

Benign disease of the thyroid gland and vocal fold paralysis

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Abstract

Development of vocal fold paralysis in the presence of thyroid disease is strongly indicative of thyroid cancer, and requires surgical exploration. At the same time, vocal fold paralysis does not relieve the surgeon of his obligation to identify and preserve the recurrent laryngeal nerves, since the cause of the paralysis may be a benign disease, with a fair chance of functional recovery after surgery. We hereby report a case of recurrent laryngeal nerve palsy secondary to a multinodular goitre.

Key words: Vocal cord paralysis; Thyroid gland; Surgery, operative

Introduction

Thyroid surgery is the most common cause of vocal fold paralysis (McCalla *et al.*, 1987; Hippelainen *et al.*, 1990). Malignant diseases of the lung, the thyroid and the oesophagus as well as metastases in lymph nodes, are the most common non-iatrogenic causes of vocal fold paralysis, which is rarely associated with benign cervical masses (Hippelainen *et al.*, 1990).

Paralysis of the recurrent nerve occurring in the presence of a goitre is considered to be caused by a thyroid malignancy until proven otherwise (Fenton *et al.*, 1994; Collazo-Clavell *et al.*, 1995). Non-malignant thyroid disease rarely causes a vocal fold palsy and when it occurs, compression from a colloid goitre or adenoma is the most widely accepted aetiological theory (Fenton *et al.*, 1994).

We hereby report a case of recurrent laryngeal nerve palsy secondary to a multinodular goitre.

Case report

In June 1997 a 70-year-old male presented as an out-patient complaining of progressive hoarseness over one month. He had a history of a goitre which had enlarged during the previous two to three weeks. Examination revealed a large diffuse multinodular goitre with retrosternal extension on the left side and a fixed left vocal fold. The chest X-ray (Figure 1) and cervico-thoracic computed tomography (CT) scan (Figure 2) showed a large multinodular goitre with retrosternal extension on the left side. This was confirmed by surgery.

A total thyroidectomy was performed by a cervical incision with identification and preservation of both recurrent laryngeal nerves and the four parathyroid glands. The left recurrent nerve was stretched around the thyroid mass. Histology revealed a multinodular goitre with one large left dominant nodule containing focal areas of haemorrhage. There was no evidence of malignancy. Hoarseness was very much improved after the operation and the patient recovered a normal voice but the left vocal fold remained paralysed eight months post-operatively.

Discussion

A review of the literature indicated a pre-operative incidence of 0.7 per cent for vocal fold paralysis among surgical patients who proved to have benign thyroid disease. The true incidence is largely unknown because not all asymptomatic patients with benign thyroid disease are screened for vocal fold paralysis. It is believed that as many as 30 to 50 per cent of patients with unilateral recurrent laryngeal nerve paralysis may be asymptomatic (Collazo-Clavell *et al.*, 1995). Among the few benign thyroid lesions causing a recurrent laryngeal palsy, the most common is colloid goitre followed, in order of decreasing frequency, by adenoma, thyroiditis, haemorrhagic cyst and toxic multinodular goitre (Fenton *et al.*, 1994). Usually, the recurrent paralysis is unilateral and ipsilateral to the goitre. It is mostly gradual and/or intermittent in onset. Bilateral (McCalla *et al.*, 1987) or contralateral paralysis have rarely been observed (Krecicki *et al.*, 1994; Collazo-Clavell *et al.*, 1995).

How benign disease may cause a recurrent laryngeal palsy, includes compression, distension or stretching of the nerve especially when the goitre is completely or incompletely retrosternal, retroclavicular or intrathoracic. A pretracheal compartment syndrome has also been suggested by some authors as a probable aetiology. Other theories include local inflammation, oedema, thrombosis of the blood supply, perineural fibrosis, calcification, toxic neuritis and idiopathic paralysis (McCalla *et al.*, 1987; Hippelainen *et al.*, 1990; Fenton *et al.*, 1994; Collazo-Clavell *et al.*, 1995).

Recurrent laryngeal nerve palsy in association with thyroid disease does not necessarily indicate malignancy but these patients must continue to be regarded as having malignant thyroid disease until proven otherwise (Fenton *et al.*, 1994). In this regard, pre-operative CT scan and particularly fine needle aspiration cytology (FNAC) is indicated (Krecicki *et al.*, 1994) in the diagnostic work-up of thyroid masses and associated vocal fold palsies (Fenton *et al.*, 1994).

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FIG. 1

The chest X-Ray revealed right lateral deviation of the trachea and a left retrosternal extension of the thyroid nodule.

In patients with benign thyroid disease and a vocal fold palsy early thyroidectomy and relief of nerve compression should provide the greatest chance of recovery. The rate of functional recovery in published data varies from 33 per cent to 66 per cent. Normalization of the voice alone is not a proof of recovery from recurrent paralysis, since it may signify compensation by the opposite fold. Most recoveries occur within four to six months and rarely later than 12 months (Fenton *et al.*, 1994).

Conclusion

The possibility of asymptomatic vocal fold paralysis makes pre-operative examination of the larynx essential.

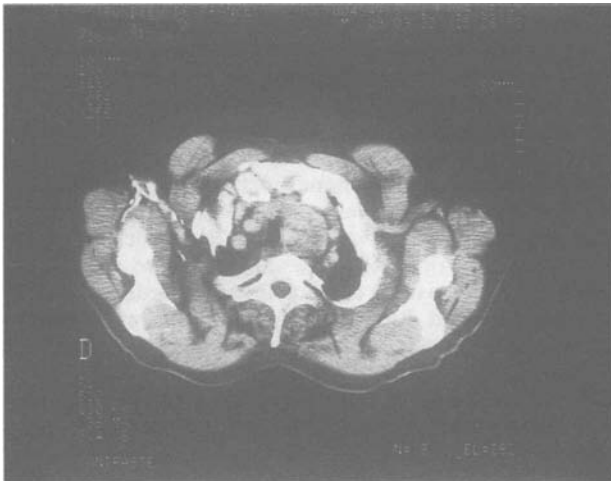


FIG. 2

Cervico-thoracic CT scan revealed compression of the trachea with retrosternal extension of the left thyroid nodule.

Development of vocal fold paralysis in the presence of thyroid disease is strongly indicative of thyroid cancer, and requires surgical exploration. At the same time, vocal fold paralysis does not relieve the surgeon of his obligation to identify and preserve the recurrent laryngeal nerves, since the cause of the paralysis may be a benign disease, with a fair chance of functional recovery after surgery.

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