Thyroglossal ducts, cysts and sinuses: a recurrent problem

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Summary
A review of a series of 63 patients suggests that a high incidence of recurrence occurs following surgery for this condition. Histological examination demonstrates that this is due to failure to remove the central portion of hyoid bone and inadequate dissection of the tract into the tongue base. To overcome these problems, an en bloc anterior neck dissection is recommended which will encompass multiple duct formation associated with the tract.

Introduction
It is now 65 years since Sistrunk (1) first reported his management and surgical technique for removal of thyroglossal ducts, cysts and sinuses. Despite wide acceptance of his method of treatment, a surprisingly large number of patients are still seen in our hospital with a history of multiple failed surgical attempts elsewhere. The aim of this paper is to emphasise thorough removal of the entire thyroglossal tract remnants, including not only the mid-portion of hyoid but also an en bloc dissection above the hyoid bone to the foramen caecum.

Patients and methods
During the years 1970–1985, 63 patients were operated on for the removal of cysts or sinus tracts of the thyroglossal duct. Detailed history and pathology were available on all patients. All were treated with a classic Sistrunk procedure but in the last four years the authors have modified the technique further, performing an en bloc anterior neck dissection without attempting to closely dissect out individual cysts or sinuses.

In our modified Sistrunk technique, the midline deep dissection may have to begin as low as the thyroid isthmus but more commonly over the thyroid cartilage. The dissection removes the central 2–4 cm of strap muscles in the adult, down to the level of the thyroid cartilage and thyrohyoid membrane. At the hyoid the central 3 cm is resected and then a 2 cm wide core of tissue taken through the tongue base to the foramen caecum. At no time do we attempt to inject the tract or follow it closely. In children the bloc is proportionally smaller.

Follow-up details are available on all patients and range from 7 months to 14 years.

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Results
There were 39 males and 24 females. The average age of onset of symptoms was 25 years and age distribution is shown in Table I. Thirty-seven patients on presenting to this hospital had a history of less than four months, but the remainder varied from 6 months to 67 years. Ten patients had a history of intermittent symptoms for 15 years or longer.

All patients had a history of swelling at or adjacent to the midline. Seventeen patients had undergone previous surgery elsewhere and 6 of these had troublesome discharging sinuses. Of these 17 failures, subsequent operation showed 14 (82%) had neither the central portion of the hyoid bone nor the tongue base dissected. Three had not had the tongue base adequately dissected. Fifteen patients of these 17 failures had recurrent symptoms within one year but 2 patients went 28 and 39 years following inadequate childhood surgery before having further significant problems.

| TABLE I Distribution of age of onset of symptoms |
|-----------------|-----------------|
| Years | Numbers |
| 0–10 | 22 |
| 11–20 | 9 |
| 21–30 | 7 |
| 31–40 | 8 |
| 41–50 | 9 |
| 51–60 | 5 |
| 61–70 | 3 |

Of the 63 patients who underwent the classical Sistrunk procedure, only one had a recurrence. The pathology showed multiple branching ducts at and above the level of the hyoid bone and the width of the dissection was insufficient to encompass these. Following 'cure' of this patient by wide base of tongue and hyoid bone dissection, the modified procedure outlined has been undertaken routinely by the authors in the last fourteen cases.

Pathological considerations
Multiple sections of each specimen were examined. Four patients with recurrent disease had severe degrees of inflammation and fibrosis with no distinct epithelial lining to
either a cyst or tract. Of the remainder, 39 showed cyst formation with or without additional tracts and twenty showed only tracts. Of the cysts, 4 were multilobulated and one was forming in the body of the hyoid bone. Seven cases showed multiple ducts above the level of the hyoid bone, in a 'fir-tree' formation (Fig. 1).

Discussion
It remains disappointing that over sixty years after the definitive surgical treatment was described (1), a high incidence of recurrence is associated with this condition. The lengthy period of symptoms experienced by our patients is similar to that described by Sistrunk (1) and more recent authors (2,3). The association of recurrence with failure to remove the central portion of the hyoid bone is well documented, so it was not surprising that this was the situation in 82% of the recurrences. However, 3 recurrences were related solely to inadequate suprahidoid dissection. The risk of recurrence associated with multiple tracts in the base of the tongue is less well documented. The only recurrence in our own series following Sistrunk’s classical procedure was the result of inadequate tissue resection from the tongue base with such multiple tracts. It is of interest that Sistrunk drew attention to the presence of 'lateral branches' between hyoid and foramen caecum in his original description.

Sade and Rosen (4) reported on histological evaluation of specimens removed en bloc and found a high incidence of multiple duct formation above the hyoid (11/14 specimens). Michel and Calcaterra (3) found a similar situation in 3 of 20 patients with recurrence. These findings have led us to the use of en bloc procedures in all patients and there has been no increase in morbidity associated with this more radical resection. The role of our hospital as a secondary referral centre for head and neck surgery is reflected in the older population in our series compared with others. It is to be hoped that in future surgeons of all disciplines involved in the management of these cases will undertake an adequate primary resection, thus preventing a continuing high recurrence rate in a condition whose surgical anatomy and embryology are well-understood.

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References

Notes on books


An easy to read manual of techniques of regional anaesthesia with notably clear line diagrams and illustrations. Key references are given. This book will be of particular value to trainees in anaesthesia but their chiefs will find much of interest as well.


This volume studies in detail all aspects of the operation of intertrochanteric osteotomy. It will be of special interest to orthopaedic surgeons interested in hip preservation rather than total hip arthroplasty. Preoperative selection of patients, surgical technique, postoperative care and prognosis are all covered in detail.


This is Number 1 of a new magazine which is to be published quarterly. It is a continuation of the annual monograph 'International Advances in Surgical Oncology'. Four articles are contained in this initial number covering cancer of the upper intestinal tract, haemangioma of the liver, primary bronchogenic carcinoma and advanced cancer of the prostate.


Bladder cancer is the most commonest urological malignancy and is one of the major problems of urology. This book is a practical guide to the management of all aspects of bladder cancer and is written by an international team of authors. It is extensively referenced and will be of great interest to all practising urologists. Radiologists and oncologists should also find much of interest.