Thyroid metastasis of clear-cell renal carcinoma

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In clinical practice secondary carcinoma in the thyroid gland is rare, but it can lead to difficulties in clinical and pathological diagnosis and management, as the following report illustrates.

Case report

A 37-year-old woman was seen for evaluation of a goitre that had been observed by her family physician for a year and a half. She had no complaints that could be related to thyroid dysfunction but had noticed an increase in the volume of her neck 2 months before this consultation. She had not recently been ill, although she reported an episode of asymptomatic hematuria 3 months previously.

The thyroid was slightly and regularly enlarged and firm. There was no cervical adenopathy. No abnormalities of the abdomen or the flanks were detected by physical examination. The blood pressure was 140/80 mm Hg. The hematocrit was 53%, the hemoglobin level 17 g/dl and the erythrocyte sedimentation rate normal. Serum levels of triiodothyronine, total thyroxine and thyroid-stimulating hormone were 156 ng/dl, 7.3 μg/dl and 2.5 μU/ml respectively — all normal. No antimicrosomal or antithyroglobulin antibodies were detected in the serum. The thyroid took up 33% (a slightly high proportion) of a dose of iodine 131, and scanning showed a heterogeneous distribution of the radioactivity in the regularly enlarged gland. A diagnosis of simple nontoxic goitre was made and levothyroxine, 0.2 mg/d, prescribed.

Because of the history of hematuria intravenous pyelography was done; there was difficulty in defining the contour of the left kidney. Computer-assisted tomography and ultrasonography of the abdomen showed a voluminous mass in the upper region of the left kidney. A left radical nephrectomy was then performed and 400 g of tumour excised. Pathological study revealed a typical clear-cell renal carcinoma (hypernephroma) without evidence of vascular, lymphatic, adrenal or urinary tract spread. All 10 paraaortic lymph nodes submitted with the kidney specimen were free of tumour.

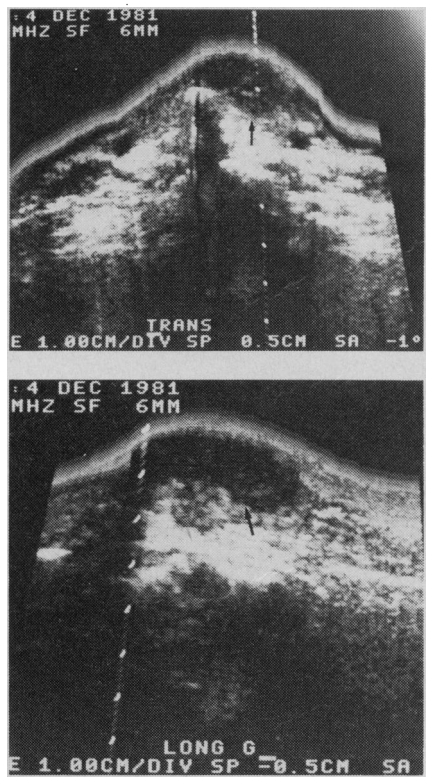

FIG. 1—Transverse (top) and longitudinal (bottom) B-scans over painful lump demonstrate hypoechogenic solid mass (arrows) mainly in left lobe of thyroid.

Three days after the operation the patient felt a painful lump on the left side of her neck. The prominent, hard mass was in the left side of the thyroid. There was no associated cervical adenopathy. Thyroid scanning could not be done because of the levothyroxine treatment. The hematocrit was now 53.7% and the hemoglobin level 17.9 g/dl. Ultrasonography by means of a 5-MHz short-focus transducer with a face 6 mm in diameter demonstrated a hypoechogenic solid mass measuring 4 × 1.5 × 2.5 cm within the left lobe of the thyroid and in the region of the isthmus (Fig. 1).

Because of the possibility of a thyroid metastasis of the renal carcinoma the thyroid was explored surgically and the entire left lobe removed. The right lobe was normal. The cut surface of the surgical specimen revealed a large, firm, yellowish-grey mass 3 cm in diameter. Small satellite nodules were present, but the resected margin was intact. Frozen sections stained for fat, then examined by light microscopy, and ultrathin sections examined by electron microscopy showed that the thyroid tissue was essentially normal and that the tumour (Figs. 2 and 3) was similar in all respects to the clear-cell renal carcinoma previously removed. The two cervical lymph nodes included in the thyroid specimen were free of tumour.

Investigations that included chest roentgenography and scanning of the spleen, liver and bones did not show any evidence of tumour spread elsewhere. The patient was discharged, still taking levothyroxine, 0.2 mg/d. The only persistent abnor-

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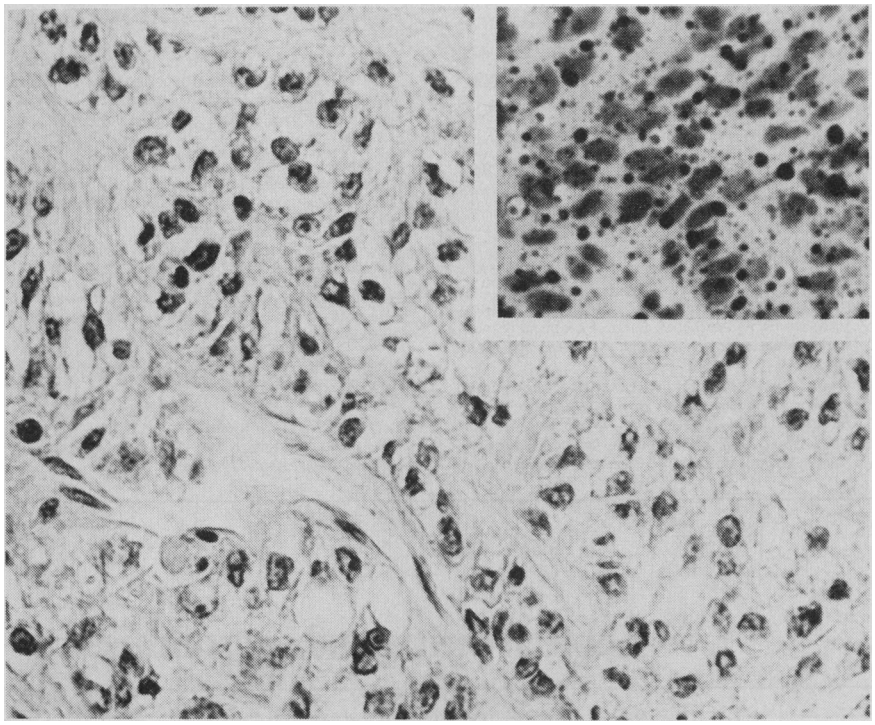

FIG. 2—Thyroid metastasis of clear-cell renal carcinoma: vacuolated tumour cells in nests and cords surrounded by fibrous tissue bands (hematoxylin–eosin; ×250). Inset shows black intracytoplasmic fat droplets in fresh-frozen section (oil red O; ×250).

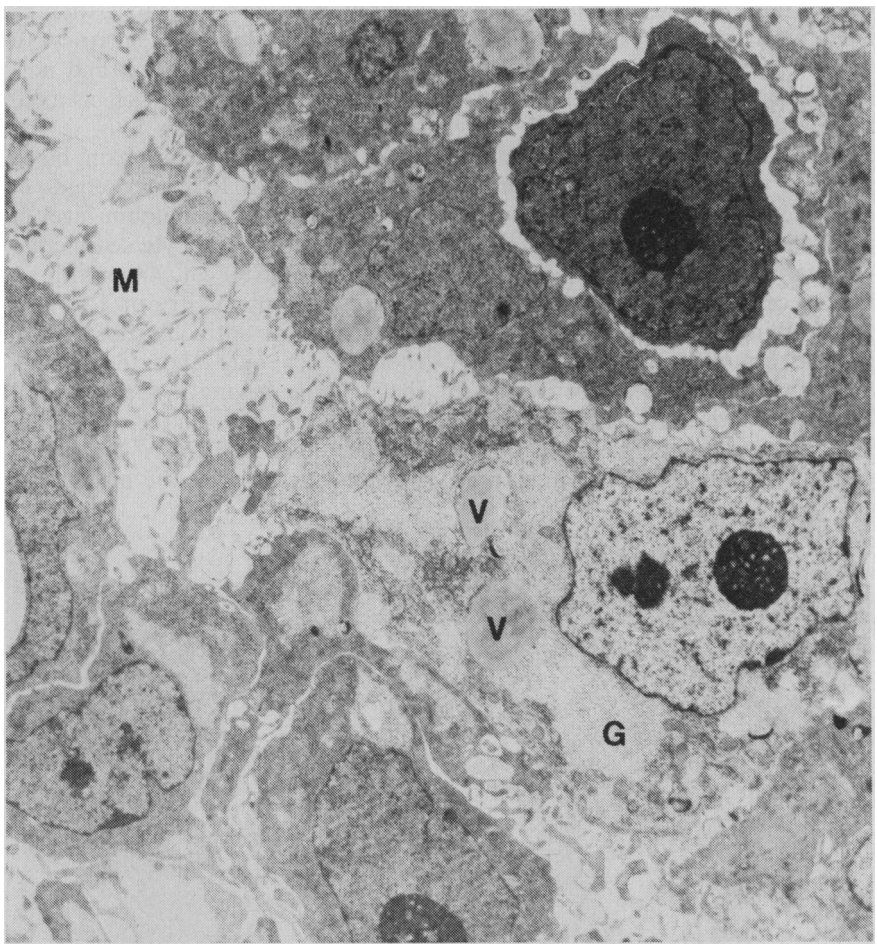

FIG. 3—Electron micrograph of metastatic tumour cells. Microvilli (M), fat vacuoles (V) and finely granular glycogen (G) support renal origin of tumour (uranyl acetate–lead citrate; ×7980).

malities were the high hematocrit (53.7%) and hemoglobin level (17.9 g/dl). Six months postoperatively the patient was still well and taking replacement therapy.

Discussion

Although metastases in the thyroid are not uncommon, being found in 2% to 24% of all autopsies,[1] secondary carcinoma accounts for only 4% of all malignant disease found before death in this gland.[1,2] A Mayo Clinic study of a surgical series in a 20-year period showed an incidence of metastases to the thyroid of only 0.07%,[1] with renal adenocarcinoma being the most common tumour, followed by carcinomas of breast, lung, skin and digestive tract.[2]

An isolated renal tumour metastasis to the thyroid gland appears as a solitary "cold" nodule[3] on a ^{131}I scan or may be diagnosed by ultrasonography.[4] Thyroid metastases can occur at any time during the growth of a renal adenocarcinoma; latent intervals of up to 23 years have been reported.[3,5] The long latency can make the diagnosis difficult, especially if the previous renal history is neglected and the metastasis is the only presenting sign of renal adenocarcinoma.[1,2,6] At operation the surgeon's attention should be drawn to the colour of the excised thyroid metastasis, which has sometimes been reported as yellow.

Our case is remarkable because of the sudden clinical appearance of the metastasis, immediately following nephrectomy and 3 months after studies had shown no thyroid dysfunction. In a similar case a thyroid metastasis suddenly appeared just after renal angiography.[7] Such a course is uncommon, as renal tumour metastases generally grow slowly. If the patient is known to have a renal carcinoma the pathologist should arrange for fat stains and electron microscopy to show the character of the thyroid tumour.[5]

Another point of discussion has been whether metastatic carcinoma tends to appear in a normal[6] or in an abnormal[1,8] thyroid. The reported thyroid abnormalities have been colloid or adenomatous goitre and thyroiditis. In our case scanning showed the thyroid to be enlarged and heter-

ogeneous, but the patient was clinically euthyroid, and the excised thyroid tissue was histologically normal.

Two prognostic factors are recognized in thyroid metastases of renal adenocarcinoma. First, the length of survival is indirectly related to the tumour-free interval,[9] although the interval cannot be determined if tumour spread was diagnosed previously or concomitantly, as has happened in a few cases. The second and major factor is the character of the metastasis: with an isolated metastasis that is completely excised the long-term prognosis is favourable.[1,3] Thus, after correct diagnosis, which sometimes necessitates extensive pathological studies, surgical management can be successful in dealing with this type of solitary tumour metastasis.

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Acne, arthritis and sacroiliitis

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The association of arthralgias and arthritis with certain skin conditions is well recognized but not fully understood. Since Burns and Coleville[1] reported in 1959 the case of a 16-year-old boy with acne conglobata and arthralgia several papers have been published describing a total of 21 patients with a distinctive rheumatic syndrome associated with acne conglobata or acne fulminans. This syndrome is characterized by polyarthralgia or arthritis in an asymmetric distribution, with fever, malaise, anorexia and weight loss, usually in young men with severe, tender, ulcerating acne lesions of their chest and back.[2] Only 1 of the 21 patients described was recognized as having sacroiliitis.[3]

Here we report the case of a young man with acne fulminans, arthritis and sacroiliitis.

Case report

A 17-year-old adopted autistic boy with severe acne conglobata (Fig. 1) of 4 years' duration had pleuritic pain in the lower left anterior area of the chest and a low fever (temperature 38.3°C) for 2 weeks. There were no other respiratory symptoms. Roentgenograms of the chest and upper gastrointestinal tract were normal. He was treated with ibuprofen and analgesics for suspected pleurisy and with minocycline, 50 mg/d, for the acne. Anorexia that had begun with the chest pain led to a loss in body weight of nearly 6 kg in 6 weeks. Four weeks after the onset of the chest pain left femoral trochanteric pain developed that necessitated the use of a cane for walking. Passive movement of the left hip was severely limited by pain for 6 weeks. There was no history of previous psoriasis, diarrhea, abdominal pain, urethritis or ocular inflammation. Examination after the trochanteric pain had cleared with indomethacin therapy revealed no sacroiliac tenderness, a chest expansion of 6.0 cm and normal pain-free movement of his axial skeleton and both hips.

At the onset of the hip pain, blood tests revealed a leukocyte count of 11.7×10^9/l, a hemoglobin level of 13.3 g/dl, an erythrocyte sedimentation rate (ESR) of 44 mm/h, a C-reactive protein titre of 1:64 and an antinuclear antibody titre of 1:10 (normal for our laboratory), with the reaction having a speckled pattern; rheumatoid factor, viral antibodies and anti-DNA antibodies were not detectable, the last by the

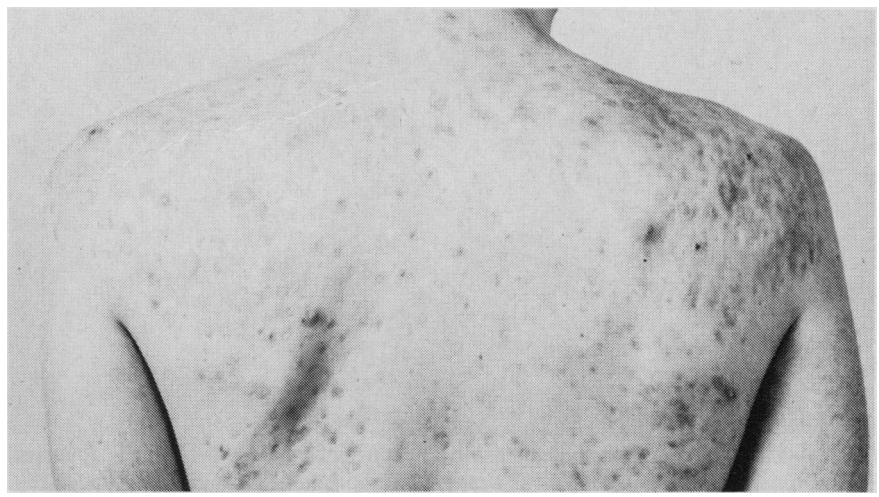

FIG. 1—Extensive scarring acne in 17-year-old boy.

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