FEV₁ values (litres) in three patients after inhalation of Freon aerosol propellant

Case No:	1	2	3	4	5	6	7
Basal FEV ₁	2.45	1.25	1.55	1.85	2.3	2.1	1.75
FEV ₁ after Freon aerosol	1.65	0.9	0.95	1.85	2.3	2.1	1.75
FEV ₁ after salbutamol aerosol	3.25	1.65	1.85	2.40	3.25	3.05	2.55

being treated with oral corticosteroids and beclomethasone dipropionate with no obvious adverse effects, did not react to inhalation of two puffs of placebo aerosol.

Discussion

Although the method of exposure was different, the absence of reaction to the gaseous Freons suggests that they were not the component responsible for the reactions to the aerosol propellant. The only other agents to which exposure may have occurred were the aluminium can and a range of extractives from rubber components of the metering valve.

There is no direct evidence that the asthmatic reactions were of an allergic nature, and some form of non-specific bronchial irritation seems a possible explanation. Such reactions to the aerosol vehicle may be obscured when it is being used for bronchodilator drugs that are effective. Investigation of adverse reactions of the sort described are indicated in patients presenting with such a history and possibly also in patients who fail to respond or who respond poorly to aerosol bronchodilators.

¹ Sterling, G M, and Batten, J C, *Thorax*, 1969, **24**, 228.

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Miliary tuberculosis presenting with multifocal oral lesions

Extensive tuberculosis lesions of the oral cavity are rare and show few typical diagnostic clinical features.¹ A case recently seen in Kaduna, Nigeria, presented unusual oral features and resulted in the diagnosis of miliary tuberculosis.

Case report

A 45-year-old Tiv farmer complained of discomfort around the gums in both his upper and lower jaws; he had had pain in the mouth but this interfered only slightly with his ability to chew hard foods. These symptoms had been present for about two years, and shortly before presentation he had noticed loss of appetite and loss of weight associated with cough, scanty sputum, and no haemoptysis. His presentation at the clinic, however, after a journey of over 300 miles, was because of his oral discomfort.

On examination there was an extensive proliferative granulomatous lesion affecting the gingivae, the buccal mucosa, and the palatal tissues in the upper right molar region (see fig); a separate but similar lesion was present in the lower left premolar region which extended buccally to the inner aspect of the lower lip and lingually to the floor of the mouth. He was afebrile. Enlarged lymph nodes were felt in the right anterior triangle of the neck. His liver was palpable 4 cm below the costal margin and was not tender. Choroida tubercles were not seen. Chest x-ray examination showed miliary mottling throughout both lung fields.

Biopsy of the oral lesions showed acid-fast bacilli, epithelioid cells, Langhans's giant cells, and early caseation. The liver biopsy specimen contained many epithelioid cell granulomas with giant cells and slight central necrosis. The Mantoux test initially gave negative results; the haemoglobin concentration was 10.9 g/dl, and the white blood count $3.9 \times 10^9/l$ ($3900/mm^3$) with 7% myeloblasts. Total protein was 85 g/l and albumin 5 g/l.

Mycobacterium tuberculosis was cultured from both the oral lesion and the sputum. He was treated with streptomycin 1.0 g intramuscularly, sodium para-aminosalicylic acid (PAS) 6 g, and isoniazid 300 mg daily. Within three months of starting chemotherapy the oral lesions had fully healed and the miliary mottling had cleared. While taking PAS and isoniazid his weight

Intraoral photograph showing extensive poliferative lesion of palate and gingivae.

increased from 45 kg to 51 kg, his condition improved, haemoglobin rose to 14.2 g/dl, and the white blood count was $9 \times 10^9/l$ ($9000/mm^3$) with a normal differential count. His Mantoux reaction became strongly positive when his nutritional state improved.²

Discussion

Tuberculosis remains an important disease in developing countries and among immigrants to developed countries.³ The oral lesion is usually described as an irregular ulcer with undermined edges that slowly increases in size and is painful. Any site in the oral cavity may be affected, particularly areas of trauma, and the important differential diagnoses include simple traumatic ulceration and squamous cell carcinoma. A more diffuse granular proliferation of gingival tissues may occur, and extensive multifocal and proliferative lesions were seen in this case.

The oral lesion is usually secondary to pulmonary infection as a result of direct inoculation or, rarely, as a result of haematogenous spread from sites in the pulmonary, gastrointestinal, or genitourinary tracts.⁴ In this case the two-year history of oral symptoms leading to the diagnosis of miliary tuberculosis seems to indicate the primary nature of the oral lesion. Nevertheless, the presence of a multifocal oral lesion supports the hypothesis of secondary implantation or haematogenous spread in a case of disseminated disease. We feel, however, that this oral lesion was primary and preceded the symptoms of miliary tuberculosis by several months, and indeed remained the chief complaint throughout.

Any lesion presenting in the oral cavity must be fully investigated, and assessment should include full physical examination, biopsy, and chest x-ray examination. We have confirmed the value of liver biopsy in miliary tuberculosis, and the identification of *Mycobacterium tuberculosis* on culture, although essential, must not delay the use of antituberculosis drugs as a therapeutic trial when tuberculosis is strongly suspected.^{2,5}

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³ Citron, K M, *British Medical Journal*, 1973, **2**, 296.

⁴ Ratliff, D P, *British Dental Journal*, 1973, **135**, 122.

⁵ Proudfoot, A T, et al, *British Medical Journal*, 1969, **2**, 273.

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