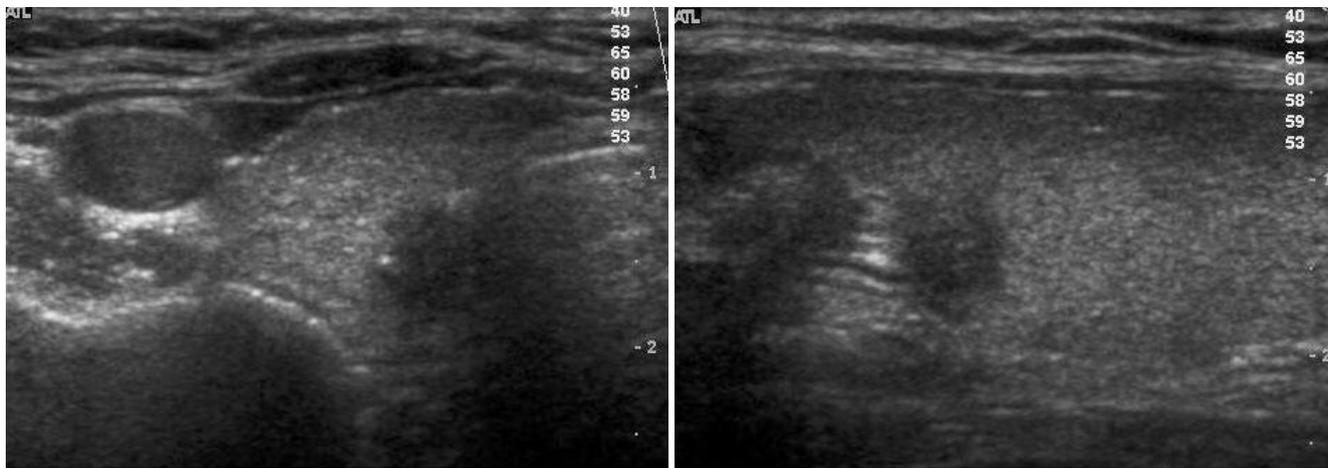
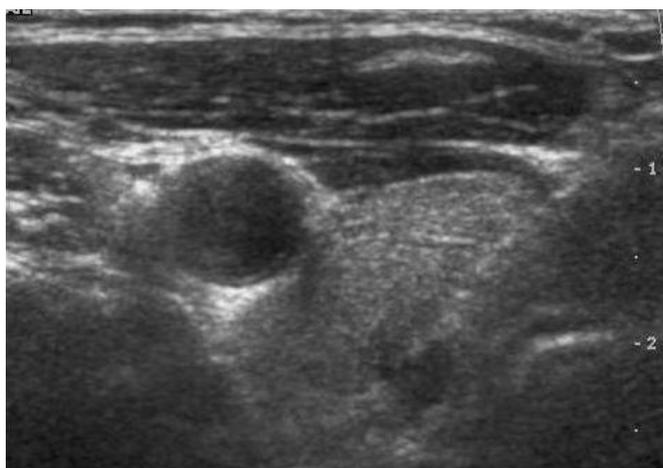


90% (solid), 50% (hyperechoic) 1 mm
(predominantly solid), 50% (microcalcifica - tion), 1 mm
(predominantly cystic), 90% (macrocalcification), 가
(cystic) (rim calcifica - tion)
(spongiform) 50% (benign), (suspicious
(ovoid to round), malignancy), (follicular neoplasma),
(taller than wide), (papillary carcinoma), (nondiagnostic)
(irregular) (FNAB cytology
(well - defined smooth), (well - result)
defined spiculate), 가 (ill - 가
defined) 405 1.7 cm (0.5 cm - 4.5 cm)
50% (strap muscle) 331 , 25 , 1 , 4
(markedly hypoechoic), , 44 .
(hypoechoic), 369 , 17 , 12
(isoechoic), , 2 , 5 . 405



A B



C

Fig. 1. A 45-year-old women with right thyroid nodule. Transverse (A) and longitudinal (B) images of right thyroid nodule show a well-defined spiculate margin, ovoid to round shape, solid internal content, hypoechogenicity, and microcalcification. US-guided FNAB was performed and cytologic diagnosis was benign. C. After 14 months, repeat US-guided FNAB was performed and cytologic diagnosis was suspicious malignancy. This nodule was surgically confirmed as papillary carcinoma.

330 81% (Table 1).
 가 331 가 2 , 가
 가 15 , 10 가 , 4 가 가 2 . , 가
 , 1 가 (Fig. 1, 2).
 316
 3 가 17 . 17 13
 (Fig. 3). 3 (parathyroid
 carci - noma) 1 . 가

Table 1

Initial Cytology	Follow-UP US-guided FNAB results					
	BN	Susp	PTC	FN/HCN	ND	Total
BN	316	10	4	1	0	331
Susp	11	7	7	0	0	25
PTC	0	0	1	0	0	1
FN/HCN	3	0	0	1	0	4
ND	39	0	0	0	5	44
Total	369	17	12	2	5	405

BN : Benign nodule
 Susp : Suspicious malignancy
 PTC : Papillary thyroid carcinoma
 FN/HCN : Follicular neoplasm/Hurthle cell neoplasm
 ND : Nondiagnostic

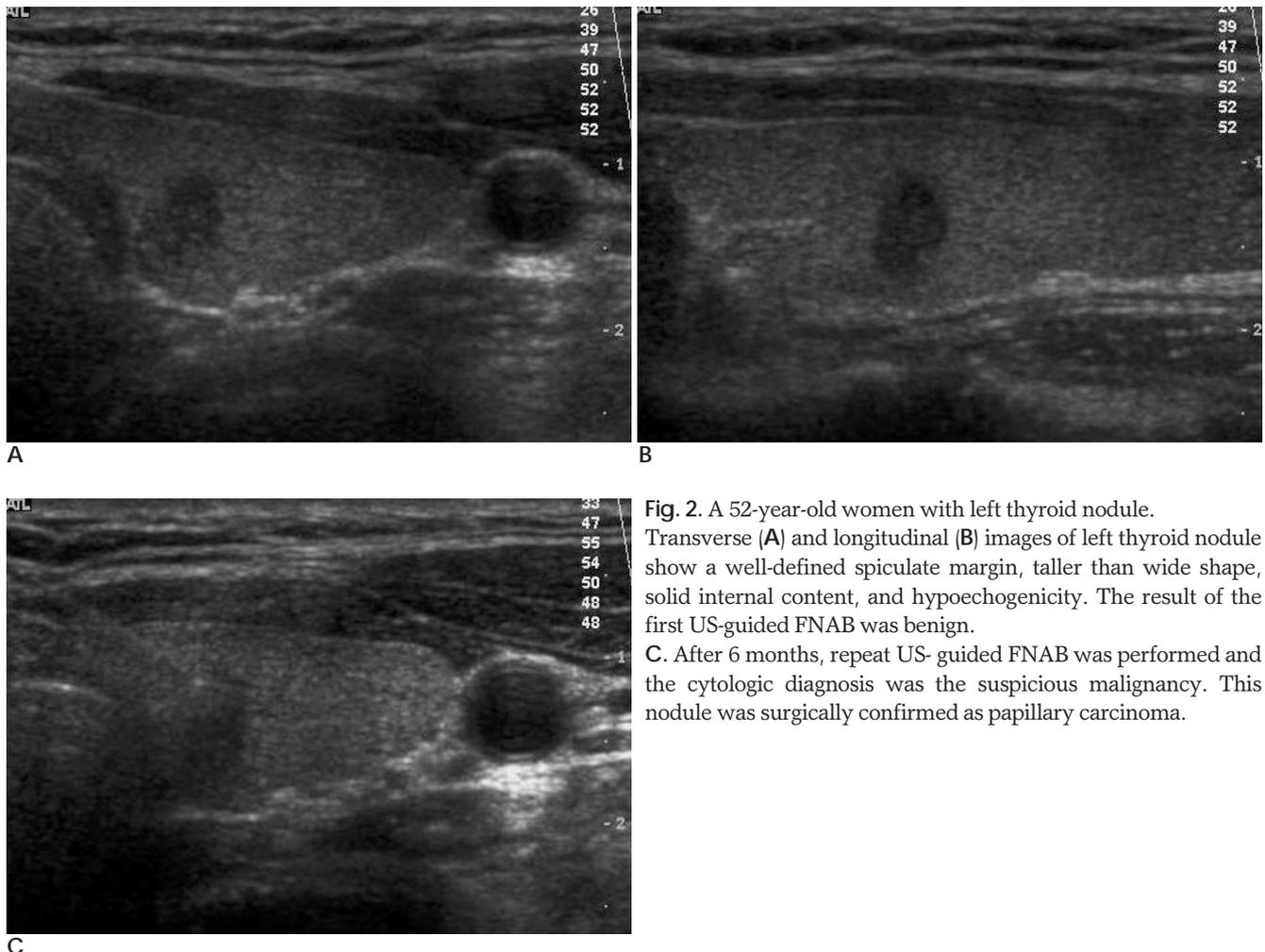
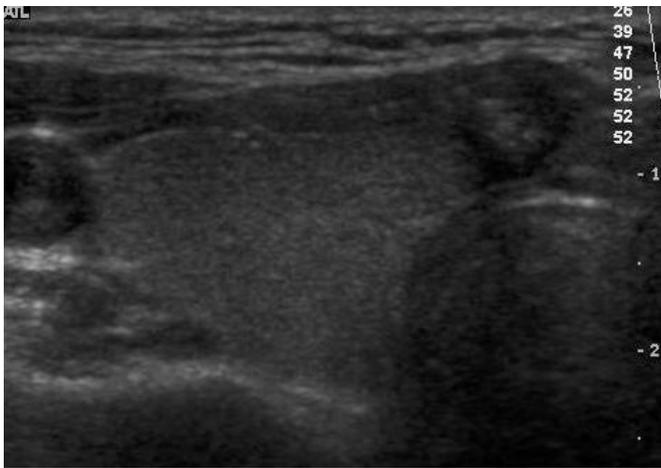
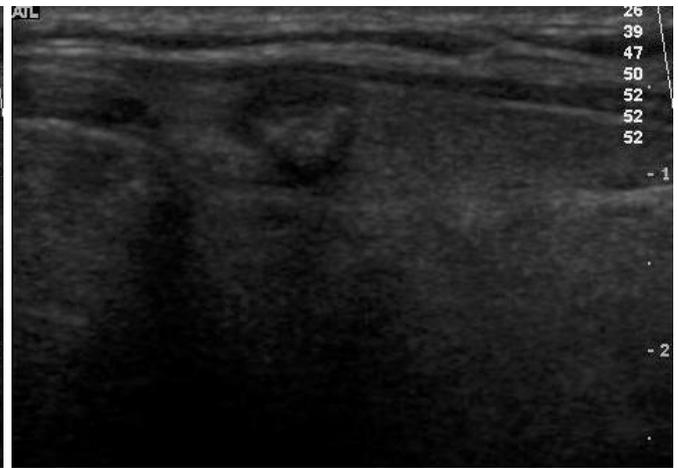


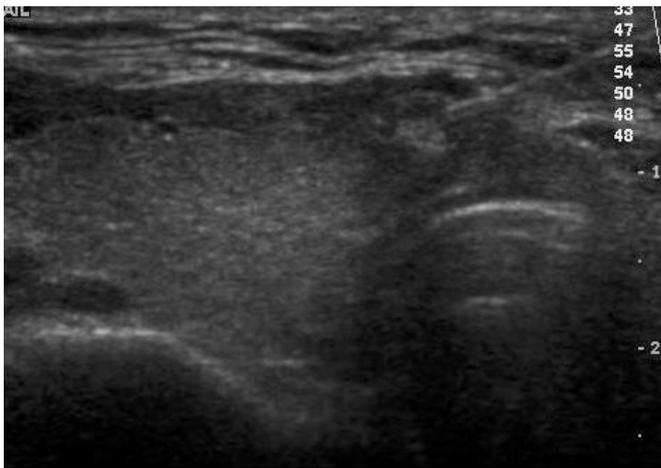
Fig. 2. A 52-year-old women with left thyroid nodule. Transverse (A) and longitudinal (B) images of left thyroid nodule show a well-defined spiculate margin, taller than wide shape, solid internal content, and hypoechogenicity. The result of the first US-guided FNAB was benign. C. After 6 months, repeat US- guided FNAB was performed and the cytologic diagnosis was the suspicious malignancy. This nodule was surgically confirmed as papillary carcinoma.



A



B



C

Fig. 3. A 45-year-old women with isthmus thyroid nodule. Transverse (A) and longitudinal (B) images of isthmus thyroid nodule show a well-defined spiculate margin, ovoid to round shape, solid content, marked hypoechogenicity, and micro- and macro-calcifications. US-guided FNAB was performed and cytologic diagnosis was benign. C. After 6 months, the result of the repeat US- guided FNAB was a suspicious malignancy. This nodule was surgically confirmed as papillary carcinoma.

4 가

17

16 (94%), 가

14 (82%), 가 12 (71%), 1 cm

9 (53%), 가 (12 - 17).

9 (53%)

8 (47%), 가 6 (35%) (sensitivity), (specificity),

(diagnostic accuracy)가 가 3.5 - 5.6%,

form) . (spongi - 0.8 - 5.6% (18, 19).

가 (nondiagnostic)

가 (indeterminate such as follicular neoplasm, follicular lesion, atypical cells)

가 가 . 3 - 6 , 6 -

가 가 12 (20 -

(3 - 11).

가 85 - 90%가 405 17

An Analysis of the Ultrasound Findings of False Negative Cases for an Initial Ultrasound-guided Fine Needle Aspiration Biopsy (FNAB)¹

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Purpose: To analyze the ultrasonographic (US) findings of thyroid nodules that yielded false negative results after an initial ultrasound-guided fine needle aspiration biopsy (FNAB).

Materials and Methods: Between August 2003 and February 2006, 389 patients with 405 thyroid nodules received a repeat US-guided FNAB. We retrospectively reviewed the US findings, cytology results and postsurgical pathological results. The cytology diagnoses were classified as benign, a suspicious malignancy, a follicular neoplasm, a papillary carcinoma, and a non-diagnostic result. The US findings of the thyroid nodules were analyzed with regard to size, internal content, shape, margin, echogenicity, and calcification pattern.

Results: Of the 405 thyroid nodules, 17 nodules were false negative. The major US findings of these nodules were a solid internal component in 16 nodules, hypoechogenicity or marked hypoechogenicity in 14 nodules, microcalcifications in 12 nodules, an ovoid to round shape in 9 nodules and a well-defined smooth margin in 9 nodules.

Conclusion: A repeat US-guided FNAB should be performed if the thyroid nodules have one of the malignant US features such as hypoechogenicity or marked hypoechogenicity, a microcalcification, a taller than wide shape or a well-defined spiculate margin although the cytology results indicated a benign lesion. In addition, thyroid nodules with findings of a well-defined smooth margin, ovoid to round shape, and solid internal component might also be subject to a repeat US-guided FNAB to exclude a malignancy.

Index words : Thyroid, ultrasonography
Biopsy, fine-needle
Thyroid, neoplasms
Thyroid nodules
Thyroid disease

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