Transbronchial pulmonary biopsy

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The diagnosis of diffuse pulmonary disease is a problem which frequently concerns chest physicians, and, even after full clinical, radiological, bacteriological, and physiological investigations, the aetiology is often obscure. A lung biopsy with histological examination may be necessary in order to establish the diagnosis. To obtain a lung biopsy, thoracotomy is generally considered to be necessary, and this is a major procedure; it is frequently not done, either because the physician in charge feels that it is unjustified or because the patient is too ill or too dyspnoeic to undergo such a procedure. Anderson and Harrison (1964) suggested the possibility of obtaining pulmonary biopsies via the bronchoscope, thus avoiding the necessity for thoracotomy, and a patient is seldom too ill or too dyspnoeic to be bronchoscoped. This lung biopsy is obtained by using a very fine biopsy forceps which is flexible and made by the American Cystoscope Company. The forceps has a total diameter of about 2 mm. and is long enough to reach to the periphery of the lung. The biopsy material obtained in this way can be taken from several areas of the lung, and a specimen of approximately 2 mm. $\times$ 1 mm. is obtained. It can be taken from the lower lobes and middle lobe but not from the upper lobes, since the angle is too acute.

The patient is bronchoscoped under either general or local anaesthesia, the forceps is pushed into the bronchus from which the biopsy is required and then pushed forward as far as it will go without pressure. The biopsy forceps is then withdrawn a fraction, opened, and then pushed forward again, using only slight pressure, after which the forceps is closed and withdrawn. It is not difficult in this way to obtain a small piece of lung. If too much pressure is applied there is a risk of pneumothorax occurring; this happened twice in the series.

There is a natural dislike in taking blind biopsies, because this may lead to haemorrhage, but in view of the small size of the forceps and the fact that the biopsy is taken from the periphery of the lung where the vessels are small, at the most only a small ooze will occur. Secondly, although the biopsy forceps is small, it will not penetrate to the periphery of the lung unless pressure is exerted on it, and so the biopsy will not be taken on the periphery and a pneumothorax will not occur. By this means, 14 bronchial lung biopsies have been done at the London Chest Hospital and the Brompton Hospital. Adequate specimens of lung were obtained in 12, which has led to a positive diagnosis in four cases. In the other two cases, pleura was obtained in one and bronchial wall in the second. The procedure is simple and multiple biopsies from various portions of the lung can be obtained which enable a histological diagnosis to be made in a considerable number of cases.

In this short series, one pneumothorax was produced, due to undue pressure on the forceps, and in one other case, pleura was obtained in the biopsy but no pneumothorax developed. These were both in the first few cases before it was realized that the pressure on the forceps must not be too great. A positive diagnosis was made in 33% of cases. This is not as high as one would like, but it helps to reduce the number of undiagnosed cases.

The procedure has the advantage that it can be done in patients whose pulmonary function is reduced to a level at which a thoracotomy would not be justified. It is safe if the necessary care is taken and causes little discomfort to the patient.

REFERENCE

Anderson, H. A., and Harrison, E. G. (1964). Paper read at the 8th International Congress of the American College of Chest Physicians, Mexico, October, 1964.