

# Hyperthyroidism – an unusual feature of thyroid carcinoma



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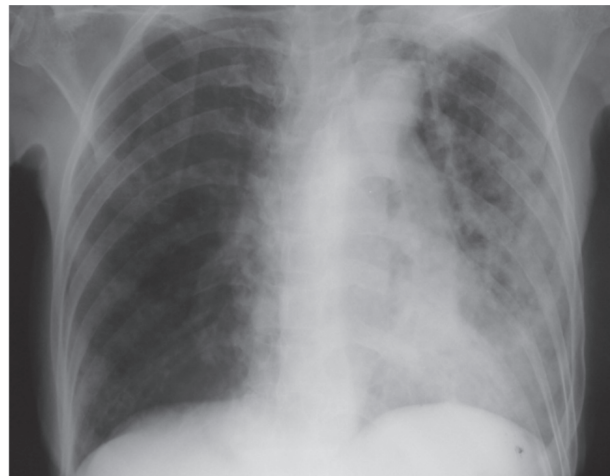
A 53-year-old woman presented with thyrotoxicosis, which is an unusual manifestation of thyroid carcinoma. Hyperthyroidism associated with malignancy usually occurs with well-differentiated follicular thyroid carcinoma. We show that extensive disease burden contributed to the development of hyperthyroidism, the occurrence of the Jod-Basedow phenomenon and the subsequent death of the patient. This diagnosis and treatment can be challenging.

## Case description

A 53-year-old woman presented with a painless swelling of the left parieto-occipital scalp region of 6 months' duration. Painless thyromegaly had been noted a month before presentation. Besides significant weight loss, there were no overt symptoms of thyrotoxicosis. There was no personal or family history of autoimmune disease, and prior head and neck irradiation was not elicited.

Examination revealed marked cachexia, sinus tachycardia of 105/min and a non-tender, soft left parieto-occipital scalp mass measuring 10 x 12 cm. She had moderate thyromegaly (30 g), which was hard in consistency, with a bruit and lymphadenopathy of the bilateral anterior triangles of the neck. There were no features of Graves' ophthalmopathy or dermopathy. An additional finding was left lower lung consolidation.

Thyroid function test results were consistent with frank primary hyperthyroidism: free thyroxine (FT<sub>4</sub>) 46.3 pmol/l (normal 10.3 - 21.9 pmol/l) and thyrotropin (TSH) 0.01 IU/l (normal 0.35 - 4.5 IU/l). Anti-thyroglobulin and anti-thyroid peroxidase autoantibodies were negative. A Trucut biopsy of the scalp mass was performed. Histological review demonstrated well-formed thyroid follicles with occasional nuclear atypia and pleomorphism indicating metastatic follicular thyroid carcinoma. A whole-body technetium scan revealed uptake in multiple bony sites, liver, lung parenchyma and the rim of the scalp mass but minimal uptake in the thyroid gland. The patient had received Lugol's iodine for the control of hyperthyroidism prior to the technetium scan, which interfered with the interpretation of this investigation. A chest radiograph showed infiltrations in the left lung (Fig. 1), suggestive of metastasis. Computed tomography of the skull



*Fig. 1. Chest radiograph showing widespread infiltration in the left lung with minimal pleural effusion.*

showed full-thickness erosion of the left parietal and occipital skull bones with intracranial extension of the scalp mass (Fig. 2).

The diagnosis of functional metastatic thyroid carcinoma was based on the finding of follicular carcinoma on histological examination of the scalp mass and hyperthyroidism.

## Hospital course

We attempted to render the patient euthyroid to permit a safe total thyroidectomy. She was commenced on 40 mg daily of carbimazole and Lugol's iodine was initiated 6 hours after the first dose of carbimazole. A Jod-Basedow effect (induction or exacerbation of thyrotoxicosis following administration of iodine in the presence of a goitre and iodine deficiency) occurred within 5 days of commencing Lugol's iodine, with FT<sub>4</sub> levels surging from 46.3 pmol/l to 80 pmol/l. This response to Lugol's iodine was unexpected. In response to the dramatic