

Finally, we agree that multiple biopsy specimens and operator experience will enhance results. In more than 5000 fiberoptic bronchoscopies since 1973, we have routinely obtained three to five biopsy specimens unless brisk bleeding is encountered. It is of interest that with their multiple biopsy sample technique Gellert *et al* (ref 3 above) have reported only 78.6% of positive biopsies in cases of *visible* carcinoma, a number considerably less than the 94.9% we have achieved.¹

It is clear from the above comments that factors other than the "skill of the bronchoscopists and pathologists concerned" are responsible for the disagreement observed by us between bronchoscopic biopsy diagnosis and eventual diagnosis. There is one other factor which may affect the results obtained—namely, the degree of objectivity applied in reading the histologic preparations. We suspect strongly that our total commitment to objective reading of the histological preparations contributed to the greater difference in cell type between biopsy and final diagnosis reported by us.

We believe that the important message of our paper is valid—that is, the physician must be cautious when planning treatment based on lung cancer cell types obtained from small biopsy specimens.

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¹ Teirstein AS, Chuang MT, Miller A, Choy AR, Nieburgs HE. Flexible bronchoscopy in nonvisualized carcinoma of the lung. *Ann Otol Rhinol Laryngol* 1978; **87**:318–21.

Dysphonia caused by inhaled steroids: recognition of a characteristic laryngeal abnormality

SIR,—The conclusion by Dr Alan J Williams and his colleagues (November 1983; **38**:813–21) that inhaled corticosteroid was the cause of the vocal cord abnormality might have been better supported had the authors provided evidence that similar quantities of propellant, etc, had been inhaled as a result of the increased use of β stimulant or ipratropium once patients had discontinued inhaled corticosteroids. In the studies by the British Thoracic and Tuberculosis Association dysphonia was found in 3–9% of patients, both in those receiving placebo inhaler and in those receiving inhaled corticosteroids.^{1,2} One still has to consider the case against inhaled steroids as "not proven."

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¹ British Thoracic and Tuberculosis Association. Inhaled corticosteroids compared with oral prednisone in patients starting long-term corticosteroid therapy for asthma. *Lancet* 1975; **ii**:469.

² British Thoracic and Tuberculosis Association. A controlled trial of inhaled corticosteroids in patients receiving prednisone tablets for asthma. *Br J Dis Chest* 1976; **70**:95.

** This letter was sent to the authors, who reply below.

SIR,—In evaluating the effect on dysphonia of stopping aerosol steroid we recognised that it was important to ensure that the total propellant intake was not decreased. Hence, as described in our report, the decrease in propellant intake due to cessation of aerosol steroid was matched by an increase due to additional inhaled bronchodilator. Indeed, in some of the patients the total propellant intake was actually greater after the aerosol steroid was discontinued. Furthermore, two of our patients were taking inhaled therapy exclusively as dry powder preparations containing a lactose base but no hydrocarbon propellant. Since completing the reported studies we have seen further cases in this latter category.

It is of interest that in the BTTA studies of inhaled corticosteroid in asthma hoarseness was volunteered in some 9% of patients in both the placebo and the inhaled steroid groups. However, no formal assessment of the symptoms was undertaken (speech analysis, laryngoscopy, time course and duration of symptoms) so that we do not know how many of these patients had vocal cord deformity and how many had hoarseness due to other common causes such as candidiasis, viral infection, or psychogenic factors. Double blind comparison of aerosol steroid and placebo (with the same propellant intake) in a study designed to evaluate dysphonia¹ showed that this symptom was five times as common with aerosol steroid as with placebo.

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¹ Toogood JH, Jennings BA, Greenway RW, *et al*. Candidiasis and dysphonia complicating beclomethasone treatment of asthma. *J Allergy Clin Immunol* 1980; **65**:145–53.

Correction

The secretory IgA system of lung secretions in chronic obstructive bronchitis

In the paper by J Wiggins *et al* (July 1984, pp 517–23) the formula on p 519, col 1, should have a plus instead of a minus sign in the denominator. It should read:

$$t = \frac{CV_1 - CV_2}{\sqrt{\frac{CV_1}{2n_1} + \frac{CV_2}{2n_2}}}$$