



18G
 : 2001 5 2005 10 18G 35 ()
 : 35 36 가) 가 ()
 97%(35/36) , 94%(34/36)
 33 , 1 (3%)
 가

가 (6, 12).
 CT MRI 가 CA19-9 가
 가 (1, 2). , 18G

가 가 (3, 4).

, CT,

가 (5-7). 2001 5 2005 10

(7-11). 가 가 36 35 1

(7, 8) 가 23 , 12 60
 (14-83).

(9-11). SSA 260A (Toshiba, Tokyo, Japan)
 0.5% 3% iU22 (Philips, Eindhoven, Netherland) , 3.75
 MHz(SSA 260A) 2-5 MHz(iU22)

¹
²

2007
 2007 7 13

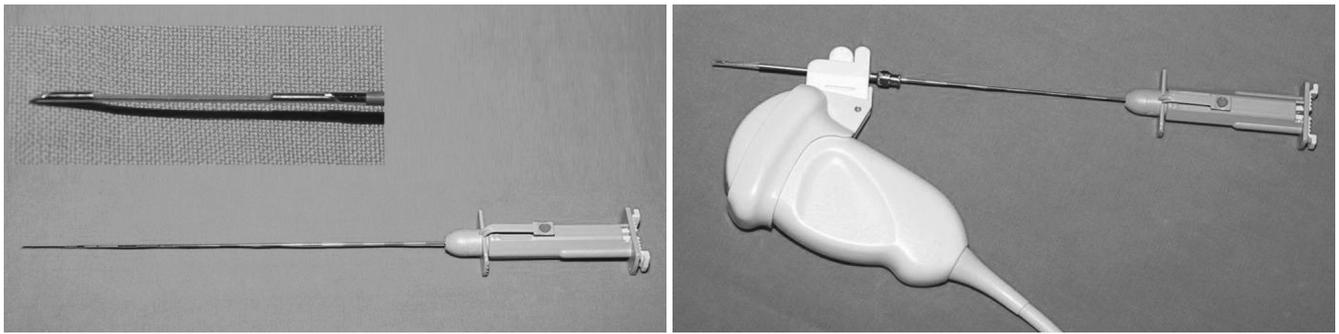
2007 11 7

가
 (needle biopsy guide attachment)

SHS - 1820 G (M.I.Tech, Seoul, Korea)
18 G, 20 cm
(Fig. 1).

(acquisition rate) (diagnostic accuracy)
가 가
1 2
가 가
3 1 2
가 가
7 7
4 CT 2.1 1 28 1 45
34 3 1

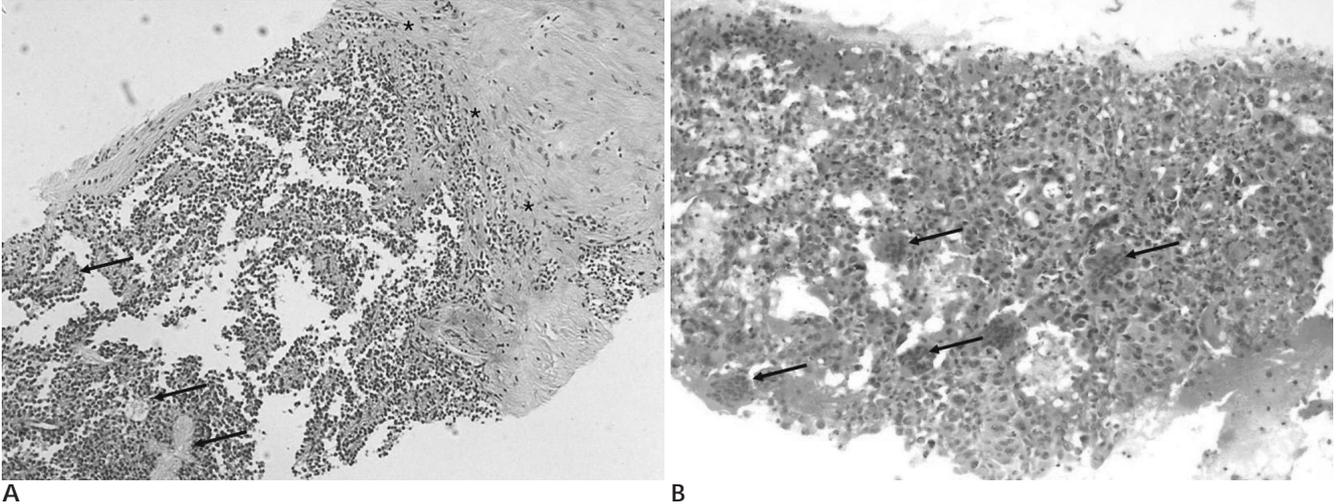
CT 가 가
34 32
25 가 2
(poorly differentiated neuroendocrine carcinoma, small cell carcinoma) 1 1
(variant of adenocarcinoma, WHO 2002 classification) 가 3
가 1 (Fig. 2).
가 18 (50%),
가 17 (47%), 가 1
(3%) 가 1 34
39 mm (20 - 80 mm)
13 (8 - 20)
1 36 35
가
97% 34
94% 가 1 55 mm
(adenosquamous carcinoma)
1
25 mm 가 가 3
가 가
2 가 가 3
(needle tract implantation) 1
가
(Fig. 3).



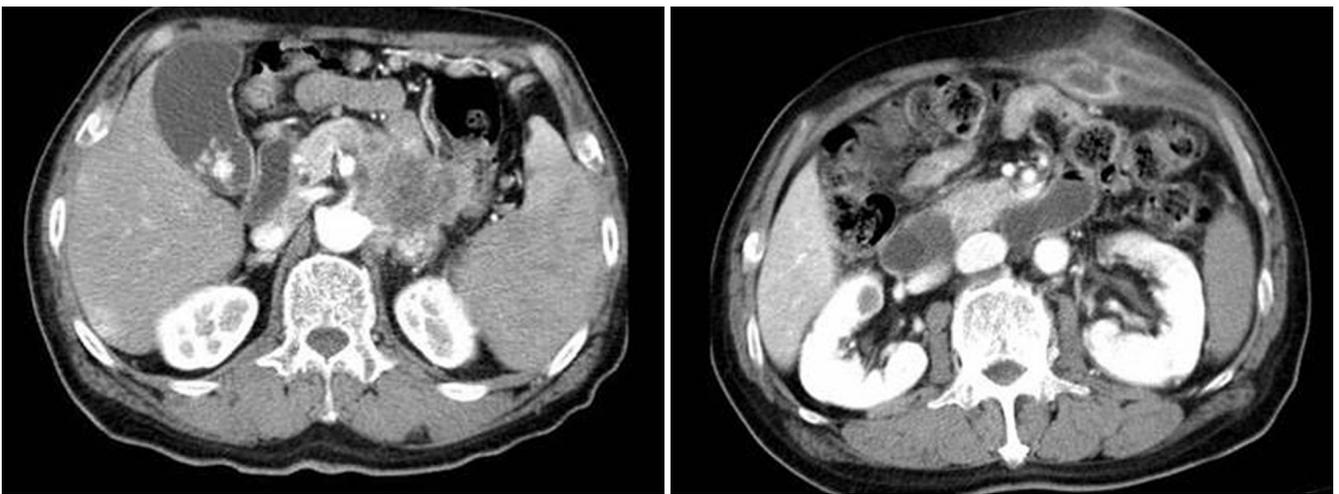
A Photograph of the 18G high-speed core needle biopsy gun. Note the side notch of the inner trocar ('tru-cut'-type) on the magnified photograph of the needle tip.
B Photograph of the biopsy gun placed in the needle biopsy guide attachment mounted on the 2 - 5 MHz transducer.

11).

83% 94% ,



A Photomicrograph of the biopsy specimen of a 14-year-old woman with solid pseudopapillary neoplasm in the pancreatic head shows papillary growing of monomorphic tumor cells. Note fibrovascular core with mixoid change (arrows). Tumor capsule is also seen (astrix) (H & E stain, × 100).
B Photomicrograph of the biopsy specimen of a 66-year-old man with undifferentiated carcinoma with osteoclast-like giant cell in the pancreatic head shows pleomorphic mononuclear tumor cells with the scattered osteoclast-like multinucleated giant cells (arrows) (H & E stain, × 100).
C Photomicrograph of the biopsy specimen of a 59-year-old man with serous microcystic adenoma in the pancreatic head shows several cysts with cuboidal epithelial lining with partially clear cytoplasm and normal pancreatic tissue (arrows) (H & E stain, × 40).



A Initial CT scan shows a primary mass in the pancreatic tail.
B Follow-up CT scan 1 month later after the second biopsy shows metastatic masses in the abdominal wall along needle tract.

1. DelMaschio A, Vanzulli A, Sironi S, Castrucci M, Mellone R, Staudacher C, et al. Pancreatic cancer versus chronic pancreatitis: diagnosis with CA 19-9 assessment, US, CT, and CT-guided fine-needle biopsy. *Radiology* 1991;178:95-99
2. Ihse I, Axelson J, Dawiskiba S, Hansson L. Pancreatic biopsy: why? When? How? *World J Surg* 1999;23:896-900
3. Boadas J, Balart J, Capella G, Lluís F, Farre A. Survival of cancer of the pancreas. Bases for new strategies in diagnosis and therapy. *Rev Esp Enferm Dig* 2000;92:316-325
4. Wanebo HJ, Glicksman AS, Vezeridis MP, Clark J, Tibbetts L, Koness RJ, et al. Preoperative chemotherapy, radiotherapy, and surgical resection of locally advanced pancreatic cancer. *Arch Surg* 2000;135:81-87
5. Brandt KR, Charboneau JW, Stephens DH, Welch TJ, Goellner JR. CT- and US-guided biopsy of the pancreas. *Radiology* 1993;187:99-104
6. Jennings PE, Donald JJ, Coral A, Rode J, Lees WR. Ultrasound-guided core biopsy. *Lancet* 1989;1:1369-1371
7. Karlson BM, Forsman CA, Wilander E, Skogseid B, Lindgren PG, Jacobson G, et al. Efficiency of percutaneous core biopsy in pancreatic tumor diagnosis. *Surgery* 1996;120:75-79
8. Zech CJ, Helmberger T, Wichmann MW, Holzknacht N, Diebold J, Reiser MF. Large core biopsy of the pancreas under CT fluoroscopy control: results and complications. *J Comput Assist Tomogr* 2002;26:743-749
9. Wittenberg J, Mueller PR, Ferrucci JT, Simeone JF, vanSonnenberg E, Neff CC, et al. Percutaneous core biopsy of abdominal tumors using 22 gauge needles: further observations. *AJR Am J Roentgenol* 1982;139:75-80
10. Glenthøj A, Sehested M, Torp-Pedersen S. Ultrasonically guided histological and cytological fine needle biopsies of the pancreas. Reliability and reproducibility of diagnosis. *GUT* 1990;31:930-933
11. Varadarajulu S, Fraig M, Schmulewitz N, Roberts S, Wildi S, Hawes RH, et al. Comparison of EUS-guided 19-gauge Trucut needle biopsy with EUS-guided fine needle aspiration. *Endoscopy* 2004;36:397-401
12. Aideyan OA, Schmidt AJ, Trenkner SW, Hakim NS, Gruessner RW, Walsh JW. CT-guided percutaneous biopsy of pancreas transplants. *Radiology* 1996;201:825-828
13. Chagnon S, Cochand-Priollet B, Jacquenod P, Vilgrain V, Blery M. Value of cytopuncture associated with microbiopsy in solid masses in the pancreas. *J Radiol* 1987;68:733-736
14. Edoute Y, Lemberg S, Malberger E. Preoperative and intraoperative fine needle aspiration cytology of pancreatic lesions. *Am J Gastroenterol* 1991;86:1015-1019
15. Lencioni R, Bagnolesi P, Cilotti A, Mazzeo S, Cioni R, Scutro G, et al. Ultrasound-guided fine needle biopsy of the pancreas: smear cytology versus microhistology. *Eur Radiol* 1992;2:252-257
16. Di Stasi M, Lencioni R, Solmi L, Magnolfi F, Caturelli E, De Sio I, et al. Ultrasound-guided fine needle biopsy of pancreatic masses: results of a multicenter study. *Am J Gastroenterol* 1998;93:1329-1333
17. Solmi L, Muratori R, Bacchini P, Primerano A, Gandolfi L. Comparison between echo-guided fine-needle aspiration cytology and microhistology in diagnosing pancreatic masses. *Surg Endosc* 1992;6:222-224
18. Dodd LG, Mooney EE, Layfield LJ, Nelson RC. Fine-needle aspiration of the liver and pancreas: a cytology primer for radiologists. *Radiology* 1997;203:1-9
19. Mueller PR, Miketic LM, Simeone JF, Silverman SG, Saini S, Wittenberg J, et al. Severe acute pancreatitis after percutaneous biopsy of the pancreas. *AJR Am J Roentgenol* 1988;151:493-494
20. Ferrucci JT, Wittenberg J, Margolis MN, Carey RW. Malignant seeding of the tract after thin-needle aspiration biopsy. *Radiology* 1979;130:345-346
21. Rashleigh-Belcher HJ, Russell RC, Lees WR. Cutaneous seeding of pancreatic carcinoma by fine-needle aspiration biopsy. *Br J Radiol* 1986;59:182-183
22. Smith FP, MacDonald JS, Schein PS, Ornitz RD. Cutaneous seeding of pancreatic cancer by skinny-needle aspiration biopsy. *Arch Intern Med* 1980;140:855

The Efficacy of an Ultrasound-guided Core Needle Biopsy with an 18G Cutting Needle for the Diagnosis of Pancreatic Diseases¹

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Purpose: The objective of this study is to evaluate the efficacy and safety of an ultrasound-guided core needle biopsy with an 18G cutting needle in patients suspected of having a pancreatic disease by analyzing the diagnostic performance and complication rate.

Materials and Methods: The study population comprised 35 consecutive patients who underwent an ultrasound-guided core needle biopsy using a high-speed biopsy gun accompanied with an 18G cutting-type needle between May of 2001 and October of 2005. The diagnostic performance (i.e., the acquisition rate and diagnostic accuracy) and complications associated with core needle biopsies were evaluated for its efficacy and safety.

Results: Thirty-six sessions of ultrasound-guided core needle biopsies were performed in 35 consecutive patients. All patients, except two (serous cystadenoma and autoimmune pancreatitis) were diagnosed with various subtypes of pancreatic cancer. The acquisition rate and diagnostic accuracy were 97% (35/36) and 94% (34/36), respectively. A complication occurred only in one patient (3%), which further proved to be a delayed complication (i.e., needle tract implantation).

Conclusion: According to our findings, the ultrasound-guided core needle biopsy is a viable and safe method for the diagnosis of pancreatic diseases. Moreover, it enables the diagnosis of the pancreatic cancer subtype.

Index words : Pancreas
Ultrasonography
Pancreas neoplasms
Biopsy, needle

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