The Journal of Laryngology and Otology
February 2000, Vol. **114,** pp. 147–148

A benign parathyroid cyst presenting with hoarse voice

P. Sen, F.R.C.S., N. Flower, F.R.C.S., M. Papesch, F.R.A.C.S., A. Davis, F.R.C.S.,
A. V. Spedding, M.B.C.L.B., M.R.C.Path.*

Abstract
Parathyroid tumours and cysts are rare and, when presenting as neck masses, can be clinically misdiagnosed as thyroid lesions. Symptoms may be caused by compression of the surrounding structures or hormonal overactivity. This paper describes a patient with recurrent hoarseness owing to the pressure effects of a parathyroid cyst on the recurrent laryngeal nerve.

Key words: Parathyroid disease; Recurrent laryngeal nerve; Paralysis

Introduction

Symptomatic parathyroid cysts are extremely rare, with only 200 cases reported in the literature.[1] Rarer still is a parathyroid cyst presenting with recurrent laryngeal nerve paralysis. To our knowledge, only eight such cases have been reported in the last 50 years.[2–4] This is the third case where the recovery of recurrent laryngeal nerve function following cyst removal has been noted,[5] and is the second case to be reported where the initial symptom had been intermittent hoarseness. The clinical course, radiological and pathological findings of a parathyroid cyst in the neck of a 37-year-old woman are presented, followed by a review of the literature.

Case report

A 37-year-old non-smoking woman presented with a hoarse voice of two months' duration. She had no dysphagia, no history of voice strain, and her general health was good except for mild hypertension, which was controlled by thiazide diuretics. However, she had had a transiently hoarse voice one year previously. Although at that time examination by her general practitioner revealed a slight fullness of the right neck, this was not followed up as her symptoms abated within a few weeks.

The patient remained asymptomatic until two months prior to referral, when she developed a progressively hoarse voice along with the re-development of the slight fullness in the right side of the neck. Fibreoptic endoscopy revealed a right vocal cord immobility consistent with recurrent laryngeal nerve paralysis, and on neck examination she had smooth enlargement of the right thyroid lobe.

Ultrasound confirmed a cystic lesion and aspiration produced clear fluid, which on cytological examination suggested a follicular thyroid lesion. A barium swallow demonstrated an indentation along the right side of the upper oesophagus, suggesting compression by an extrinsic lesion, thought most likely to be the thyroid lesion. A CT scan of the mediastinum and chest was normal, as were thyroid function tests.

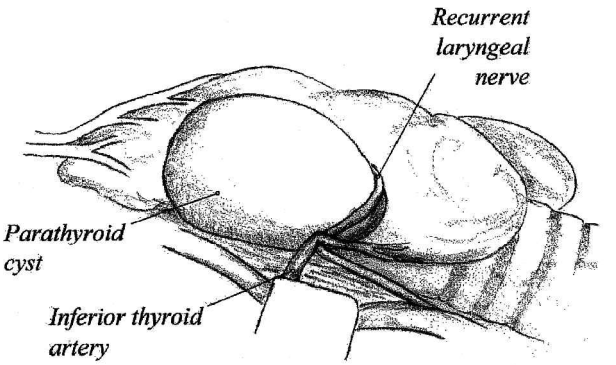

Fig. 1

Diagram showing the position of the parathyroid cyst in relation to the thyroid gland, recurrent laryngeal nerve and inferior thyroid artery.

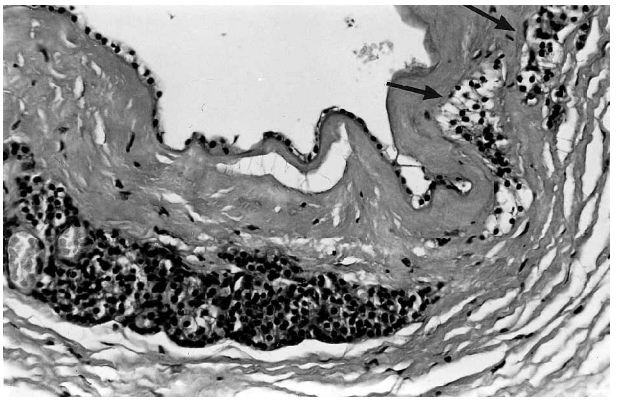

Fig. 2

The cyst, showing a fibrous wall lined by single layer of vacuolated cells with small nests of parathyroid tissue (arrow) (H & E; ×200).

From the Departments of Otolaryngology and Pathology*, Queen Alexandra Hospital, Portsmouth, UK.
Accepted for publication: 8 October 1999.

Urgent excision was planned. At surgery a smooth 2.5 cm mass was found on the inferomedial part of the right thyroid lobe. The recurrent laryngeal nerve was stretched by the cyst and kinked over the displaced inferior thyroid artery (Figure 1). The mass was resected with the entire right thyroid lobe, preserving the recurrent laryngeal nerve. Histopathological examination confirmed it to be a parathyroid cyst (Figure 2) and a normal right thyroid lobe. Her voice returned to normal and full right vocal cord movement was noted two months post-operatively.

Discussion

Embryologically the upper parathyroid glands and the thyroid gland are intimately related, whereas the lower parathyroid glands are more closely related to the thymus. This has clinical significance because a parathyroid cyst can mimic a thyroid[1] or mediastinal lesion.[6] Most are presumed asymptomatic and are occasionally described as incidental findings in postmortem studies.[3] Some 200 cases of symptomatic parathyroid cyst have been reported.[7] Symptoms include progressive dysphagia, odynophagia, and very rarely recurrent laryngeal nerve paralysis. Approximately 10 per cent of parathyroid cysts present with features of hyperparathyroidism.[8] Parathyroid cysts are more commonly seen in middle-aged women (female:male ratio 2.5:1), although functioning parathyroid cysts are 1.6 times more common in men.

Fine-needle aspiration can be helpful in differentiating thyroid from parathyroid cysts. The former often contain brownish fluid with elevated thyroid hormone levels, in contrast to the clear fluid with elevated parathyroid hormone levels found in parathyroid cysts. An elevated level of parathyroid hormone does not, however, correlate with the functional activity of a parathyroid cyst. Hypercalcaemia in the presence of a parathyroid cyst does indicate activity. CT, MRI and ultrasound are other ancillary tests that aid the diagnosis.

Uncomplicated non-functional parathyroid cysts may be treated by aspiration under ultrasound guidance, as there are no reports of malignancy. Sclerotherapy has been used but is not universally recommended because of complications such as neurotoxicity or recurrent laryngeal nerve palsy.[7] Surgical excision is recommended for recurrence. If the cyst is complicated by symptoms of dysphagia, dyspnoea or recurrent laryngeal nerve palsy, then surgical excision is recommended as the primary procedure.

Surgery is always indicated for functioning parathyroid cysts. Such lesions are associated with a high risk of other parathyroid gland hormone abnormalities and so identification of these should be undertaken at the time of exploration of the neck. Hypocalcaemia has been reported following the removal of functioning cysts despite normal morphology of other glands, and therefore all cases should be monitored for serum calcium levels in the immediate post-operative period and treated appropriately with calcium therapy and vitamin D.

Solid parathyroid adenomas usually present with primary hyperparathyroidism and most of them are discovered on routine calcium screening, when hypercalcaemia is noted. Other causes of hypercalcaemia must also be considered, including primary hyperplasia, malignancy, granulomatous disease (sarcoid), vitamin D toxicity, Paget's disease and familial hypocalcaemic hypercalciuria. There is no family history except in cases of MEN syndromes 1 and 11A, where diffuse hyperplasia of all four glands may be the presenting pattern. Symptomatology can include fatigue, weakness, polydipsia, polyuria, arthralgia and constipation, but around 80 per cent of patients with primary hyperparathyroidism are asymptomatic. Indications for surgery include any patient under the age of 50, even if asymptomatic, as 20 per cent develop end-organ involvement, and older patients who are symptomatic. Surgery involves neck exploration, usually bilateral, and removal of the adenoma, and rarely requires any localizing investigations for the experienced surgeon, except in revision procedures. The same electrolyte imbalances as with functional parathyroid cyst removal can occur and are treated identically.

This case highlights the possibility of a benign parathyroid cyst in the neck causing intermittent hoarseness due to neuropraxia of the recurrent laryngeal nerve.

References

1 Alvi A, Myssiorek D, Wasserman P. Parathyroid cyst: current diagnostic and management principles. *Head Neck* 1996;**18**:370–3

2 Grey AB, Shaw JHF, Anderson NE, Holdaway IM. Parathyroid cyst with recurrent vocal cord paresis. *Aust NZ J Surg* 1993;**63**:561–2

3 Clark OH. Parathyroid cysts. *Am J Surg* 1978;**135**:395–405

4 Coates G, Pearman K, Holl-Allen RTJ. Recurrent nerve palsy due to parathyroid cyst. *Int Surg* 1991;**76**:192–3

5 Crile G, Perryman RG. Parathyroid cyst. *Surgery* 1953;**34**:151–4

6 Landuau O, Chamberlain DW, Kennedy RS, Pearson FG, Keshavjee S. Mediastinal parathyroid cysts. *Ann Thorac Surg* 1997;**63**:951–3

7 Sanchez A, Carretto H. Treatment of non-functioning parathyroid cyst with tetracycline injection. *Head Neck* 1993;**15**:263–5

8 Mitmaker B, Lehman S, Lamoureux E, Begin L. Parathyroid cyst: diagnosis and treatment of an unusual surgical problem. *Can J Surg* 1991;**34**:59–61

Address for correspondence:
Mr P. Sen,
Department of ENT,
Whipps Cross Hospital,
Whipps Cross Road,
Leytonstone,
London E11 1NR.

https://doi.org/10.1258/0022215001904923 Published online by Cambridge University Press