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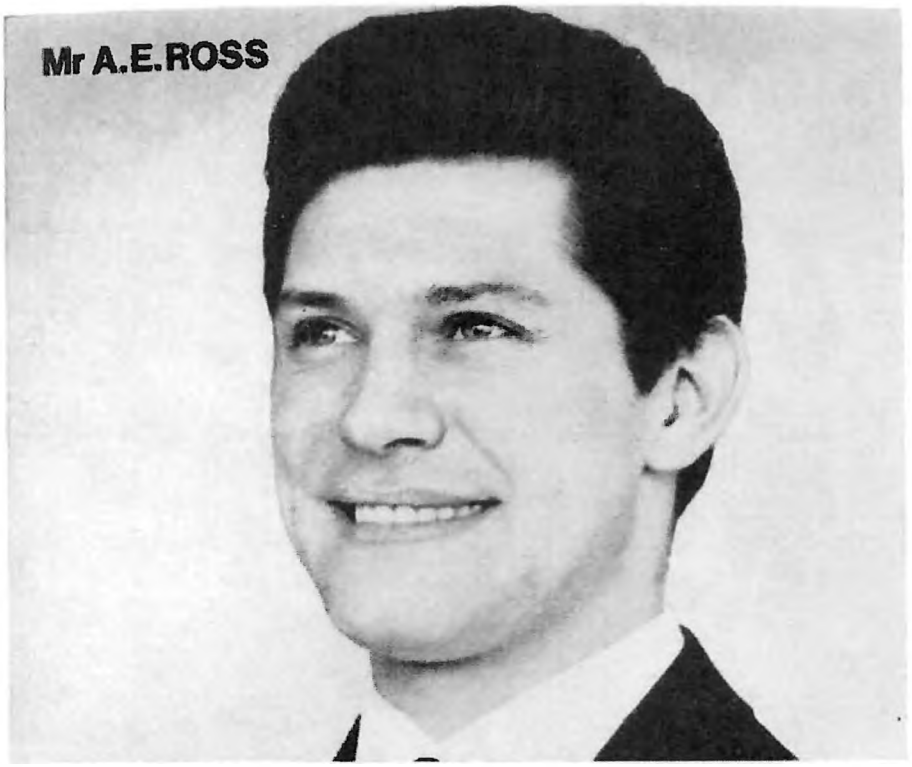
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THE POSSIBLE ADVERSE EFFECTS OF ASBESTOS IN GINGIVECTOMY PACKS

M. R. Y. DYER[1], B.D.S.

ASBESTOS fibres, sometimes used in gingivectomy packs, may if inhaled, seriously endanger the health. Such inhalation is made the more likely because the chairside assistant usually shakes the bottle containing the dry constituents of the pack so that on opening the bottle a cloud of dust is emitted. That the asbestos contained in this dust cloud could easily be inhaled was demonstrated by placing microscope slides (covered in egg albumin to aid dust adhesion) adjacent to the pack mixing area, at table height and at inhalation level 3 feet above the height of the table. Gingivectomy packs were then prepared with and without shaking the bottle. In both cases asbestos fibres were observed on slides at the two heights, thus demonstrating that the distribution of asbestos fibre in air is not dependent on shaking the bottle.

Microscope slides placed 5 minutes after the commencement of mixing, and allowed to collect dust for 5 minutes, did not show any asbestos fibres.

The inhalation of asbestos may have one of three effects:

(1) *Asbestosis.* This is pulmonary fibrosis and focal alveolar wall thickening associated with asbestos bodies. Asbestos bodies are asbestos particles surrounded by an iron protein complex.

(2) *Lung Cancer.* The association between asbestosis and lung cancer was first shown to exist by Gloyne (1935), and has later been confirmed by many others. Doll (1955) found that in 105 necropsies on asbestos workers, there were 18 cases of lung cancer, 15 of which were in association with asbestosis. The association of asbestosis and lung cancer is strengthened by the fact that the majority of these tumours occur in the lower lobes of the lung, where the changes of asbestosis are most severe (Isselbacher *et al.*, 1953)

The lung cancers may be of any histological type, adenocarcinoma being the most common.

(3) *Mesothelioma.* This is a malignant disease originating in mesothelium. When associated with asbestos, it affects the pleura and peritoneum. Wagner *et al.* (1960) found that 32 of 33 patients with histologically proved pleural mesotheliomata had been exposed to asbestos.

Hourihane (1964) found true diffuse mesotheliomata in 83 necropsies, and drew attention to the relationship between contact with asbestos and this disease. Newhouse and Thompson (1965) studied the social histories of 71 of these 83 patients. At least 51 had proven contact with asbestos.

Often the contact with asbestos was limited to living near an asbestos factory, or being the relative of an asbestos worker. Hourihane (1964) says, 'Many cases [of mesotheliomata] gave no history of industrial exposure [to asbestos], and it is possible that temporary or relatively trivial exposure may have occurred.'

There are three principal types of asbestos in use industrially. Chrysotile, which represents 93½ per cent of the world's production, crocidolite, and amosite. Medical woolly asbestos (B.D.H.) often used in gingivectomy packs is prepared from crude chrysotile. There is no evidence to suggest that these different types have different effects for the Working Group on Asbestos and Cancer (International Union Against Cancer) decided (1965) that 'The evidence indicates that the associated cancers of the lung are not limited to exposure to any one type of asbestos fibre.'

Clearly, the dentist, who during a lifetime of practise may expose himself and his assistants to considerable quantities of asbestos is faced with the inevitable conclusion that in the light of the present medical evidence, the use of gingivectomy packs containing asbestos should be discontinued. Preferably, one of the several commercially available preparations which do not contain this potentially dangerous material should be used.

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