

Intrathoracic carotid-body tumour (chemodectoma)

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Tumours of the chemoreceptor organs of the neck, the carotid bodies, and the glomera jugulare are well-known lesions presenting as swellings in relation to the bifurcation of the carotid artery; by 1959 over 500 such tumours had been described in the world literature (Sessions, McSwain, Carlson, and Scott, 1959). Similar tumours have, from time to time, been described in other parts of the body. The present case is the fifteenth to be described which arose in an intrathoracic situation and the fourth whose origin was in the extrapleural tissues of the paravertebral sulcus.

CASE HISTORY

A man of 48 years was admitted to the chest unit because routine radiography, carried out after he had developed a cold and cough, revealed an opacity in the left side of the chest. Further radiographs showed an ovoid mass, 4×3 cm., lying on the left third, fourth, and fifth ribs posteriorly. Sputum examination and bronchoscopy showed no abnormality, and he was subjected to thoracotomy with a presumptive diagnosis of peripheral lung carcinoma.

OPERATION A soft, oval, extrapleural tumour, 4×3×3 cm., was found in the paravertebral gutter posterior to the aorta. It was firmly fixed to the ribs and adjacent muscles and was clearly separate from the major vessels. An attempt was made to remove the lesion, but during manipulation it was torn and there was extensive haemorrhage. A portion was removed for biopsy, and removal of the tumour was abandoned because of the bleeding.

POST-OPERATIVE COURSE Convalescence was delayed by an anterior myocardial infarction, but full recovery ensued and the patient returned to work in the local metallurgical industry. He was seen in the out-patient department at intervals, and, when last seen four and a half years after the operation, he remained well apart from some aching in the scar and dyspepsia due to a duodenal ulcer. Serial radiographs showed no increase in the size of the tumour.

HISTOLOGY Sections of the tumour showed it to consist of large cells with vesicular nuclei and abundant

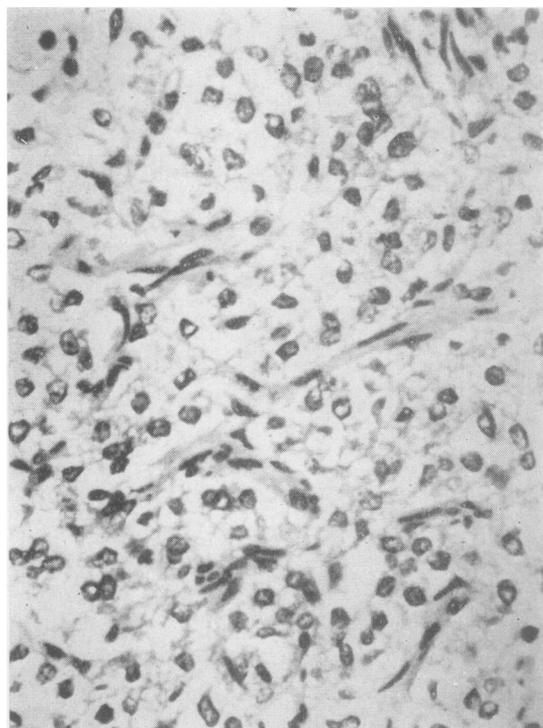


FIG. 1. Shows large tumour cells with vacuolated cytoplasm (*H. and E.* ×400).

cytoplasm which in some instances was vacuolated. The cells were arranged in groups separated by a fine connective tissue stroma which contained large blood vessels. No chromaffin granules were seen on special staining (Fig. 1).

DISCUSSION

Histologically this tumour corresponded to the published description and illustration of chemodectoma (carotid-body tumour) and also to examples of this lesion from the neck. The pattern seen in the biopsy was regular; cell pleomorphism was not seen, and it was decided to observe the

patient with the intention, should an increase in size be observed in serial radiographs, that removal of the tumour under hypothermia would be undertaken. Malignancy is rare in these tumours, although their removal is often hazardous because of the large vascular supply and a tendency to encircle large vital structures, so this was considered a justifiable therapeutic decision.

Twelve previous reports of intrathoracic chemodectoma were collected by Barrie (1961), who added two cases of his own. Ten of the 15 patients were men, and only five women. Four tumours were found incidentally at necropsy and eight, including the present case, on routine radiological examination of the chest. Two patients have died, one two years after removal of a nodule, 4 cm. in diameter, on the surface of the lower lobe of the right lung (Gillis, Reynolds, and Merritt, 1956), and the other three years after biopsy of a supraclavicular metastasis from a tumour presumed to have arisen in an aortic body (Monro, 1950). In the remaining patients who were diagnosed during life, survival without recurrence was noted four, 10, and 12 months and three and six years later. In one patient, as in ours, operative treatment was abandoned, and in another a biopsy was taken and treatment with radiation was instituted. It appears that, where the findings at operation do not suggest overt malignancy, heroic attempts to excise the tumour are unnecessary.

The site of origin of the tumours was variable. Four were in the situation usually occupied by the aortic body, two in the mediastinum, one in the lung, one around the subclavian artery, and one in the substance of the lung itself. In four patients the tumour was in the paravertebral sulcus, in two on the right (Duncan and McDonald, 1951) and in two on the left (Shaw and Kennedy, 1956, and the present case). Anatomically these last four tumours were on the

line of the sympathetic chain, and it is possible that they have arisen in chemoreceptor structures, perhaps each only consisting of a few cells, which are present in relation to that chain. Similar tumours have been described in the extremities, again at sites where chemoreceptor organs are unknown (Smetana and Scott, 1951).

SUMMARY

A case of chemodectoma (carotid-body tumour) arising in the left paravertebral sulcus of a man of 48 is described. Biopsy only was undertaken because of excessive bleeding at operation, and the patient has remained well for four and a half years. This lesion forms one of the group of 'round shadows in the chest', which is of benign character and does not require extensive surgical interference, although exploration to exclude carcinoma is still necessary.

Three previous tumours have been described in the same situation, and it is suggested that these have arisen from chemoreceptor organs adjacent to the dorsal sympathetic chain.

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