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IAGNOSIS

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Klemperer and Rabin⁴ and Stout and Murray.⁵ Recently reports concerning these tumours have appeared from various countries; these include those of Tobiasen,⁶ Bellini and Bovo,⁷ Oodwin⁸ and McCaughey.⁹ The diagnosis in our cases has been confirmed by South African pathologists and well-known authorities from Britain and the USA, including Dible,¹⁰ Gough,¹¹ Steiner,¹² Stewart,¹³ and Vorwald.¹⁴

Diffuse pleural mesothelioma is generally considered a rare tumour. Daub and Jones¹⁵ reported 3 cases among 345,000 consecutive admissions to the Henry Ford Hospital. The largest series that we have been able to find in the literature is that of Cbopital *et al.*¹⁶ who described 22 cases seen over a period of many years. In contrast, our larger group has been diagnosed mainly during the last 4 years. It must be stressed that we have only included cases in which the nature of the tumour has been confirmed histologically, either on biopsy or necropsy material. A number of cases showing radiological and clinical features only have been excluded. Three of these cases had markedly abnormal cells in the pleural fluid.

ASSOCIATION WITH ASBESTOS

This frequency of mesotheliomas is possibly significant in its apparent association with areas where asbestos is mined or milled. Evidence in support of this has already been presented⁴ and includes:

1. The finding of asbestos bodies in the lungs of 12 (30%) of the 41 patients with mesotheliomas, even though in the majority of the earlier cases, before the association was suspected, the biopsies usually consisted of tissue from the parietal pleura only. Asbestos bodies have been found in 9 of 11 biopsies in which lung parenchyma was included. Evidence of asbestosis has been observed in 6 out of the 7 cases in which the lungs have been examined at necropsy.

2. The fact that 19 of these patients worked with asbestos, either as miners, millers or industrial workers.

3. The fact that all except 2 of the other 22 cases were either born, or spent a significant period of their lives, in the asbestos area of the north-western Cape Province.

Asbestos Bodies in the Sputum

Further, one of us (C.A.S.), working on the clinical hypothesis that exposure to asbestos causes an increased pleural reaction in patients suffering from tuberculosis, submitted numerous sputa from the West End Hospital, Kimberley, to the Pneumoconiosis Research Unit for examination. Asbestos bodies and fibres were found in the sputa of 115 patients who had no definite mining exposure. Included in these were specimens from people working in a dry-cleaning works and abattoirs in the North West Cape in places 100 miles away from the nearest mines.

The presence of asbestos bodies and fibres in the sputum is naturally only indicative of exposure to asbestos dust and is not evidence of asbestosis unless there is clinical and radiological support. However, from these findings it would appear that people possibly not associated with asbestos production or utilization, have been exposed to the hazard.

Asbestos in the North West Cape

The area of the asbestos deposit in the North West

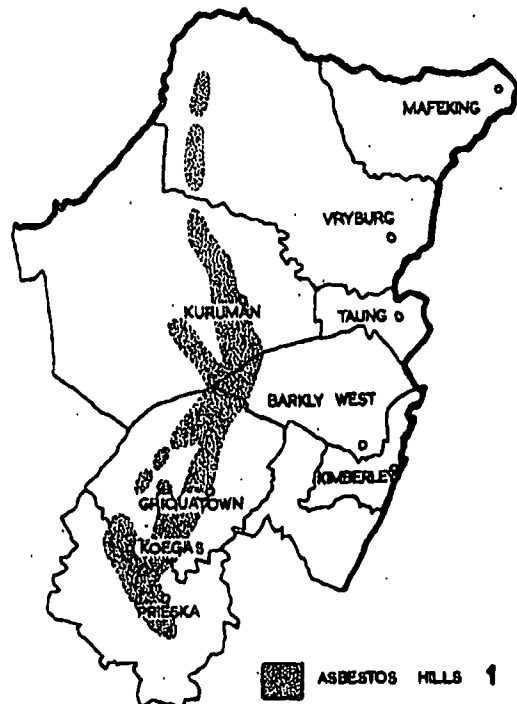


Fig. 1. Map showing asbestos deposits in the Cape Province.

Cape, the most extensive in the world, extends from 20 miles south of the Orange River north to the Bechuanaland border, covering approximately 8,000 square miles. The deposits are mainly in the slopes of the Asbestos Mountains, a range extending more or less longitudinally between 22°30' and 23°E (Fig. 1).

Mining and Milling

The type of asbestos mined throughout this area is crocidolite, better known as Cape blue asbestos. Crocidolite is the fibrous form of riebeckite. All stages of transformation, from massive riebeckite rock through lamellar riebeckite to asbestiform crocidolite, occur in this region. Magnetite is frequently associated with the crocidolite (Vermaas¹⁷). Mining of asbestos first began in the Prieska district in 1893 and gradually spread northward. In 1908, production had begun in the Kuruman district. This northward trend has continued and, in about 1950, mining started at Pom-Pom, near the Bechuanaland border. (Fig. 2 shows, graphically, the asbestos production from 1910 - 1958.) Initially the ore was quarried in numerous small open-cast workings. This was followed gradually by a type of shallow mining; inclined shafting became more common after 1930.

Since the 1939 - 1945 war, the demand for crocidolite has increased enormously. Since deeper and richer deposits have been found, vertical shafts are being sunk. However, the mines with large shallow deposits continue to use the inclined shaft and tunnel, and quarrying is still used by