SECONDARY NEOPLASMS OF THE THYROID GLAND

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SECONDARY neoplasm of the thyroid gland is uncommon, but perusal of the literature reveals a higher incidence than might be generally assumed. Muller (1892) reported the incidence of macroscopic metastatic carcinoma of the thyroid as 1.5% in all cases of carcinoma, regardless of primary site. The incidence in cases of sarcoma was 3.1%. Kitain (1922) recorded the incidence in regard to carcinoma to be 3.1% and Willis (1931) as 5.2%. The latter author, however, stated that these figures were based on routine sectioning of the thyroid gland. Mortensen, Woolner and Bennett (1956) from the Mayo Clinic examined 467 thyroid glands both macroscopically and microscopically but found only 18 cases of secondary carcinoma, an incidence of 3.9%. McGavack (1951) found 125 cases of secondary carcinoma of the thyroid but made no mention of its incidence. Naylor (1959) examined 300 cases of generalized lymphoblastoma and found the thyroid to be involved in 17.7%. Of primary tumours resulting in metastasis within the thyroid gland McGavack found the commonest to be hypernephroma, gonadal tumours and cancer of the large bowel. Mortensen, Woolner and Bennett, in their series of 18 cases, however, found the commonest to be tumours of the lymphatic system, the breast, lung and rectum; the only other neoplasms to metastasize to the thyroid were ovary, kidney, colon and larynx. In all these 18 cases metastasis had occurred in other organs as well. Bruce and Michie reviewed 1,600 patients who had undergone thyroidectomy and found four cases of secondary carcinoma: two arose from hypernephroma, one from cancer of the colon and one from cancer of the rectum. These authors also collected 22 cases from the literature of secondary hypernephroma of the thyroid: 15 of these patients had post-mortem examinations and in 14 metastasis had taken place in other organs as well. The only case of solitary metastasis within the thyroid was in a patient who died immediately after thyroidectomy (see also Mortensen, Woolner and Bennett).

Two further cases are reported here. In both metastasis occurred elsewhere in the body.

Case 1

A woman aged 65 was seen in November 1949. Since birth she had had three moles on her right leg, and 10 months prior to coming to hospital she had knocked one of them and this had become ulcerated. The lesion was widely excised (Sir L. Barrington-Ward). After operation, radon seeds were implanted locally and a course of deep X-ray therapy given to the right groin. The histological report on the tumour was: 'A pigmented neoplasm with large rounded and irregular cells in clumps in the subcutaneous tissue. The superficial cells look benign for the most part. The deeper cells are probably malignant, and some cells have an intradermic distribution. This seems to be a malignant melanoma'. She remained well until 1952 when the right inguinal nodes became enlarged. A block dissection of these glands was performed in August and the histology of the tissue removed revealed spheroidal, anaplastic and giant cells from pigmented melanoma. In July 1952 she was suspected of having developed chronic cholecystitis and a non-functioning gall bladder was found on X-ray. In June 1954 cholecystectomy was undertaken for acute cholecystitis. The pathological report was: 'Partly necrotic secondary malignant melanoma replacing the fundus and invading the body of the gall bladder' (Dr. P. M. Peters). There was no evidence of recurrence of melanoma in the right leg or groin. Over the following three years she remained well. In March 1957, however, she presented with a mobile lump in the left lobe of the thyroid and a fixed mass in the left groin. The latter was removed and histology disclosed secondary melanoma. The nodule in the thyroid enlarged and she developed dyspnoea, stertorous breathing and a hoarse voice. In April 1957 a partial thyroidectomy and a temporary tracheostomy were carried out (Mr. R. S. Murley). She was given a post-operative course of X-ray therapy to the neck. The thyroid specimen was reported on as follows (see Fig. 1): 'Almost amelanotic anaplastic secondary malignant melanoma in and around the thyroid. There are many mitotic cells and the growth appears to be of high malignancy' (Dr. P. M. Peters). Soon after the operation, however, she developed a further recurrence which progressively involved the oesophagus and the trachea, and deposits later appeared in the lungs. She died in January 1958. Post-mortem examination confirmed the recurrence of melanoma.

Comment

This appears to be the only recorded case of secondary melanoma of the thyroid gland. It is not mentioned by Anderson (1948) or Willis (1953). This case was previously reported by

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FIG. 1.—Amelanotic, anaplastic, secondary malignant melanoma of the thyroid ($\times 125$).

(Henriques, 1955) in regard to secondary melanoma of the gall-bladder. Although she survived nine years from the onset of malignancy and had two apparently single secondary deposits at different times, multiple foci later caused her death.

Case 2

A woman aged 81 was admitted in February 1959 with pneumonia. Her chest X-ray report was as follows: 'Considerable vascular congestion is present in both lung fields and the appearances suggest bronchopneumonic changes in the bases. A shadow in the right upper hilar region appears to be entirely vascular. Some cardiac enlargement is present and there may be a shadow behind the heart due to a hiatal hernia' (Dr. L. S. Carstairs). She was discharged after one month's treatment but the right upper lobe opacity persisted radiologically. In May 1959 she attended the Radiotherapy Department (Mr. T. A. Green) complaining of left parasternal pain, cough with sputum, dyspnoea and loss of weight. On examination she was pale and slightly dyspnoeic. There was moderate air-entry into all zones with crepitations at both bases and over the right upper zone. There was a hard irregular enlargement of the left lobe of the thyroid gland, but no evidence of local spread, lymph gland enlargement, tracheal deviation or signs of thyrotoxicosis. Investigations were reported on as follows: Hb 93%. X-ray chest (tomograms): 'Tomography confirms the presence of a lobulated mass in the right upper hilum. At its lower limit, on several A.P. cuts, there appears to be some calcium within the outline of the mass, but from the lateral film the calcium appears to be outside the mass and situated anteriorly. The appearances are in favour of a neoplastic lesion' (Dr. L. A. Carstairs). I^{131} Uptake and scan: Euthyroid; warm nodule in left lobe of thyroid but no uptake in chest area. Sputum: No carcinoma cells seen. Bronchoscopy: Right upper lobe orifice was narrowed and only one segmental orifice visible. This appears to be compressed from above. Remainder of bronchial tree normal.

At exploration of the gland in June 1959 (Mr. Desmond Farley) the left lobe was found to be enlarged, and a hard nodule within its substance was excised and a frozen section examined. This was reported on as probable carcinoma but it was impossible to state

FIG. 2.—Anaplastic small spheroidal and oat cell carcinoma of the thyroid, secondary from a bronchial carcinoma ($\times 125$).

whether the tumour was a primary growth of the thyroid or a secondary deposit from a bronchial carcinoma (Dr. Peters). Left hemithyroidectomy was performed. Paraffin sections of the specimen were reported as follows (see Fig. 2): 'Anaplastic small spheroidal and oat-celled carcinoma in the left lobe of thyroid. The structure is compatible with a secondary from a bronchial carcinoma'. She was given post-operative radiotherapy to the neck, chest and supra-clavicular regions. Further deposits, however, later appeared in the right radius and the right ischiopubic ramus. Despite further radiotherapy to these sites she died in December 1959. Post-mortem examination was refused.

Comment

Prior to operative biopsy of the thyroid gland it was impossible to decide whether this growth was a primary carcinoma of the thyroid with a secondary deposit in the lung or a primary growth of the latter with metastasis to the thyroid.

Summary

The literature has been reviewed and two further cases of secondary carcinoma of the thyroid gland are presented. Although rare, this condition seems to be worthy of consideration when diagnosing swellings in the thyroid gland, especially in patients of the cancer age-group.

It is noted in all the 18 cases reported by Mortensen and others and in all but one of the 15 cases reported by Bruce and Mitchie, which came to post-mortem examination, that metastasis had occurred to other organs as well as to the thyroid gland.

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