

## Pathology in Focus

# Auto-immune thyroiditis presenting as a thyroglossal tract swelling

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### Abstract

Both thyroglossal cysts and aberrant thyroid tissue may present as a mid-line neck swelling. We report a case of autoimmune thyroiditis presenting as a thyroglossal swelling in a middle-aged woman. This very rare finding is discussed with reference to the optimal management of thyroglossal tract swellings.

**Key words:** Thyroglossal Cyst; Thyroiditis, Autoimmune

### Introduction

A thyroglossal cyst is a congenital anomaly that typically presents as a mid-line infrahyoid neck swelling. It may become symptomatic at any age,<sup>1</sup> either as a painless fluctuant neck swelling or with the additional signs of acute infection. Aberrant thyroid tissue may present in a very similar way. However, management of these conditions differs.

Thyroglossal cysts are managed by surgical excision after careful thyroid screening in case the ectopic thyroid tissue is the only functioning thyroid tissue present.<sup>2</sup> The characteristic histological feature of a thyroglossal cyst is a squamous or pseudostratified ciliated epithelial lining, with mucous glands and thyroid follicles often present in the underlying stroma. Inflammation is common and may obscure or obliterate the epithelial lining.<sup>2</sup>

In contrast, aberrant or heterotopic thyroid tissue is characterized by nodules of thyroid follicles which may, or may not, have a surrounding capsule. Microscopically, the thyroid tissue does not differ from that seen in the normal thyroid gland, except that it may also show the range of pathological abnormalities which affect the thyroid. Auto-immune thyroiditis is a rare finding in a thyroglossal swelling, with only three previously reported cases.<sup>3,4</sup> Management is dictated by the patient's thyroid status and whether or not surgical excision is required in order to exclude co-existing malignancy.

### Case report

A 60-year-old woman presented with a six-month history of a mid-line neck swelling. She had been diagnosed as suffering from hypothyroidism 12 years previously. This was managed by thyroxine, 100 micrograms daily and she was clinically euthyroid. Examination revealed a 3 cm diameter, soft, mobile, upper mid-line neck swelling separate from the thyroid gland. The mass rose with swallowing and tongue protrusion. A provisional diagnosis

of thyroglossal cyst was made and Sistrunk's operation was performed. A non-fluctuant thyroglossal swelling was removed. This was cranial to the thyroid isthmus and was excised along with a proximal tract and the midportion of the hyoid bone. The patient made an uneventful recovery.

Histological analysis of the specimen showed no evidence of a cyst. Instead there were nodules of thyroid tissue showing follicular atrophy and a dense lymphocytic infiltrate, with lymphoid follicle formation (Figure 1). The epithelial cells lining the atrophic follicles showed oxyphilic change (also known as oncocytic, Askanazy or Hurthle cell change) (Figure 2). The appearances were those of autoimmune thyroiditis, specifically Hashimoto's disease.

Thyroid function tests were all within normal limits, with the exception of the thyroid peroxidase antibody titre which

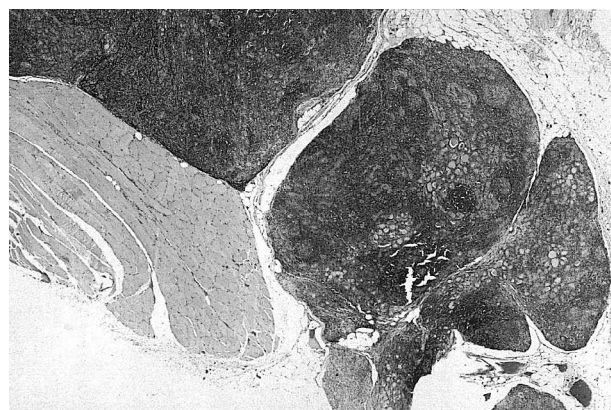


FIG. 1

Low power view showing nodules of aberrant thyroid tissue alongside skeletal muscle. The thyroid tissue shows follicular atrophy and a lymphocytic infiltrate with lymphoid follicle formation (H & E;  $\times 25$ ).

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Accepted for publication: 18 September 2001.

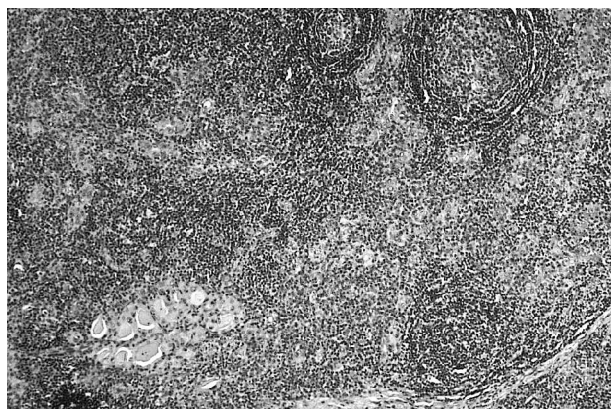


FIG. 2

High power view showing marked lymphocytic infiltrate and eosinophilic (oxyphilic) change of epithelial cells which mainly form small clumps or irregular small follicles, rather than large round follicles containing colloid as in normal thyroid tissue (H & E;  $\times 100$ )

was 882 IU/ml (normal range 0–50). Thyroid ultrasound revealed a heterogeneous texture throughout, with some small cysts. An endocrine consultation was obtained, but no alteration in medical management was necessary.

### Discussion

The thyroid gland appears during the fourth week of intrauterine life as an epithelial proliferation in the floor of the pharynx which is later represented as a small pit on the dorsum of the tongue, the foramen caecum. The thyroid diverticulum descends in the neck, passing ventral to the developing hyoid bone and usually reaches the adult site by the seventh week. For a brief time, it is connected to the tongue by the thyroglossal duct, an epithelial-lined tube that normally involutes and disappears.

A thyroglossal cyst results from persistence of the thyroglossal duct and may appear at any point in the migratory path taken by the thyroid gland during its development.<sup>5</sup> It is nearly always close to, or in, the mid-line. Aberrant thyroid tissue may likewise appear anywhere along the descent path of the thyroid. In autopsy studies, a lingual thyroid has been found in 10 per cent of the population and a pyramidal lobe in 50 per cent. The latter is considered to represent the inferior end of the thyroglossal duct, extends superiorly from the thyroid isthmus and may have a fibromuscular attachment to the hyoid.<sup>6,7</sup> Ectopic thyroid tissue has also been described in the trachea<sup>2,8</sup> and pharynx.<sup>9</sup>

The incidence of thyroid epithelium found in mid-line thyroglossal remnants is less than five per cent.<sup>2</sup> In children, enlargement of an incompletely descended dysgenetic thyroid may closely resemble a thyroglossal cyst. It typically occurs as a manifestation of the hyperplastic response to thyroid insufficiency and surgical excision is contra-indicated because this may be the only functioning thyroid tissue.<sup>2,10</sup>

Autoimmune thyroiditis is characterized by predominantly T-cell lymphocytic infiltration of the thyroid gland,<sup>11</sup> that is typically diffusely enlarged and rubbery. The disease is broadly classified into three categories: Hashimoto's thyroiditis, atrophic primary myxoedema and focal asymptomatic thyroiditis. The diagnosis may be confirmed by significant elevation of serum thyroid auto-antibody titres (anti-thyroglobulin or anti-thyroid peroxidase antibody). Anti-thyroid peroxidase antibodies are elevated in 88–100 per cent of patients with Hashimoto's thyroiditis.<sup>12</sup> Overt hypothyroidism, present in 10–20 per cent of

patients, is treated with thyroid replacement therapy.<sup>13</sup> There is an increased risk of thyroid lymphoma in patients with Hashimoto's thyroiditis.<sup>14</sup>

Autoimmune thyroiditis in a thyroglossal tract swelling is rare, with only three previously reported cases.<sup>3,4</sup> Thyroid auto-antibodies were elevated in two patients and one individual was biochemically hypothyroid.<sup>3</sup> Udoji describes a case in which there was histological evidence of Hashimoto's thyroiditis in thyroid tissue in the wall of a thyroglossal cyst, as well as co-existing non-Hodgkin's lymphoma.<sup>4</sup>

Primary management of a thyroglossal cyst is surgical excision, usually by Sistrunk's operation in which the cyst, along with its tract and the central portion of the hyoid bone, is excised.<sup>15</sup> However, investigations including thyroid function estimation, ultrasound, fine needle aspiration cytology and radio-isotope studies may play an important role in reaching the correct diagnosis and avoiding unnecessary surgery.<sup>1,3,16,17</sup> Carcinoma is associated with less than one per cent of thyroglossal duct abnormalities and 80 per cent of these cases are papillary carcinoma arising in ectopic thyroid tissue.<sup>2</sup> Fine needle aspiration cytology is important in the pre-operative evaluation, since surgical management of thyroid carcinoma may depend on the findings.<sup>1</sup> Surgical excision is also required in cases where malignancy cannot otherwise be excluded.

### Acknowledgement

We thank Mr D. F. Chapman for his permission to present this case.

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Dr J. Lee takes responsibility for the integrity of the content of the paper.  
Competing interests: None declared

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