

# Endobronchial polyp and chronic smoke injury

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**Summary:** A case of an inflammatory endobronchial polyp associated with chronic smoke injury is reported. Unlike previously reported cases, this was not associated with acute, severe thermal injury, was solitary in occurrence, and responded rapidly to a short course of intrabronchial steroids.

## Introduction

Endobronchial polyps are rarely encountered lesions. First described in 1930, they were included in the classification of benign endobronchial tumours in 1982.<sup>1,2</sup> Endobronchial polyps can be subdivided into: (1) benign inflammatory polyps which result from chronic bronchial inflammation and, (2) endobronchial papillomas which may be of viral origin and may undergo malignant transformation.<sup>3</sup> Because of the possibility of malignant transformation, endobronchial occlusion with lobar collapse, and difficulty in discerning one type of polyp from another, previous investigators have suggested that the treatment of both entities should consist of bronchoscopic fulguration, bronchoscopic resection, or thoracotomy and bronchotomy.<sup>4-6</sup> There have been two previously reported cases of patients with endobronchial polyps associated with acute thermal injury.<sup>7,8</sup> Each patient required intensive medical support, involved extensive endobronchial damage with the formation of multiple polyps, and improved with steroids only after prolonged follow-up. We report a third case with unique characteristics.

## Case report

A 48 year old man was referred for evaluation of a low grade temperature, a persistent cough and localized wheeze.

One month previously, he developed a low grade temperature and cough productive of small amounts of yellowish sputum. A chest X-ray showed no significant infiltrates. He was treated with several antibiotics with persistence of his cough and low grade temperature. He also reported a sensation of heaviness in his right lower chest. He denied haemoptysis and weight loss.

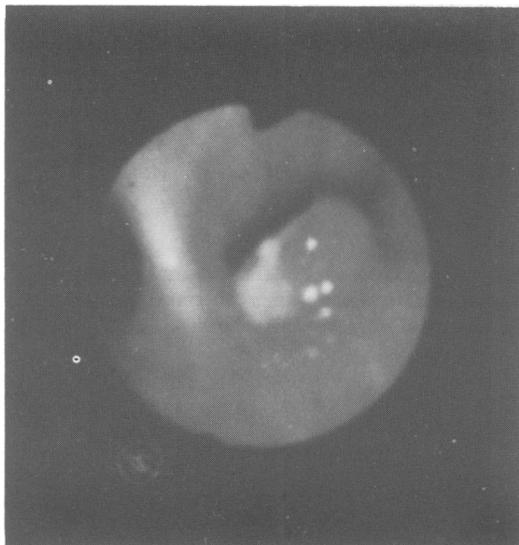
From age 26 to age 41 he smoked a pipe and for the past 19 years worked as a fireman. On physical examination a localized expiratory wheeze was present over the right lower chest. A chest X-ray showed no pulmonary infiltrates, but some questionable prominence of the right hilum, thought to be related to a conspicuous pulmonary artery. His vital capacity was 5.27 litres with normal forced expiratory flow 25 - 75%. The residual volumes were somewhat decreased at 63% and 77% respectively. A single breath diffusing capacity for carbon monoxide was normal.

On fiberoptic bronchoscopy a fleshy polypoid mass with some apparent necrotic area was noted at the orifice of the medial basilar segment of the right lower lobe. This tumour measured about 4 mm in diameter, was sessile, and appeared to be exophytic in nature (Figure 1). Pathological examination of the biopsy material showed the presence of an inflammatory intrabronchial polyp with squamous metaplasia, basement membrane thickening, and leucocyte infiltration of the underlying stroma.

The patient was given a trial of inhaled beclomethasone, and at repeat bronchoscopy 3 weeks later, marked regression of the size, shape, and appearance of the previously identified polyp was noted. The lesion was reduced to a small nodule at the orifice of the medial basilar segment. Biopsies and washings showed no evidence of malignancy or polyps.

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**Figure 1** Four mm, sessile, exophytic polyp seen at the orifice of the right lower lobe. (Magnification  $\times 10$ )

## Discussion

Inflammatory endobronchial polyps have previously been reported in the setting of acute thermal injury. In the two previously reported cases each patient experienced intense accidental exposure to superheated air and small particles, requiring intensive medical support. Each was treated with steroids in an attempt to reduce the inflammatory response to the acute insult, and each was followed by a repeat bronchoscopy or tomography. Both cases were characterized by multiple inflammatory polyps with either delayed or incomplete responses to therapy after 6 month follow-ups.

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Our case is unique in the sense that, although the patient was a fire fighter with chronic exposure to smoke and superheated air, he was never admitted to the hospital with acute injury and never required even transient oxygen support. Unlike the previous reported cases, his inflammatory polyp was solitary and resolved within 3 weeks of beginning intrabronchial beclomethasone.

Peroni and Rosenberg have postulated that inflammatory polyps form when a break in the bronchial mucosa occurs.<sup>9,10</sup> This is then followed by granulation tissue, and subsequent replacement by fibrous tissue and epithelialization. In the case of smoke inhalation, inflammatory polyps are probably caused by the deposit of superheated particles at carini and sub-carini.<sup>11</sup>

Freant and Sawyers have suggested that the treatment for endobronchial inflammatory polyps is total removal of the tumour, either at bronchoscopy or thoractomy.<sup>12</sup> Barzo *et al.* strongly recommend the use of bronchoscopic laser techniques in this setting to reduce complications and decrease the need for later thoracotomy.<sup>12</sup> Barzo *et al.* strongly recommend the use of bronchoscopic laser techniques in this setting to and had a rapid response to topically administered beclomethasone with total ablation of the tumour with no residual microscopic disease.

It appears, therefore, that intrabronchial inflammatory polyps associated with thermal injury may be solitary in occurrence, result from chronic, non-acute exposure to smoke particles or thermal injury, and be adequately treated by short courses of steroids.

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