatosis.

**Materials and Methods:** Twenty-seven patients with only mildly thickened (25 mm or less) peritoneal reflections without apparent mass formations, and in whom imaging findings were not diagnostic, underwent ultrasound-guided biopsy. Five-MHz linear or convex linear array transducers were used for ultrasound guidance, and an automated gun with 18-gauge (n = 23) or 20-gauge (n = 4) needles for tissue sampling. Biopsies were performed on the thickened parietal peritoneum (n = 9), greater omentum (n = 11), and small bowel mesentery (n = 7), and the results were compared with the final diagnosis determined by radiologic/clinical follow-up (n = 17) or laparoscopic biopsy (n = 10). Complications and changes in hemoglobin and hematocrit levels after the procedure were evaluated.

**Results:** Specimens adequate for pathologic examination were obtained in all 27 patients. The histopathologic results were metastatic carcinomatosis (n = 15), peritoneal tuberculosis (n = 8), and chronic granulomatous inflammation (n = 4). Specific pathologic diagnosis was obtained in all patients except the four with chronic granulomatous inflammation. Differentiation between benignancy and malignancy was possible in all patients and the histopathologic specific accuracy rate was 100%. No clinically significant complications were observed. In 24 patients with ascites at the site of the biopsy, transient bleeding was observed immediately after the procedure, but this stopped spontaneously within a few minutes. Post-procedural hemoglobin and hematocrit levels were only minimally lower (mean values of 0.9g/dL and 3.0%, respectively) than pre-procedurally.

**Conclusion:** Ultrasound-guided biopsy of thickened peritoneal reflections is a safe and effective diagnostic procedure and is useful in the differential diagnosis of peritoneal tuberculosis and peritoneal carcinomatosis.

**Index words :** Ultrasound (US)  
Peritoneum, neoplasms  
Omentum, neoplasms  
Mesentery, neoplasms  
Tuberculosis

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