



: (FNA) (PCNB)
 가
 : 1996 1 1999 12
 FNA (A , n=98) PCNB (B , n=31),
 (C , n=84) 213
 , , ,
 , , ,
 ,
 : 213 79 , 134 . A
 90.1% 90.1% 100%, 91.5%
 . B 90.4% 100%,
 , 90.0% 90.1% . C
 95.1% 100%,
 A B (p<0.05).
 13.3%, C 20.6% , A 7.1%, B 13.3%,
 C 2.9% ,
 (p>0.05).
 98.5% PCNB
 (p<0.05).
 PCNB가 20% 97.2% FNA가 PCNB
 FNA , PCNB
 : FNA PCNB
 , FNA PCNB
 가
 (FNA) (PCNB) (3, 4), ,
 가
 (1, 2). FNA PCNB
 , (3, 5).
 , FNA PCNB가
 가 (6, 7).
 FNA
 (6 - 8)

가 . PCNB

(9). FNA . FNA PCNB FNA

PCNB, 가 3 PCNB가

4

FNA A (n=98),

PCNB B (n=31),

C (n=84)

1996 1 1999 12

FNA PCNB,

213 . 96 1 97 (n=109) (n=20)

6 FNA , 97 7 98 6 (n=89) (n=40) A C

PCNB , 98 7 99 12 FNA (n=82) , B C PCNB (n=61)

213 79 ,

134 FNA (n=9), (n=9)

PCNB (n=36), (n=16), (n=14),

(n=4), (n=27)

PC - SAS system for windows version 6.12

6 가

12 95

(58.8) 가 155 , 58

FNA 20G/17 cm Westcott Biopsy needle (Medical Device Technologies, Gainesville, U.S.A.) , PCNB 18 G/16 cm automatic cutting needle (Manan Medical product, Northbrook, U.S.A.) Manan pro - mag. 1.2 (Manan Medical product, Northbrook, U.S.A.)

A 98 51 가 FNA 46

, 1 , 4

, 47 가 43 FNA

가

Table 2. Comparison of the Diagnostic Accuracy for Benign Thoracic Lesion among 3 Groups

	Group A (n = 47)	Group B (n = 10)	Group C (n = 23)	p-value
SEN	90.5	90	100	< 0.05
SPE	90.1	90.1	92	> 0.05
ACC	82.7	81.8	96.4	< 0.05

Group A = Patients who underwent FNA only
 Group B = Patients who underwent PCNB only
 Group C = Patients who underwent both FNA and PCNB
 SEN = sensitivity, SPE = specificity, ACC = accuracy

Table 3. Comparison of the Accuracy of FNA and PCNB in the Specific Diagnosis of Small Cell Lung Cancer

	FNA (n = 82)	PCNB (n = 61)	p-value
SEN	100	90	< 0.05
SPE	98.5	98.0	> 0.05
ACC	98.8	96.6	< 0.05

SEN = sensitivity, SPE = specificity, ACC = accuracy

Table 1. Comparison of the Diagnostic Accuracy for Malignant Thoracic Lesion among 3 Groups

	Group A (n = 51)	Group B (n = 21)	Group C (n = 61)	p-value
SEN	90.1	90.4	95.1	< 0.05
SPE	100	100	100	> 0.05
ACC	91.3	95	100	< 0.05

Group A = Patients who underwent FNA only
 Group B = Patients who underwent PCNB only
 Group C = Patients who underwent both FNA and PCNB
 SEN = sensitivity, SPE = specificity, ACC = accuracy

Table 4. Comparison of the Diagnostic Accuracy of FNA and PCNB in the Diagnosis of Pulmonary Tuberculosis

	FNA (n = 82)	PCNB (n = 61)	p-value
SEN	35.0*	20.0	< 0.05
SPE	100	97.2	> 0.05
ACC	66.7	56.0	< 0.05

*positive for AFB staining in 12 cases out of 15 cases, for which AFB stain was performed

SEN = sensitivity, SPE = specificity, ACC = accuracy

Table 5. Rate of Complication after FNA, PCNB or Both Procedures among Three Groups

	Rate of Complication(%)			p-value
	Group A (n = 98)	Group B (n = 31)	Group C (n = 84)	
Pneumothorax, no Tx	10.2	6.5	16.7	> 0.05
Tx	4.1	6.5	4.7	> 0.05
Hemoptysis	7.1	12.9	2.4	> 0.05

Group A = Patients who underwent FNA only

Group B = Patients who underwent PCNB only

Group C = Patients who underwent both FNA and PCNB

Tx = treatment required

. B 31 21 가 PCNB
19 , 1 , 1
, 10 9
, 1 . C
84 61 가 FNA PCNB
56 , 1 , 4
, 23 가
.
Table 1 .
C
($p < 0.05$).
(n=109) (n=20)
FNA가 PCNB (n=40) FNA가
($p < 0.05$) (Table 4). FNA 15
acid - fast bacilli (AFB) 12
AFB
(n=2), (n=1) FNA 가
PCNB (n=2) FNA PCNB (n=2),
(n=5) FNA 2 , PCNB
3 가 , (n=1),
(n=1), (n=1) PCNB
. 1
. 1
가

Table 5

가
($p > 0.05$).
1883
Leyden (10)
,

(1, 2), 72% 98%
(11 - 13). FNA 50 - 95%
(14 - 16), PCNB가 FNA
가 ,
(5, 6, PCNB
17, 18). , Grief (8) FNA 가
가 FNA
가 Staroselsky
(6) FNA PCNB FNA
(9) FNA PCNB
, FNA PCNB
FNA PCNB
가
($p < 0.05$). 가 가 (9)
, 가 가
.
FNA가 PCNB
($p < 0.05$).
가
FNA PCNB
(Table 3). FNA 12 - 68%
(19, 20)
가

가

15 fast bacilli FNA 12 (80%) acid - fast acid - fast FNA PCNB 가 PCNB

(6). 가 가 FNA 4.6 - 41%, (12, 21, 22), PCNB 14 - 61% PCNB 12.9% (n=4)

가 가 FNA 100%

PCNB 가 B , PCNB 가 FNA

PCNB 가 , FNA PCNB FNA PCNB 가

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Percutaneous Transthoracic Biopsy for Thoracic Lesions: Comparison of the Utility of Fine Needle Aspiration (FNA), Percutaneous Cutting Needle Biopsy (PCNB) and Combination of Both Methods¹

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Purpose: To assess the diagnostic role of FNA, PCNB, and a combination of both methods in patients who underwent percutaneous transthoracic biopsy for a malignant or benign intrathoracic lesion.

Materials and Methods: We retrospectively reviewed the findings of 213 patients with an intrathoracic mass or consolidation who underwent FNA (Group A, n = 98), PCNB (Group B, n = 31) or a combination of both methods (Group C, n = 84). Under fluoroscopic guidance, diagnoses were based on the findings of surgery, biopsy at another site or clinical and radiologic follow-up. In the differential diagnosis of benign and malignant disease, and in the diagnosis of small-cell lung cancer, pulmonary tuberculosis, non-tuberculous infectious disease and benign mass, sensitivity, specificity and accuracy were statistically analysed in each group.

Results: Among 213 patients, lesions were malignant in 134 and benign in 79. In group A, sensitivity and specificity were 90.1% and 100% for malignant lesions, and 91.5% and 90.1% for benign, while in group B, the corresponding findings were 90.4% and 100%, and 90.0% and 90.1%. In group C, corresponding rates of 95.1% and 100% ($p < 0.05$) and 100% and 92% ($p < 0.05$) were recorded. In group C, accuracy and sensitivity were higher than in group A or ($p < 0.05$). Post-procedural pneumothorax occurred in 15.3% of group A, 13.3% of group B, and 20.6% of group C, while hemoptysis was found in 7.1% of group A, 13.3% group B, and 2.9% of group C. Among the three groups, the complication rate showed no statistically significant variation ($p < 0.05$). In the specific diagnosis of small-cell lung cancer, the sensitivity and specificity of FNA and PCNB were, respectively, 100% and 98.5%, and 90.0% and 98.0% ($p < 0.05$); for tuberculosis, the corresponding figures were 35.0% and 100%, and 20.0% and 97.2 ($p < 0.05$). FNA was better in the diagnosis of non-tuberculous infectious disease, while PCNB was better in the specific diagnosis of benign masses, without statistical significance.

Conclusion: FNA is superior to PCNB in the diagnosis of tuberculosis and the differentiation of small cell lung cancer, and is thus the indicated initial approach for the majority of patients who are to undergo transthoracic biopsy. A combination of FNA and PCNB can provide more accurate differentiation between malignant and benign thoracic disease, without increasing the complication rate, than can one method used alone.

Index words : Lung, abnormalities

Lung, diseases

Lung, biopsy

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