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Acute bacterial thyroiditis presenting as otalgia

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Abstract
A case of acute bacterial thyroiditis due to *Haemophilus influenzae* infection presenting as otalgia is reported. The features of this condition and the differential diagnosis from subacute (DeQuervains) thyroiditis are discussed.

Introduction

Patients with otalgia commonly present to the Accident and Emergency Department. The importance of this symptom occurring in association with unrecognized disease of the head or neck is emphasized.

A case of acute bacterial thyroiditis due to infection with *Haemophilus influenzae* presenting as otalgia is reported.

Case report

A 32-year-old male presented to the Accident and Emergency Department with acute painful dysphagia and swelling of his neck. Over the previous 10 days, he had experienced left-sided otalgia which had gradually increased in severity.

He had a past history of a temporary tracheostomy at the age of three months for airway obstruction caused by 'an infection in his throat'.

On presentation, he was pyrexial with a hot, tender, red swelling under the previous tracheostomy scar with cellulitis extending over the left anterior triangle of the neck and associated cervical lymphadenopathy. The trachea was deviated to the right.

Indirect laryngoscopy and otoscopy were normal. Chest X-ray confirmed right tracheal deviation; a lateral soft tissue film of the neck was normal.

He was admitted to the hospital under the care of the ENT surgeons and treated with intravenous amoxycillin/clavulanic acid 1.2 g, eight hourly and intravenous fluids.

Subsequent laboratory investigations showed a leucocytosis of 13.3×10^9/l (80 per cent neutrophils, 17 per cent lymphocytes, 3 per cent monocytes). Erythrocyte sedimentation rate 26 mm/hr. C-reactive protein 56 μg/ml. Serum electrolytes, serum thyroxine and thyroid stimulating hormone levels were normal. Thyroid microsomal and thyroglobulin auto-antibodies were absent.

Ultrasonography of his neck showed an abnormal left lobe of the thyroid and an overlying abscess. A ^{99}Technetium scan of his thyroid gland confirmed diminished uptake in the left lobe.

Five ml of pus was aspirated from the abscess. Gram stain showed leucocytes and gram negative bacilli. Extended culture grew *Haemophilus influenzae,* sensitive to ampicillin/clavulanic acid.

He was discharged five days following admission taking oral amoxycillin/clavulanic acid 375 mg, eight hourly for a further five days.

At review 10 days later, he was asymptomatic with no abnormality on examination.

Discussion

Acute bacterial thyroiditis is an uncommon and potentially life threatening condition (Hoffenberg, 1987; Brook, 1988). Differentiation must be made from non-infectious inflammatory conditions with a similar presentation. In this case the presenting complaint was of otalgia due to referred pain from the developing abscess.

The previously reported clinical course of acute bacterial thyroiditis is usually of an antecedent infection at another site followed by tenderness of the thyroid gland with redness of the overlying skin and signs of systemic infection. Dysphagia, dysphonia and pharyngitis may also be present (Brook, 1988).

Reports suggest that the rarity of infection in the thyroid gland is due to its complete encapsulation, the rich blood and lymphatic supply and the high iodide content (Brook, 1988; Szabo and Allen, 1989).

When infection does occur, it may be via haematogenous or lymphatic spread from an upper respiratory tract infection, by direct spread from local tissue, or occasionally as a result of a congenital fistula between the pyriform fossa and the lobe of the gland (Miyauchi *et al.*, 1981). In this case the previous tracheostomy may have been significant.

Infecting organisms are usually *Staphylococcus aureus, Streptococcus pyogenes* or *Staphylococcus epidermidis* (Berger *et al.*, 1983).

Deaths are uncommon, but may result from delayed or inappropriate treatment resulting in pneumonia, tracheal obstruction, metastatic infection, septicaemia or mediastinitis.

Differentiation should be made from the more common subacute (De Quervains) thyroiditis which has a similar presentation but usually results from a viral infection. This is generally a self-limiting condition after two or three months although resistant cases may require treatment with steroids and possibly thyroxine to suppress Thyroid Stimulating Hormone production. Both conditions can present with fever, local tenderness, leucocytosis and a raised erythrocyte sedimentation rate and both can show similar findings on plain radiography or radionucleotide scanning.

Unlike acute bacterial thyroiditis, subacute thyroiditis is more likely to produce transient abnormalities of thyroid function with either over or under production of thyroid hormones.

In cases where differential diagnosis is difficult the identification of abscess formation in acute bacterial thyroiditis using ultrasonography or a CT scan is useful.

Appropriate treatment of acute bacterial thyroiditis includes intravenous antibiotics and surgical incision and drainage of any abscess cavity.

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