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Benign and malignant pseudothyroiditis*

by

S. STRAUSS and N. LAURIAN (Petah-Tiqva, Israel)

Introduction

Subacute thyroiditis is an inflammatory disease of the thyroid gland of unknown aetiology. Its clinical manifestations and laboratory findings are variable and are frequently accompanied by systemic symptoms and signs.

Benign and malignant tumours of the thyroid and of the adjacent structures may manifest clinical, biochemical and radio-active scan features similar to those found in subacute thyroiditis, thus making diagnosis difficult or incorrect.

An example of a benign thyroid neoplasm resembling subacute thyroiditis is a haemorrhage into a thyroid nodule or cyst (Volpe, 1971; DeGroot and Stanburry, 1975). The resemblance of thyroid cancer to subacute thyroiditis has also been documented in the literature (Rosen *et al.*, 1966; Volpe, 1971; Shimaoka *et al.*, 1976; Rosen *et al.*, 1978). Rosen *et al.* (1966) described a 54-year-old woman with a painful goitre, caused by an anaplastic carcinoma of the thyroid who was initially diagnosed as suffering from subacute thyroiditis. Shimaoka *et al.* (1976) described a case of malignant lymphoma of the thyroid resembling subacute thyroiditis. Finally, tumours of the adjacent structures, such as the parathyroids, may also present similar features to those of subacute thyroiditis. Rosen *et al.* (1978) described a 55-year-old woman who has been diagnosed for 10 years as suffering from subacute thyroiditis. At operation, a parathyroid carcinoma invading the right lobe of the thyroid was found.

The purpose of the forthcoming case reports and discussion is to demonstrate the diagnostic pitfalls in such cases and to present evidence for the correct diagnostic evaluation.

Case Reports

Case 1

A 27-year-old female was admitted to our department with a painful upper cervical lump which appeared 2 days previously.

On physical examination a round, tender nodule was palpated in the right upper lobe of the thyroid. There were no palpable cervical lymph nodes. The T_4 level was 10μg. per cent, and blood sedimentation rate was 30/65. I^{131} thyroid scan demonstrated a cold nodule in the upper right lobe. It was thought that the patient had a focal subacute thyroiditis, a diagnosis supported by the clinical history and by the characteristic radio-active scan. Nevertheless, faced with the impressive elasticity of the nodule and only a slight elevation of the blood sedimentation rate, a suspicion of bleeding into a thyroid cyst or nodule was considered so a diagnostic puncture was performed. About 3 ml. of red-brown liquid were aspirated. Soon after aspiration, the lump resolved with disappearance of the pain and tenderness.

Case 2

A 70-year-old female was admitted to our department with a painful and tender mass, which appeared in the left lobe of the thyroid gland several days earlier. The patient appeared well and had no relevant past history.

On physical examination a firm, tender nodule, which moved on swallowing, was palpated in the lower pole of the left thyroid lobe. There were no palpable cervical lymph nodes. Blood sedimen-

Department of Otolaryngology, Hasharon Hospital, Petah-Tiqva, Israel.

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tation rate was 68/120, and the T_4 level was 3.6μg. per cent. A tentative diagnosis of focal subacute thyroiditis was made and therapy begun.

Several days later, a radio-active thyroid scan demonstrated a cold nodule in the region of the painful lump. I^{131} uptake was normal. Laryngeal examination revealed a slight paresis of the left vocal cord. The initial diagnosis remained in doubt, so an exploratory neck operation was performed. Frozen section histology revealed an anaplastic carcinoma of the thyroid gland.

Case 3

A 39-year-old female was admitted to our department for the evaluation of a large painful neck mass which had appeared two days earlier. On physical examination a large, tender, rubbery mass was palpated in the right lower side of the neck. Blood sedimentation rate was 47/76. The T_4 was 9.5 μ g./100 ml., calcium 13.2 mg. per cent, phosphorus 2.1 mg. per cent. Radio-active thyroid scan revealed a large cold nodule in the right lobe.

It was believed that the patient had focal subacute thyroiditis, and steroid therapy was started. The abnormal calcium and phosphorus levels suggested hyperparathyroidism. A 24-hour urinary calcium excretion was elevated (560 mg.). Intravenous pyelography demonstrated bilateral nephrocalcinosis.

Despite steroid therapy, the patient's clinical condition did not improve. This fact, together with the impressive cervical mass and the relatively moderate blood sedimentation rate, raised the suspicion of a malignant process in the thyroid gland mimicking thyroiditis.

At surgery, a large mass occupying the right lobe and the isthmus of the thyroid gland was found. Right lobectomy and isthmectomy was performed. Pathological examination revealed that the majority of the resected lobe was composed of a large haemorrhagic-necrotic parathyroid adenoma. Scant normal thyroid tissue was found in the periphery of the mass.

Discussion

Subacute thyroiditis is a self-limiting non-infectious inflammatory disease of the thyroid gland. The exact aetiology is unknown but clinical, epidemiological and microbiological data exist to support a viral aetiology (Volpe, 1971). The disease is characterized by a firm, painful and tender enlargement of the whole or a part of the thyroid gland. Pain may radiate to the angle of the jaw or to the ear on the affected side. The local findings are frequently accompanied by general systemic manifestations such as malaise, fatigue and low-grade fever. Many patients complain of symptoms suggestive of hyperthyroidism including nervousness, palpitations, weight loss, increased sweating and heat intolerance. On physical examination the thyroid is firmly enlarged and exhibits palpatory tenderness. Cervical lymphadenopathy does not occur. Sometimes only a solitary thyroid nodule is involved, a condition known as focal or localized thyroiditis.

The natural course of the disease is generally slow, lasting between several weeks and several months. Transient hypothyroidism is observed in a quarter of the patients. After the disease process subsides, thyroid function usually returns to normal. During the early stages of the disease, thyroxin blood concentration is elevated as a result of release of thyroid hormone from the inflamed follicles into the blood stream.

Radio-active iodine uptake is usually depressed and thyroid scan demonstrates absence of iodine uptake by the involved areas of the gland. Blood sedimentation rate is significantly elevated, very often above 100 mm. in the first hour.

Thyroid antibodies, mainly against thyroglobulin, appear in a minority of the patients, usually several weeks after onset.

The differential diagnosis of subacute thyroiditis is wide and varied owing to the diffuse symptomatology, although diagnosis in severe cases is made without difficulty. It includes acute pharyngitis, acute suppurrative thyroiditis, globus hystericus, hyperthyroidism, hypothyroidism and chronic thyroiditis. Benign and malignant tumours of the thyroid gland and of the adjacent structures may also cause clinical, radio-active and biochemical manifestations resembling those of subacute thyroiditis and thus give rise to incorrect diagnosis.

Bleeding into a thyroid cyst or nodule represents a benign lesion of the thyroid gland which may manifest many features of subacute thyroiditis. This lesion may present a difficult problem in differential diagnosis, for the pain and tenderness may be very similar in location and radiation. The acute clinical course is also suggestive and a radio-active scan may demonstrate a cold nodule in the affected area. However, the pain from haemorrhage is short-lived, subsiding after a few days; the suspicious thyroid nodule is elastic and fluctuant, and systemic manifestations are mild or absent.

One patient (Case 1) presented with a painful thyroid lump which was initially diagnosed as

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focal subacute thyroiditis on a clinical basis and a radio-active scan. The correct diagnosis was suspected in view of the impressive elasticity of the lesion and the normal blood sedimentation rate. It was finally confirmed by needle aspiration.

Malignant thyroid tumour may also present manifestations similar to those of subacute thyroiditis. A rapidly-growing thyroid carcinoma may manifest severe pain and tenderness over the thyroid gland, blood sedimentation rate may be significantly elevated and a radio-active scan may demonstrate a cold nodule. The type of carcinoma which most closely mimics the picture of thyroiditis is the aggressive biological behaviour of an anaplastic carcinoma, which renders its presentation in a more acute form.

The true nature of the disease in cases of thyroid carcinoma resembling thyroiditis may be indicated by: (a) an unexpected clinical course such as rapid enlargement of the goitre with involvement of adjacent structures, or the presence of palpable cervical lymphadenopathy. In the case of Rosen *et al.* (1966) previously mentioned there was an increase in the size of the goitre with a bilateral vocal cord palsy which indicated the correct diagnosis; (b) uncharacteristic biochemical or radio-active scan findings, such as normal or mildly elevated blood sedimentation rate, or normal iodine uptake by the thyroid gland.

Rosen *et al.* (1978) suggested the name of 'malignant pseudothyroiditis' for cases of thyroid cancer presenting initially as chronic or subacute thyroiditis. They described six patients; three with papillary carcinoma, one with mixed papillary—follicular carcinoma, one with anaplastic carcinoma, and a case of parathyroid carcinoma, all of them being initially diagnosed as having thyroiditis and being treated accordingly. The correct diagnosis was established from one month to ten years after the initial diagnosis was made.

Another patient (Case 2) was also misdiagnosed at first as subacute thyroiditis; this was based on the impressive clinical findings in the absence of palpable lymph nodes and on the elevated blood sedimentation rate. Only later, when a vocal cord palsy was observed, was doubt about the initial diagnosis raised. Exploratory neck surgery revealed an anaplastic carcinoma of the thyroid.

Tumours of cervical structures adjacent to the thyroid gland might also present, although rarely, clinical, biochemical and radio-active scan features resembling those of subacute thyroiditis. Parathyroid neoplasms are tumours as such. The parathyroid glands are adherent to the posterior capsule of the thyroid gland or are even embedded in its substance. A large parathyroid adenoma or parathyroid carcinoma may compress the normal thyroid tissue from behind or from within and present clinically as a thyroid mass and radioactively as a cold nodule. The clinical picture may be even more misleading, as large adenomas frequently show areas of degeneration or cystic changes (Hoehn *et al.*, 1969), and a haemorrhage or a necrotic process in such a large adenoma may cause pain and tenderness over the thyroid lump, thus mimicking the exact clinical picture of subacute thyroiditis.

Our third patient (Case 3) presented with a painful and very tender cervical lump in the thyroid region. Blood sedimentation rate was elevated, and radio-active scan demonstrated a large cold nodule in the right lobe of the thyroid. Even the high calcium and low phosphorus levels did not lead to the correct diagnosis, since such large, painful parathyroid adenomas are very rare, and it was thought that the patient had an acute attack of focal subacute thyroiditis superimposed on pre-existing parathyroid hyperactivity. Only the irregular clinical course and the moderate elevation of the blood sedimentation rate encouraged us to perform a surgical exploration of the neck, which led to the correct diagnosis.

In conclusion, it is important for the clinician making a diagnosis of subacute thyroiditis to bear in mind the possible benign and malignant differential diagnoses in these cases. When doubt exists concerning the validity of the initial diagnosis, further investigations should be carried out if indicated including open exploratory surgical procedures.

Summary

Benign and malignant lesions of the thyroid gland and its adjacent structures may present clinical, biochemical and radio-active scan features resembling subacute thyroiditis. An irregular clinical course, unexpected laboratory findings and unresponsiveness to medical treatment may indicate the true nature of the disease. Whenever a subacute or chronic thyroid inflammatory process is diagnosed, the possibility of benign or malignant lesions of the thyroid or of the surrounding organs should be kept in mind. If doubt is raised, further investigations should be carried out if indicated including exploratory surgery.

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Dr. N. Laurian,
Department of Otolaryngology,
Hasharon Hospital,
Petah-Tiqva,
Israel.

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