Diagnostic Images

Goitre and neurofibroma

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The patient

A male aged 35, presented complaining of neck swelling for 6 months. Chest radiograph showed a left upper zone para-mediastinal mass. He was referred for computed tomographic scan.

Figure 1 Chest radiograph demonstrating mass at right upper zone. There is no tracheal shift and there is slight widening of the right third posterior intercostal space indicating a neurogenic tumour.

Figure 2 Uniform enlargement of the left lobe of the thyroid (arrow) with slight compression of the adjacent wall of the trachea. (stc – sternocleidomastoid, cl – clavicle, c – carotid artery, j – jugular vein, Tr – trachea).

Figure 3 (a) and (b) The right posterior paravertebral mass (white arrow) has uniform soft tissue attenuation with a small lobulation posteriorly (black arrow) (c – carotid, s – subclavian, br – brachiocephalic vein, i – innominate artery, Tr – trachea, o – oesophagus).

Figure 4 Thickening of the cortex and enlargement of the right fourth rib posteriorly.

Figure 5 (a) and (b) Uniform contrast enhancement of the paravertebral mass. Note contrast medium in aortic arch (A) and superior vena cava (SV).

Comment

Approximately 90% of posterior mediastinal tumours are neurogenic. In children and adolescents these are malignant such as neuroblastomas or ganglioneuroblastoma, whereas in adults the Schwannoma, neurofibroma or paraganglioma predominate. Schwannomas and neurofibromas arise from the nerve sheath while paraganglioma is similar to the pheochromocytoma (but not reacting with chromate) and can be functioning or non-functioning. The ganglioneuroma arising from the sympathetic chain occurs in both children and adults. The nerve sheath tumours (Schwannomas and neurofibromas) are by far the commonest neurogenic tumours of adults ($\pm 70\%$), the paraganglionomas the least common (9%) while about one third of neurofibromas are associated with neurofibromatosis.

Nerve sheath tumours are usually rounded with a smooth margin. Widening of the intercostal space, thickening of the posterior aspect of a rib and enlargement of the neural foramen are well recognized signs occurring with Schwannomas and neurofibromas, best shown with computed tomography. There is a uniform increase in tissue attenuation with contrast enhancement but on plain scan the Schwannoma tends to be of lower attenuation than the neurofibroma. The associated 'goitre' was purely fortuitous, was hard on palpation and on histology was shown to be due to Hashimoto's thyroiditis, hence the side-to-side compression of the trachea. The thyroid has smooth margins and is of homogeneous attenuation.

Reference

- REED, J.C., HALLET, K.K. & FEIGIN, D.S. (1978). Neural tumours of the thorax: Subject review from the AFIP. *Radiology*, **126**, 9.