Case Report

Preoperative Fiber-Optic Lung Cancer Detection
A Case Report

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A case of unexpected detection of bronchial neoplasm in routine general anesthesia is described. On the basis of this case, fiber-optic bronchoscopy in all patients undergoing general anesthesia as a means of early detection of lung cancer is discussed.

Key Words: Anesthetic technique, Fiber-optic bronchoscopy, Lung cancer

A flexible fiber-optic bronchoscope (FOB) has been recently spread in the field of anesthesia. When the anesthetist is faced with the necessity of tracheal intubation against a difficult airway, fiber-optic endotracheal intubation has been widely recommended.\(^1\) Besides, it is of much avail for bronchial toilet and aspiration of sputa attaching to the peripheral bronchus. However, this procedure happens to give us a detection of lung cancer during a routine anesthetic procedure in the operating theater.

REPORT OF A CASE

A 63-year-old female had complained of poor appetite and frequent nausea without any symptoms originating from the respiratory tract, such as cough and blood-streaked sputum. Examination of the upper gastrointestinal tract revealed an early stage small esophageal cancer. A chest roentgenogram showed no evidence of lung lesion. The lung function test was within normal range. Therefore, other investigations relating to the respiratory tract were not performed. She was scheduled for a radical esophageal resection with end-to-end gastro-esophagostomy.

She was anesthetized with enflurane, nitrous oxide and oxygen. The trachea was intubated with a double lumen endobronchial tube "Broncho-cath", which was correctly placed with the aid of FOB. We noticed a narrow portion in the right bronchus at that time, but, carelessly neglected it. The surgery was uneventfully carried out as proposed. At the end of the surgery, much sputa and a small amount of blood were aspirated from the endobronchial tube. They had been produced from the peripheral bronchi probably following right thoractomy and manual compression of the right lung. Thus we tried to aspirate sputa and blood with FOB (Olympus type T10) under direct inspection of the bronchi, after exchanging the double lumen endobronchial tube to a single lumen endotracheal tube because the diameter of the latter is larger. While observing the carina, we found out an irregular surface area ranging between the trachea and the right main bronchus (Fig. 1). A biopsy revealed advanced squamous cell carcinoma of the lung, which had apparently developed independently of the esophageal cancer. The patient was then transferred to the department of radiation therapy for irradiation of metastatic lymph node involvement.

DISCUSSION

If lung cancer had been preoperatively found out, the esophageal resection would have been postponed, because lung cancer in this case was advanced and life-threatening for progressive suffocation or tracheal bleeding. Moreover, this case gives us important suggestion. That is, preoperative screening for lung cancer with the aid of FOB in
patients undergoing surgery under general anesthesia may be a valuable method. The reasons are as follows. (1) The patient has been anesthetized with endotracheal intubation for undergoing the surgery which is the original purpose. Preoperative fiber-optic lung cancer detection is the method which takes advantage of this patient's condition. Therefore, it does not give an additional anguish to the patient as compared with an examination under local anesthesia now in use. (2) This fiber-optic visualization may lead to detection of an earlier stage lung cancer without any symptoms or roentgenographic signs. It is important, because long-term survival from lung cancer is reported to be best when it is diagnosed while stage I (defined by American Joint Committee on Cancer) disease is present. (3) Chest roentgenogram widely used in the screening can have little effect on detecting early lung cancer existed in the central region of lungs compared with the peripheral region. About 60 to 75% of lung cancer involve a main bronchus or its bifurcation or even extend to the carina, where FOB mostly displays its ability. (4) The cost of this method will be well compensated for, because the number of lung cancer is now growing.

In practice, we should firstly obtain the patients' consents and institutional approval. Secondly an expert endoscopist for the examination of lung cancer should perform this procedure. Furthermore, the risk of infection or trauma to the airway will be a possible complication associated with this procedure. With adequate sterilization of the instrument and skilled hand, we can obtain a benefit of finding the rare, previously undiagnosed subclinical bronchial neoplasm. If above-mentioned conditions are fulfilled, we suppose that this procedure may be widely used for screening for lung cancer. Then we will be able to make the procedure more valuable by combining it with other diagnostic techniques such as lavage, brushing, and endobronchial biopsies.

We put forward a preoperative screening for lung cancer in all surgical patients under general anesthesia, and anticipate a good result in other institutes.

REFERENCES