Atypical presentation of subacute thyroiditis

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SUMMARY Subacute thyroiditis is extremely rare during the first decade of life. We describe a case of subacute thyroiditis in a 2 year old child whose initial clinical, sonographic, and radioisotopic features were indistinguishable from acute suppurative thyroiditis. The diagnosis was established by a raised antibody titre against adenovirus and typical increased thyroid function tests.

Subacute thyroiditis is a spontaneously remitting inflammatory disease of the thyroid gland that is probably caused by a viral infection.¹⁻³ Its incidence during the first decade of life is extremely rare. The youngest reported case was 3 years old.¹ The clinical distinction between acute suppurative and subacute thyroiditis is usually straightforward.² The following case report describes a 2 year old girl with subacute thyroiditis and clinical presentation of acute suppurative thyroiditis.

Case report

A previously healthy 2 year old girl presented with a history of fever and pharyngitis 10 days before admission. Phenoxymethylpenicillin 200 000 units four times a day was prescribed. She was admitted to our hospital because fever persisted. On physical examination the child appeared ill. Her rectal temperature was 40.2°C. The neck was supple and there was mild cervical lymphadenopathy. There was a diffuse, firm, warm, erythematous swelling 3×5 cm in the anterior part of her neck affecting the left lobe of the thyroid gland, without fluctuation.

Haemoglobin concentration was 105 g/l with normal indices. The white cell count was $21.5 \times 10^9/l$, with 82% polymorphonuclear cells, 1% band forms, and 17% lymphocytes. The erythrocyte sedimentation rate was 108 mm in the first hour. Urinalysis gave normal results. Blood, urine, and throat cultures gave negative results. Serologic studies for antistreptolysin-O titre and a slide test for heterophile antibody of infectious mononucleosis also gave negative results. Her serum thyroxine concentration, measured by radioimmunoassay, was 257.4 nmol/l; triiodothyronine in vitro uptake, 85%; serum thyroid stimulating hormone, 1.5 mU/l; and free thyroxine

index was greater than 38.6 pmol/l. No antithyroid microsomal and thyroglobulin antibodies were detected.

Ultrasound examination of the thyroid gland showed a diffuse enlargement of the left lobe (2.5×2.5×5 cm) without evidence of abscess formation. The right lobe appeared normal (0.5×1 cm). A ^{99m}Tc pertechnetate scan of the thyroid gland showed an enlarged left lobe without absorption of the isotope (figure) and a ⁶⁷Gallium scan showed increased absorption of the isotope in the area of the left lobe. The presumptive diagnosis was acute suppurative thyroiditis and intravenous benzylpenicillin (200 000 units/kg body weight/day) and cloxacillin (150 mg/kg body weight/day) were started. Her temperature fluctuated around 40°C for six days and then gradually returned to normal. Abscess formation was not shown on two subsequent ultrasound examinations. Recurrent fever persisted intermittently for two months. During that time the thyroid function tests were consistent with an euthyroid state and the left lobe of the thyroid gland

Figure ^{99m}Tc pertechnetate scan of thyroid gland two days after admission: the left lobe is enlarged without absorption of the isotope.

returned to normal size. The right lobe, however, enlarged to 2 cm × 4 cm, without acute inflammatory signs. Another ^{99m}Tc pertechnetate scan still showed decreased absorption over the left lobe with normal absorption over the right lobe except for its upper portion. Over the next two months the thyroid function tests were consistent with hypothyroidism (serum thyroxine concentration, 11.6 nmol/l and thyroid stimulating hormone, 60 mU/l). Virologic studies showed a raised antibody titre against adenovirus (by complement fixation test) from less than 1:10 on admission to 1:120 six weeks later, without change in the antibody titre against other viruses. The patient was asymptomatic during the next 28 months, but the thyroid function test remained hypothyroid for 20 months and then returned to normal.

Discussion

This case illustrates the clinical dilemma when one faces a febrile patient with a unilateral, acutely enlarged, red, and tender thyroid gland. As treatment differs considerably between acute suppurative and subacute thyroiditis, the differential diagnosis is of paramount importance. Bacterial infection of the thyroid gland is rare in all age groups, but more common among children and young adults.^{2,3} By contrast, most patients with subacute thyroiditis are at the third to fifth decade of life, although single case reports during the first decade of life have been published.^{1,4} Most patients experience an insidious onset characterised by malaise, fatigue, and weight loss that may precede the symptoms and signs of thyroiditis, which might be unilateral in up to 20–33% of cases.^{1,2} Hyperthyroidism is common during the initial phase of the disease and is usually followed by a hypothyroid state and eventual recovery.^{1,5}

The age and the clinical presentation of our

patient suggested the diagnosis of acute suppurative thyroiditis. Both the initial ultrasound and the radioisotope scans were consistent with the diagnosis, as described by Clair *et al.*⁶ Two features, however, could retrospectively suggest that this was not the case: the lack of abscess formation and the impaired thyroid function tests. The migration of the inflammatory process to the opposite lobe is also characteristic of subacute thyroiditis.^{1,2} The increased antibody titre against adenovirus (from less than 1:10 to 1:120) suggests that adenovirus infection was associated with the subacute thyroiditis in this case. It must be stressed that direct evidence of viral etiology in this disorder has only rarely been obtained.²

This case shows the necessity to consider the possibility of subacute thyroiditis in young children even if the clinical, ultrasonographic, and radioisotopic features resemble acute suppurative thyroiditis. Impaired thyroid function tests, lack of abscess formation, and rising titre against a specific virus may serve to distinguish between these conditions.

References

- Greene NJ. Subacute thyroiditis. *Am J Med* 1971;**51**:97–108.
- Hay ID. Thyroiditis: a clinical update. *Mayo Clin Proc* 1985;**60**: 836–43.
- Levine SL. Current concepts of thyroiditis. *Arch Intern Med* 1983;**143**:1952–6.
- Buchta MR, Price P. Subacute thyroiditis in a 4.5 year old girl. *Am J Dis Child* 1980;**134**:1090–1.
- Larsen RP. Serum triiodothyronine, thyroxine and thyrotropine during hyperthyroid, hypothyroid and recovery phases of subacute non suppurative thyroiditis. *Metabolism* 1974;**23**: 467–71.
- Clair RM, Mandelblatt S, Baim SR, Perkes E, Goodman K. Sonographic features of acute suppurative thyroiditis. *JCU* 1983;**11**:222–4.

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Accepted 22 February 1988