

Primary chondrosarcoma of lung

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A case of primary chondrosarcoma of the lung is described in a 64-year-old man. The tumour was removed by lobectomy and he remains well and free from recurrence four years later. The literature dealing with this very rare tumour is reviewed.

An indication of the rarity of true sarcomata of the lung may be obtained from the report by Mallory (1936). He recorded that only one primary pulmonary sarcoma was confirmed in 8,000 routine necropsies at the Massachusetts General Hospital. Sarcomata in the lung occur more frequently as metastases from distant sites and often make their appearance many years after the

treatment of the original tumour (Castleman, 1952). The first description of primary chondrosarcoma of the lung was by Wilks in 1862. Sporadic reports have followed (Greenspan, 1933 ; Lowell and Tuhy, 1949 ; Smith, Cohen, and Peale, 1960 ; Guida Filho and Pasqualucci, 1963), and the last reported case (Daniels, Conner, and Straus, 1967) contained a comprehensive review

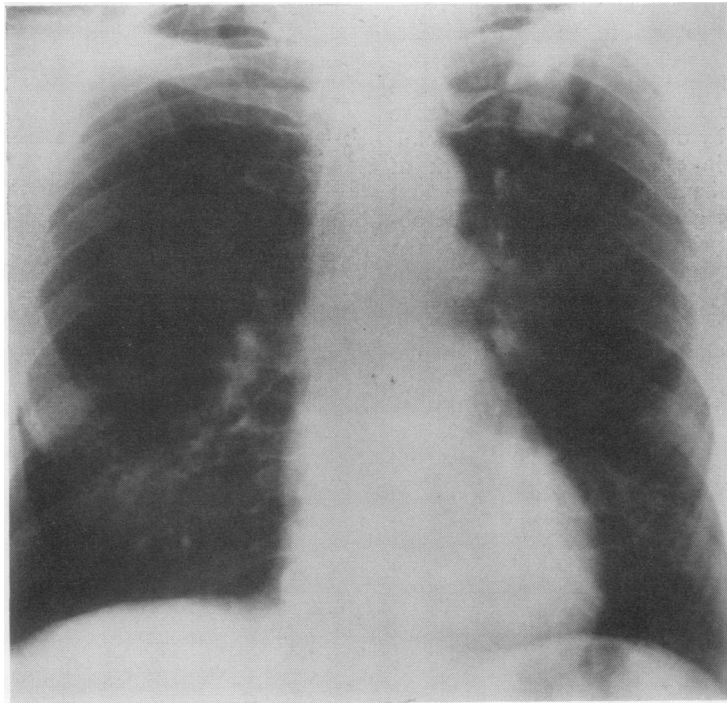


FIG. 1. 10 August 1965. Mass miniature radiograph showing an oval shadow in the left upper zone lateral to which is a smaller opacity.

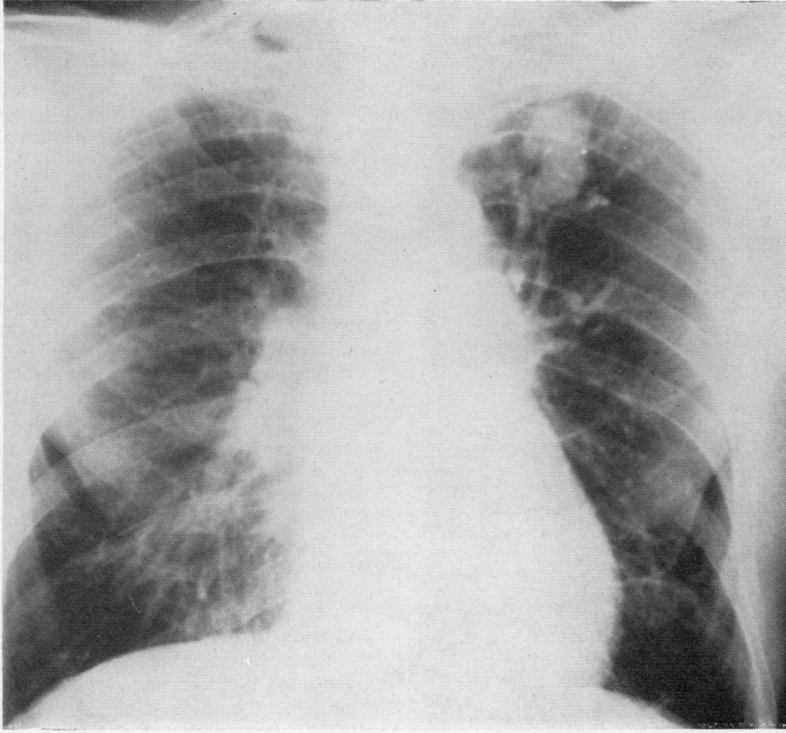


FIG. 2.

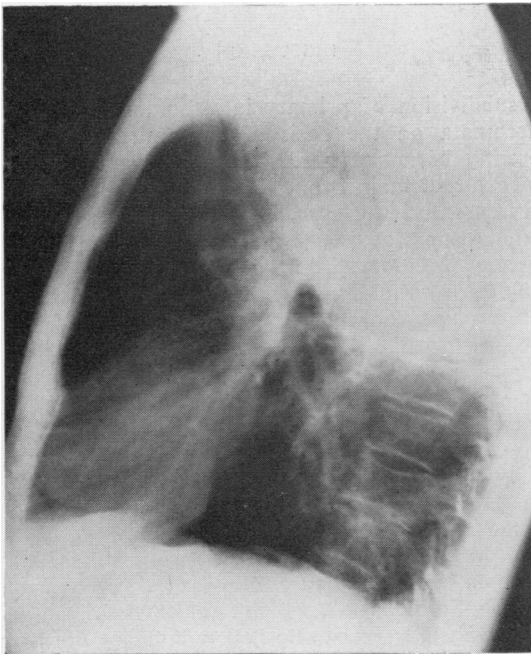


FIG. 3.

FIGS 2 and 3. 18 August 1965. *Postero-anterior and left lateral radiographs showing shadowing in the left upper lobe.*

of the world literature. A further case is described here which was treated surgically at the Brompton Hospital.



FIG. 4.



FIG. 5.

FIGS 4 and 5. 19 August 1965. Tomographs of left upper lobe. In the antero-posterior view the shadow is seen at 6.5 cm; in the lateral view the shadow lies at 8 cm.

CASE REPORT

This 64-year-old man, who smoked 50 cigarettes a day, was investigated in September 1965 for a five-month history of cough with purulent sputum. There were no abnormal physical signs in the chest but radiography revealed a partially calcified mass probably in the posterior segment of the left upper lobe, with a band of tissue connecting it to the posterior aspect of the hilum (Figs 1 to 5). Previous radiographs taken in 1952 and 1962 were interpreted as showing healed pulmonary tuberculosis (Figs 6 and 7). Routine haematological investigations and repeated bacteriological and cytological examinations of the sputum revealed no abnormality.

Thoracotomy was advised and was carried out through a left posterolateral incision. A firm tumour occupied the apical segment of the upper lobe with enlarged lymph nodes overlying the pulmonary artery and surrounding the phrenic nerve. A left upper lobectomy with block dissection of lymph nodes was performed, sacrificing the phrenic nerve.

Macroscopically the specimen showed that the apical segmental bronchus was stenosed 2 cm. beyond its origin by a white tumour. Microscopically this tumour was covered by intact metaplastic epithelium and consisted of highly cellular chondrosarcomatous tissue (Fig. 8). There was no histological evidence of tuberculosis, active or healed. The mediastinal nodes contained necrotic chondrosarcomatous cells.

The patient remains alive and well nearly four years after operation (Fig. 9).

DISCUSSION

A subdivision of primary intrathoracic chondrosarcomata on the basis of anatomical site has recently been suggested. Those arising from the trachea and main bronchi (the 'tracheobronchial' variety) tend to spread locally in a manner reminiscent of laryngeal chondrosarcomata, whereas the more distal type ('chondrosarcoma of lung') grow rapidly, disseminate widely and have a very unfavourable prognosis (Daniels *et al.*, 1967; Russolillo, 1936). Presumably both varieties originate from cartilaginous structures which persist as plates in the airway walls down to a bronchiolar diameter of 1 mm. (Maximov and Bloom, 1952). Ten of 12 cases of the 'lung' variety died within a year of diagnosis (Daniels *et al.*, 1967). The case described here may be an example of the more benign variety.

A possible relationship between chondrosarcoma and pulmonary fibrosis has been suggested (Smith *et al.*, 1960). They described a middle-aged Negress who had pulmonary fibrosis of unknown aetiology for many years. An open

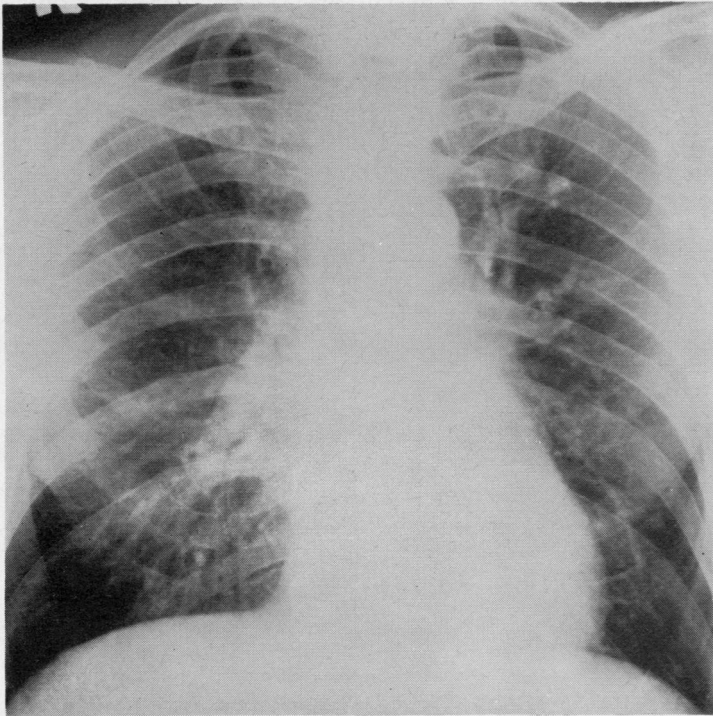


FIG. 6. 14 October 1952. *Routine chest radiograph showing opacities at the level of the anterior ends of the first and second ribs.*

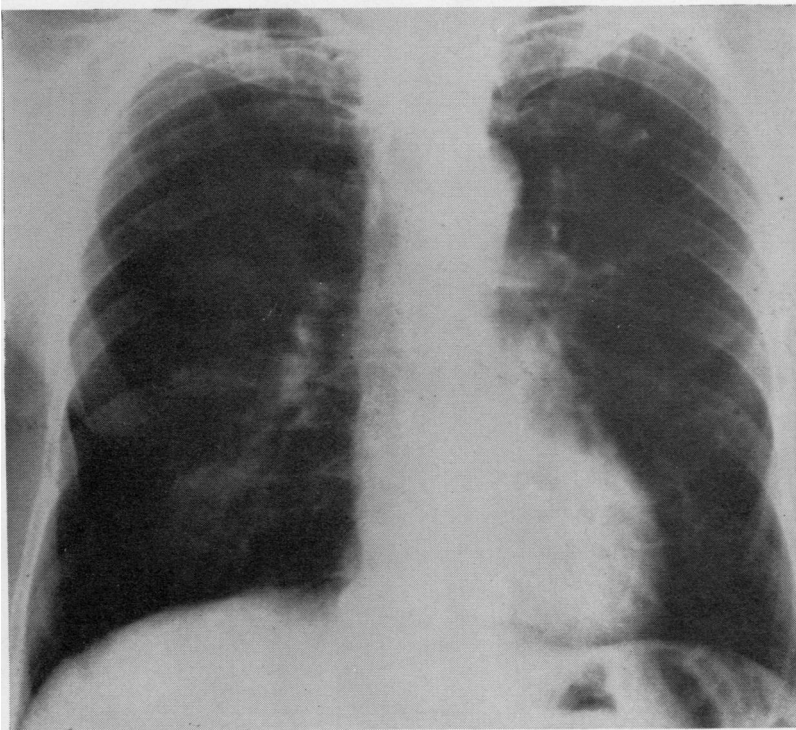


FIG. 7. 23 January 1962. *Mass miniature radiograph showing no significant change from Figure 6.*



FIG. 8. *Histological appearances of the tumour, which is highly cellular, with dark irregular nuclei and chondrosarcomatous elements. (Haematoxylin and eosin. $\times 150$.)*

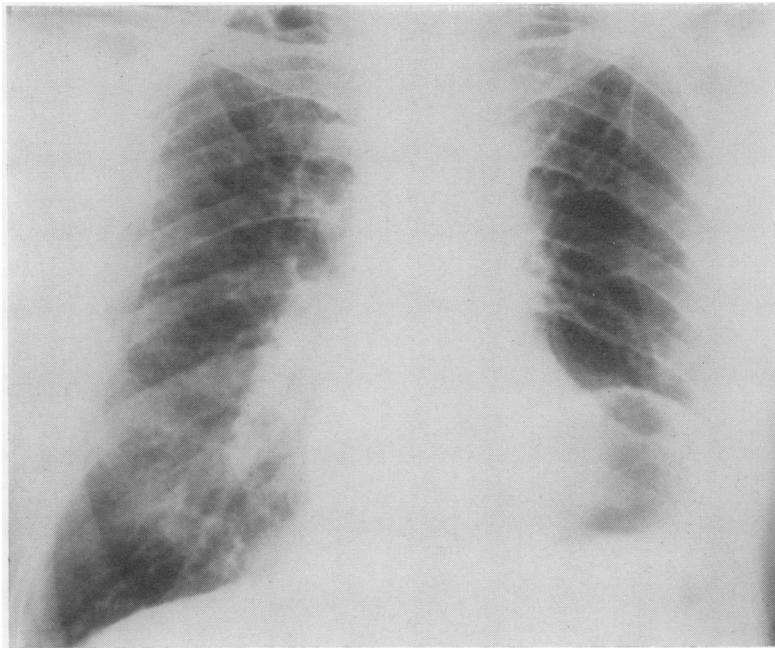


FIG. 9. *Chest radiograph, January 1969. The elevated left side of the diaphragm follows division of the phrenic nerve, which was surrounded by involved lymph nodes.*

lung biopsy confirmed fibrosis but in addition revealed a chondrosarcoma. They postulated a sequence of events commencing with pulmonary fibrosis through cartilaginous metaplasia to frank neoplasia.

Malignant changes in hamartomata and chondromata of the lung have been described (Simon and Ballon, 1947; Fasske, 1965). The gradual enlargement of the radiological shadow over a number of years in the present case may be an example of this.

Due to the rarity of these tumours the best method of management remains speculative. Repeated endoscopic removal has been advised (Daniels *et al.*, 1967), but in our case this would not have been appropriate, particularly as the lymph nodes were involved. It would seem that in view of the low morbidity and mortality associated with thoracotomy this should be the procedure of choice when reconstructive procedures could be combined with resection, particularly in the 'tracheobronchial' variety.

I wish to acknowledge the generous help I have received from Mr. M. Paneth, under whose care this patient remains, from Dr. K. F. W. Hinson, who has given advice on histological aspects, and from the photographic department of the Royal Marsden Hospital.

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