

Thyroglossal duct remnants

A. WADDELL, F.R.C.S., H. SALEH, F.R.C.S., N. ROBERTSON, M.R.C.PATH.*, H. S. KHALIL F.R.C.S. (GLAS.), F.R.C.S.I., M.D., M. W. M. BRIDGER, F.R.C.S.

Abstract

Thyroglossal duct remnants presenting as a lump in the neck are usually called thyroglossal cysts. Meticulous dissection of the cyst and duct, along with the body of the hyoid bone (Sistrunk's operation) is necessary to avoid recurrence. The authors have reviewed the histology of 61 consecutive specimens diagnosed preoperatively as thyroglossal cysts and have found that a true cyst exists in only 46 per cent of cases.

Key words: Congenital defect; Thyroglossal cyst; Diagnostic errors

Introduction

The thyroid gland arises from the floor of the pharynx as an ectodermal outgrowth in the third week of embryonal development. It migrates inferiorly while remaining connected to the tongue base by the thyroglossal duct, usually passing anterior, but in close proximity, to the hyoid bone. This duct is normally reabsorbed between the seventh and tenth weeks in utero.¹

Thyroglossal cysts, the commonest congenital cervical abnormality, arise from the remnants of the duct and have been described as occurring anywhere from the base of the tongue to the manubrium. They usually present in childhood or young adults as a painless lump beneath the chin.²

The purpose of this study was to review the histology of 61 consecutive surgical specimens to examine the clinical impression that true cysts are less common than other, more solid duct remnants.

Methods

We reviewed the histological specimens reviewed from all patients having a primary resection of neck swellings clinically diagnosed as thyroglossal cysts between January 1987 and December 1996. The medical notes were reviewed to exclude all patients who had had previous neck surgery, or who presented with a thyroglossal fistula. The findings were divided into one of six categories: demonstrable cysts; ducts (without evidence of cyst); fibrous tracts only; abscess cavities; lymph nodes; or epidermoid cysts.

Results

Sixty-one patients had a resection of a neck mass clinically diagnosed as a thyroglossal cyst. The mean age was 22 years (range 10 months to 67 years). There were 31 females and 30 males. The number of specimens in each histological group is shown in Table I.

The average age of the patients with a true cyst was 30 years (range 2–67 years), whereas the average age of those with a duct only was 18 years (range 10 months to 57 years). There was no gender difference between the groups.

Discussion

This study shows that although the majority of the specimens contained thyroglossal tract remnants, only around a half could be described as a true cyst.

Duct remnants or cyst capsules are lined by squamous, respiratory³ or cuboidal epithelium.⁴ A specimen may contain more than one epithelial cell type. Normal thyroid tissue is present in around a quarter of duct remnants.^{4,5}

TABLE I
NUMBERS OF SPECIMENS IN EACH HISTOLOGICAL GROUP

	n	%
Cyst	28	(46)
Duct (without evidence of cyst)	24	(39)
Fibrous tract	5	(8)
Abscess cavity	2	(3)
Lymph node	1	(2)
Epidermoid cyst	1	(2)

Thyroglossal remnants remain connected to the tongue base by a tract and risk becoming infected, with abscess formation often being when a patient first presents to the clinician. Liu *et al.*⁵ showed that 48 per cent of resected specimens showed inflammation, either acute or chronic. The abscess may discharge to the skin of the neck (either with time or following an inappropriate surgical incision) and form a fistulous tract. Alternatively, it may discharge via a sinus tract to the tongue base, resolution resulting in a fibrous band. A true cyst will remain or develop only if an intact capsule forms. Without a capsule, or full resolution, a chronically infected duct remains.

It is known that many patients do not develop signs of pathology until well into adult life: up to 67 years in the study. There may be many in which a thyroglossal tract remnant is present throughout life and never becomes clinically evident. No recent postmortem study looking for thyroglossal tracts in 'normal' necks exists.

There are numerous case reports of malignant change within duct remnants, the commonest being thyroid papillary carcinoma.⁶ Others include mixed papillary-follicular,⁶ squamous cell,⁷ follicular,⁸ anaplastic,⁶ Hürthle cells adenomas⁹ and carcinomas.¹⁰ All tend to occur in older patients. Preoperative differentiation between each group is not essential as all require Sistrunk's operation for complete removal.

Although ultrasound has been shown to be sensitive and specific in the assessment of thyroglossal anomalies, there is a broad variation in their echogenicity.¹¹ Johnson *et al.*¹² demonstrated that ultrasound, thyroid function tests or isotope scans did not affect their management of thyroglossal cysts.

In view of the histological findings it might be better if the term 'thyroglossal tract remnants' were used to cover this whole group of conditions, and thereby avoid giving the impression that some form of enucleation might be possible.

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Address for correspondence:

Mr M. W. M. Bridger, F.R.C.S.,
Consultant Otolaryngologist/Head and Neck Surgeon,
Derriford Hospital,
Plymouth PL6 8DH.