

## Implantation Metastasis After Percutaneous Transthoracic Fine Needle Biopsy of Lung Cancer : A Case Report<sup>1</sup>

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Percutaneous transthoracic fine needle aspiration (PCNA) and biopsy (PCNB) are well-accepted methods for the diagnosis of various intrathoracic lesions. Implantation of cancer cells along the needle tract is one of the rarest complications of these techniques, but was found along the needle tract in a patient who underwent PCNB for lung cancer.

**Index words :** Lung, biopsy  
Biopsies, complications  
Lung neoplasms

Percutaneous transthoracic fine needle aspiration (PCNA) and biopsy (PCNB) are well-accepted methods for the diagnosis of various intrathoracic lesions. Though rare, the implantation of tumor cells along the needle tract is one of the important complications of these techniques(1-4). Between December 1995 and November 1997, 572 patients underwent PCNA and PCNB; a 22-gauge calibrated Westcott-style biopsy needle (Manan Medical Products, Northbrook, Ill., U.S.A.; aspiration type needle) and a 19.5-gauge Autovac-biopsy needle (Angiomed, Karlsruhe, Germany; cutting type needle) respectively were used. Among the 572 patients, 289 were eventually shown to be suffering from intrathoracic malignancy. During this period, we incidentally found a case of tumor implantation along the needle tract after PCNB. We describe this case and include a relevant review.

### Case Report

A 59-year-old woman presented with pain in the right of the chest. CT scanning revealed a peripherally located 3.5-cm sized lung mass abutting the thoracic vertebrae and posterior chest wall in the superior seg-

ment of the right lower lobe(Fig. 1A). CT-guided biopsy using a 20-gauge automatic cutting needle (Manan Medical Products, Northbrook, Ill., U.S.A.) was performed, with one passage, at another hospital. This procedure was not diagnostic and so about one month later, five passages of needle biopsies using a 19.5-gauge Autovac-biopsy needle (Angiomed, Karlsruhe, Germany; cutting type needle) were performed at our hospital. Adenocarcinoma was revealed and a right lower lobectomy was performed. The final diagnosis was bronchioloalveolar cell carcinoma.

Five months after initial needle biopsy, the patient was found to have a subcutaneous nodule measuring about 1cm in diameter at the site of the previous needle biopsy(Fig. 1B); excisional biopsy of the chest wall lesion revealed the same histologic features as those of the previous lung lesion(Fig. 1C). The patient underwent local radiation therapy and since excisional biopsy until the time of writing this report, a period of two months, has been free of disease.

### Discussion

Percutaneous needle biopsy has become a well-accepted procedure; its diagnostic efficacy is high and its complication rate is relatively low. Several authors have demonstrated that carefully performed percutaneous needle biopsy of the lung is highly accurate for the diagnosis of cancer(92-95 % sensitivity)(5, 6).

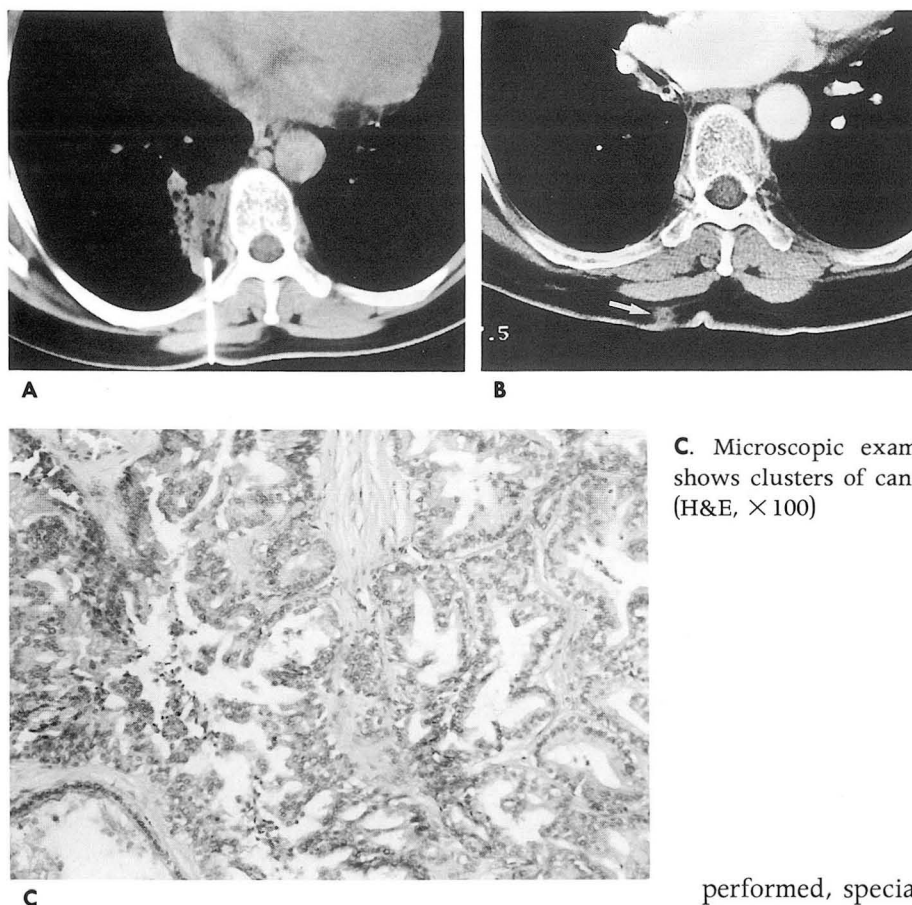
Complications of transthoracic needle biopsy in-

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**Fig. 1.** 59-year-old woman with implantation metastasis after needle biopsy of lung cancer

**A.** Chest CT scan obtained during CT-guided lung biopsy shows lung mass abutting the thoracic vertebrae and posterior chest wall in superior segment of right lower lobe and biopsy needle.

**B.** Chest CT scan obtained 5 months after needle biopsy and right lower lobectomy shows subcutaneous nodule of 1 cm in diameter (white arrow) at the site of previous biopsy.

**C.** Microscopic examination of the subcutaneous nodule shows clusters of cancer cells forming glandular structures. (H&E,  $\times 100$ )

clude pneumothorax, hemoptysis, local bleeding, hemothorax, infection, and air embolism(7). Implantation of tumor cells along the needle tract is another possible complication, though is rare(1–4). According to Sinner et al(1), it was found in only one of 1264 patients with lung cancer who underwent needle biopsy using an 18 to 20-gauge aspiration needle.

Several factors such as size of needle and number of passages are important in determining the possibility of tumor implantation along the needle tract. According to Roussel et al(8), a coarse needle may cause tumoral implantation, even during a single passage and when made through normal parenchyma covering the lesion. Tumor implantation caused by a fine needle correlates with a large number of passages or with the absence of normal parenchyma covering the lesion(8). When a Trucut-type needle (Baxter, Valencia, California, U.S.A.) was used, two of 89 patients who underwent needle biopsy of the lung developed needle tract tumor implantation(9).

In conclusion, though tumor implantation along the needle tract is rare and is not an obstacle to the use of needle biopsy during intrathoracic malignancy, its risk should be kept in mind. Whenever this procedure is

performed, special care, such as the use of a smaller-bore needle or a single passage rather than multiple passages during biopsy, should be taken.

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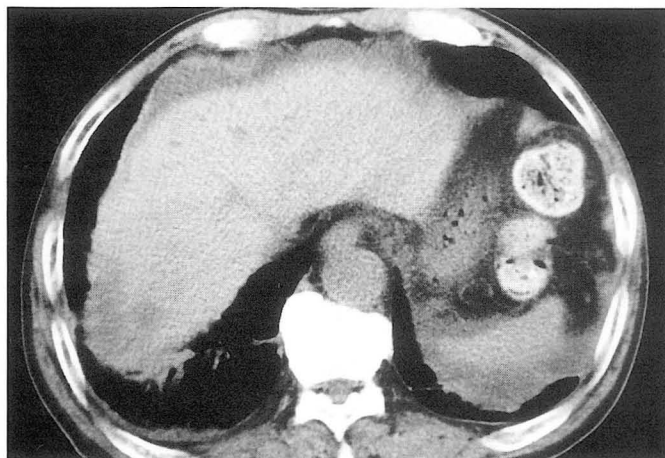
## 폐암의 세침생검후 침생검로를 따라 발생한 전이 : 1예 보고<sup>1</sup>

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경피경흉세침흡인생검법은 여러종류의 흉곽내 질환의 진단에 널리 이용되는 진단법이다. 이 진단법의 드문 합병증의 하나로 암세포의 침생검로를 따른 전이가 있다. 저자들은 폐암으로 세침흡인생검을 시행받은 1명에서 천자경로를 따른 전이를 발견하였다.

제목 : 미소 짓는 소녀



A



B

**내용:** 오후 늦은 시간에 복부 CT를 판독하는데 갑자기 미소짓는 소녀의 모습이 눈에 들어왔습니다. 자세히 보니 그 미소는 대장의 지저분한 fecal contents내에서 보이는 것이 아닙니까?  
우리는 너무 선입감을 갖고 일들을 처리하는 것은 아닐까요? 한번 뒤로 물러서서 객관적으로 다시 한번 생각해 보아야 하는 것이 아닐까요?  
그러면 이런 지저분한 fecal contents내에서도 환한 미소를 발견할 수 있는 것이 아닐까 생각합니다.

**제공 :** 순천향의대 진단방사선과  
오 승 룡, 이 혜 경

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