

Experience of Early Occult Lung Cancer with Microinvasion

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A case of early lung cancer with microinvasion in the orifice of the left B¹⁺² and B³ is reported. A 71 year old male was presented with chief complaint of left intercostal neuralgia. The chest X-ray film showed no remarkable change except for pulmonary arterial shadow in the left upper lung field. Under bronchofiberscope, thickened bronchial mucosa and disappearance of longitudinal mucosal fold were detected in the orifice of the left B¹⁺² and B³. Squamous cell carcinoma was diagnosed histologically. Left upper lobectomy was performed, and microscopic characteristic of the resected specimen was microinvasive squamous cell carcinoma.

Key words: Occult lung cancer. Microinvasion. Cytology of sputum. Brinkmann index.

INTRODUCTION

The hilar type early lung cancer is defined that cancer cells localized intrabronchial wall (in situ or microinvasive lung cancer) without lymph node metastasis and distant metastasis. We report interesting case of early occult lung cancer with microinvasion diagnosed by bronchofiberscope. The X-ray film of the patient show no remarkable change on admission.

It is important to make intense efforts to detect, localize, and treat early lung cancer, then a small group of patients who have roentgenographically occult lung cancer will be identified.

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CASE REPORT

A 71 year-old male was admitted to our hospital with left intercostal neuralgia. Brinkmann index indicated about of 800. With the use of bronchofiberscope, bronchial mucosal biopsy was performed. The physical examination revealed no remarkable positive finding and laboratory data showed normal value. On admission, chest X-ray film showed

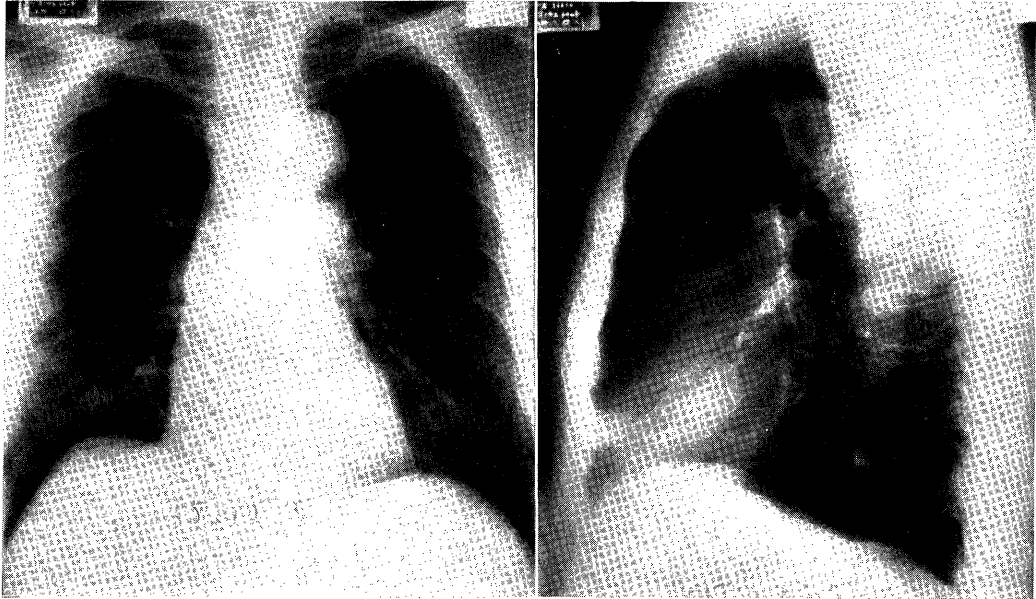


Fig. 1. Chest X-ray film on admission, showing no remarkable change except for the pulmonary arterial shadow in the left upper lung field.



Fig. 2. Bronchogram showing almost normal finding.

as it was tumorous shadow of pulmonary artery, but further examination of both antero-posterior and lateral view of the chest X-ray film revealed no remarkable finding (Fig. 1). The bronchogram showed no abnormal findings as stenosis, obstruction and compression in the left main, left inferior, left upper bronchus and the orifice of the left B^{1+2} and B^3 (Fig. 2).

The bronchofiberscopy was performed by reason of just like tumorous shadow of the left upper pulmonary artery (A^{1+2}), and revealed almost normal finding except for slight

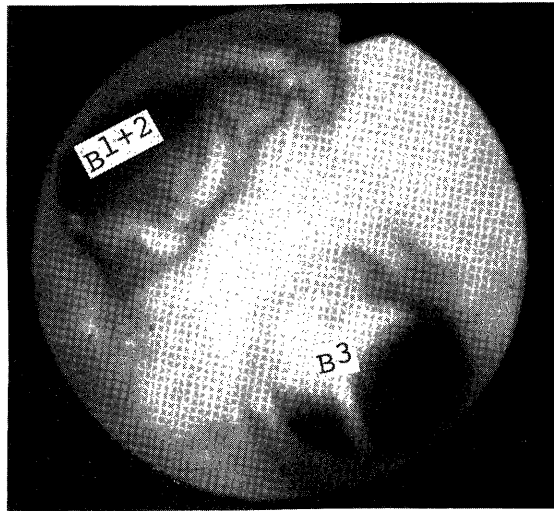


Fig. 3. Bronchofiberscope in the orifice of the left B^{1+2} and B^3 detecting thickened bronchial mucosa and disappearance of the longitudinal mucosal folds.

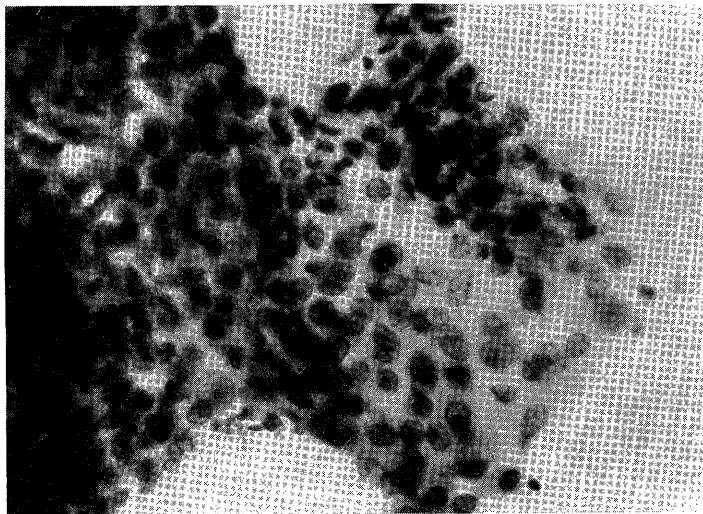


Fig. 4. Cytology of brushing specimen in the orifice of the left B^{1+2} and B_3 reveals atypical squamous cell with hyperchromasia.

thickened bronchial mucosa and disappearance of the longitudinal mucosal folds at the orifice of the left B¹⁺² and B³ (Fig. 3).

Cytology of the bronchoscopic brushing showed class IV, nuclear abnormalities such as enlargement, hyperchromasia (Fig. 4). Based on these findings, a preoperative diagnosis of early occult lung cancer (T1N0M0) was made then left thoracotomy was performed and there were no adhesion and effusion in the left pleural cavity.

The palpation failed to detect the tumor. The left upper lobectomy with regional lymphadenectomy of the hilum and mediastinum was made, but no metastasis to regional

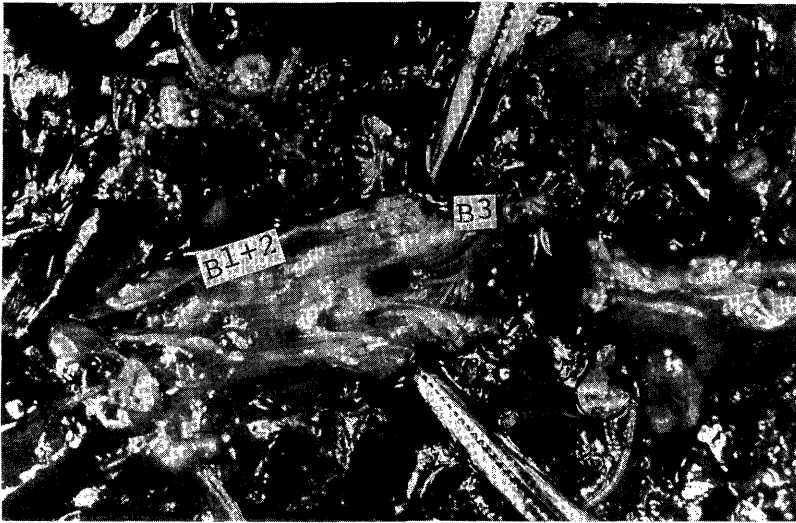


Fig. 5. Resected specimen, showing no any abnormal change in the bronchial mucosa of the left B¹⁺² and B³.

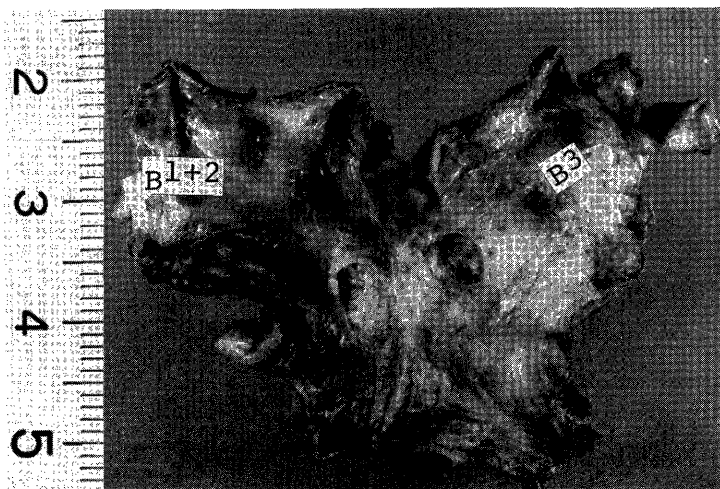


Fig. 6. Resected specimen fixed by 10% formaldehyde, reveals slightly granular and thickened mucosal folds near the orifice of the left B¹⁺² and B³.

lymph node was recognized macroscopically. The resected specimen showed no any abnormal changes in the bronchial mucosa of the left B¹⁺² and B³ (Fig. 5). But the resected specimen fixed by 10% formaldehyde revealed slightly granular and thickened mucosal folds near the orifice of the left B¹⁺² and B³ in maximal length of 1.5cm (Fig. 6). Histology of resected specimen showing microinvasive squamous cell carcinoma with keratinization, growing in papillary fashion for the most part, reveals carcinoma in situ but partly microinvasion into the propria mucosa was seen (Fig. 7). The resected regional lymph nodes were all free from metastasis histologically.



Fig. 7. Histology of the resected specimen showing microinvasive squamous cell carcinoma with keratinization, growing in papillary fashion for the most part, reveals carcinoma in situ but partly microinvasion into the propria mucosa is seen.

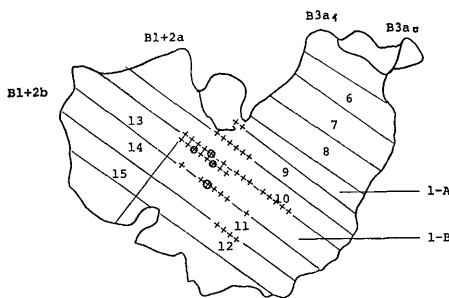


Fig. 8. Schema of the Fig. 6. showing the area of the superficial infiltrating squamous cell carcinoma.

x tumor tissue
 ⊗ minute invasion

DISCUSSION

The carcinoma in situ is the most early cancer that can be detected, but may have potency that may advance to infiltrative carcinoma. Roentgenographically negative lung cancer ordinary affects male smoker in aged group¹⁾²⁾, and squamous cell carcinoma is the predominant cell type³⁾⁴⁾. In our case, the age is 71 year old, Brinkmann index is 800 and belongs to high risk group.

It is generally accepted that in situ carcinoma tend to be indolent, slowly growing tumors⁵⁾. Therefore, aggressive detection and localization of occult lung cancer showed allow treatment at an early stage.

Patients who are above 40 year-old, above 400 in Brinkmann index and show marked atypia, particularly if it is present in repeated sputum specimen, should be considered at high risk for having an early cancer and should be advised to have bronchoscopy for localization. Sputum cytology serves to identify patients who may have early lung cancer. The diagnosis of in situ or microinvasive lung cancer is established only after bronchoscopic localization.

The bronchofiberscopic finding of the in situ or microinvasive lung cancer are disappearance of the longitudinal mucosal fold and granular or uneven change of the bronchial mucosa⁶⁾.

It is reported that 13–35 % of patients with occult lung cancer had in situ carcinoma¹⁾²⁾⁷⁾. CORTESE *et al.*⁷⁾ reported that in 15 of 54 patients of occult lung cancer (28 %), the cancer was not seen bronchoscopically. Histologically, these carcinomas were all in situ or microinvasive lung cancer and metastatic lymph node involvement did not occur. In the remaining 39 patients (72 %), the cancer was seen at bronchoscopy, 12 cases (31 %) were in situ (TIS N0 M0), 15 cases (38 %) were microinvasive (T1 N0 M0) lung cancer like our case.

Sometimes, surgical treatment of occult lung cancer may be required extensive pulmonary resection, because of main stem involvement. So, a new method of local bronchoscopic treatment for in situ lung cancer or localized lesion within the bronchial wall has recently been introduced⁸⁾. But it is difficult to identify the patients whose tumor is limited in the bronchial wall. Furthermore, in the majority of patients whose tumor will be visible by bronchoscopy, regional lymph nodes will be metastatically involved⁷⁾. So that, conventional pulmonary resection with or without bronchoplasty should be indicated for these patients except for the patients of in situ or microinvasive lung cancer.

In the patients with occult lung cancer, a rate with multicentric lesion are 7–15 %¹⁾⁷⁾, moreover, metachronous primary lung cancer developed in 24–32 %¹⁾⁹⁾ of the patients with occult lung cancer who had follow up for more than 15 years. When deaths from lung cancer only were considered, the 5 years survival rate was 91 %⁷⁾ with cancers that were either TIS N0 M0 or T1 N0 M0.

The prognosis of the early lung cancer is good if tumor is resected completely, so it is important that we decide the area of the superficial invasion of the tumor in the

bronchial mucosa and that local recurrence should be prevented. In the near future, we hope the development of the diagnostic simple technique with certainty furthermore regarding location and area of tumor in the bronchial mucosa.

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