

## Occult thyroid carcinoma presenting as a parapharyngeal mass

FULVIO FERRARIO, M.D., RAFFAELE ROSELLI, M.D., ALBERTO MACCHI, M.D.

### Abstract

This report describes a 47-year-old male who had an occult papillary carcinoma of the thyroid present as a nodal involvement of the parapharyngeal space, in the retrostyloid compartment. To the best of our knowledge, this is an extremely rare condition.

**Key words:** Thyroid neoplasms; Neoplasm, unknown primary; Parapharyngeal space

### Introduction

Parapharyngeal tumours become malignant in around 20 per cent of cases (Shoss *et al.*, 1985; Tandon *et al.*, 1992). These represent only 0.5 per cent of all head and neck malignancies (Work and Hybels, 1974; Stell *et al.*, 1985; Olsen, 1994) and are localized mostly in the parotid gland (Maran *et al.*, 1984). However, they rarely demonstrate a direct invasion of the nasopharynx or appear as a tonsil carcinoma or present with lymph node metastases (Lawson *et al.*, 1979). The latter have been reported in literature as having a fairly low rate of incidence (Som *et al.*, 1981; Carrau *et al.*, 1990).

We report a rare case of occult thyroid carcinoma presenting as a retrostyloid parapharyngeal mass.

### Case report

A 47-year-old male was referred to our department in May 1993, with a tumour of the right tonsil present for at least three years. The patient complained of snoring, but

showed a total absence of dysphagia. In fact previous ENT consultants had recommended only periodic follow-up of the patient.

More recently the lesion had increased slightly in size; magnetic resonance imaging (MRI) showed a neoplasm of the right tonsil of diameter 4 cm (Figure 1). It was not possible to recognize the anatomy of the surrounding parapharyngeal space. The morphological characteristics of the mass initially indicated a vascular lesion.

The patient was admitted to our department for further diagnostic tests. Ultrasonography, a CT scan of the neck and a Doppler of the carotid and jugular vessels confirmed the lesion and also showed multiple calcified lymph nodes in the right lateral cervical region and a small nodule in the right thyroid lobe.

These tests did not show any significant vascular changes within the parapharyngeal tumour. A fine needle aspiration biopsy showed cells compatible with a papillary carcinoma possibly originating in the thyroid.

At surgery, histological confirmation was obtained of

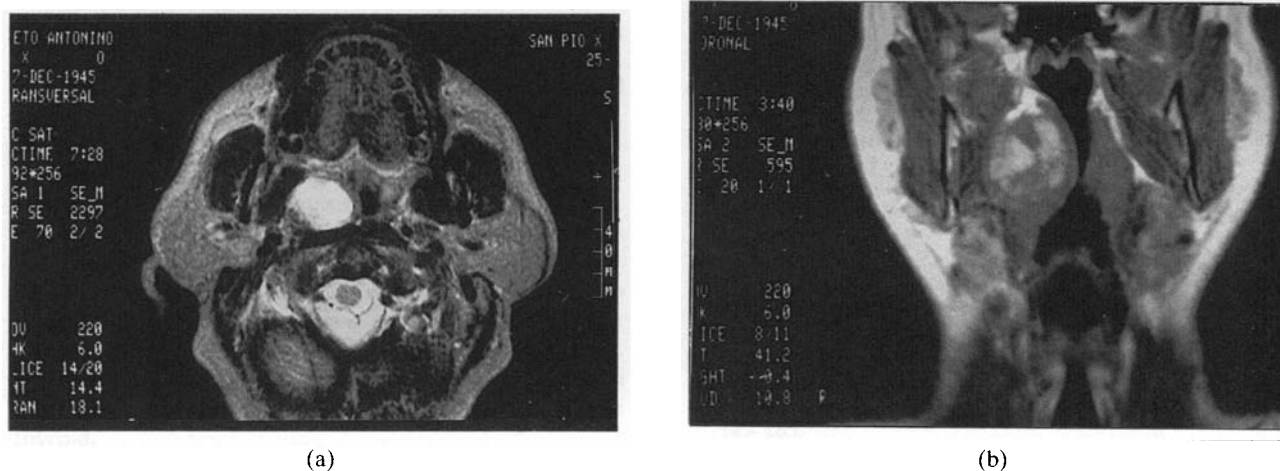


FIG. 1

MRI in axial (a) and coronal (b) planes showing a gross tumour mass, with intense enhancement, which fully involves the right parapharyngeal space and dislocates laterally the carotid sheath.

From the Department of Otorhinolaryngology, "Ospedale di Circolo e Fondazione Macchi", Varese, Italy.  
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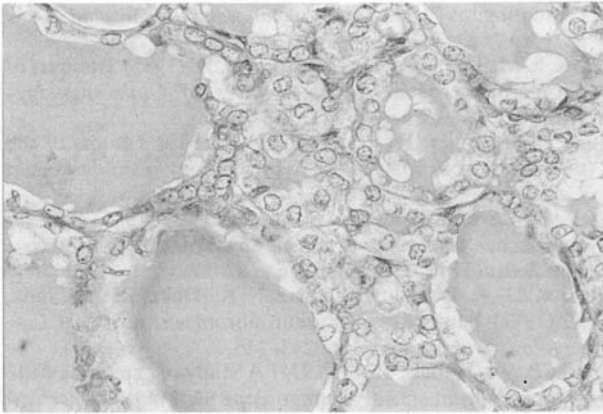


FIG. 2

Photomicrograph showing well-differentiated papillary carcinoma of the thyroid with typical "ground glass" and "grooved" nuclei. (H & E;  $\times 400$ ).

the existence of a thyroid neoplasm of 1.2 cm in diameter. The patient underwent total thyroidectomy and functional dissection of the right neck with excision of the parapharyngeal metastasis by a transcervical approach. This required sectioning of the styloid muscles and the digastric tendon, displacement of the hypoglossal nerve and sectioning of the external carotid artery up to the emergence of the lingual artery. The retrostyloid metastasis measured 4.5 cm in diameter.

Histology of the specimen confirmed the diagnosis and identified the primary tumour of the thyroid (Figure 2), the presence of multiple cervical metastases and the concomitant secondary parapharyngeal localization. The tumour was classified as being stage T<sub>2a</sub> N<sub>1a</sub>.

Post-operative cervical scanning with radioactive iodine was carried out in order to locate possible further metastases. No uptake was demonstrated. Nevertheless, the patient underwent subsequent radioactive iodine treatment and received the normal oncological follow-up.

## Discussion

The parapharyngeal space contains lymphatics which drain the nasal cavities, paranasal sinuses, nasopharynx, oropharynx and a portion of the thyroid gland (Som *et al.*, 1981; Maran *et al.*, 1984; Heeneman, 1987; Batsakis and Sneige, 1989). The retrostyloid lymphatic glands in particular are in close proximity to the jugular digastric nodes and are in direct continuity with the lateral cervical spaces (Bocca, 1984; Robbins and Woodson, 1985).

The possibility of parapharyngeal metastatic deposits is low, as is evident from data in the Literature (Som *et al.*, 1981; Maran *et al.*, 1984; Batsakis and Sneige, 1989; Carrau *et al.*, 1990). Therefore the discovery in this area of a secondary metastasis of thyroid origin is exceptional, particularly if considered as a symptom of the onset of the disease.

In order to better interpret the case in question it is necessary first to note the tendency of papillary tumours of the thyroid to develop lymphatic metastases; this is so high that it is possible to predict a lymph nodal involvement in an average of 40 per cent of cases (Mazzaferri and Oertel, 1983; Fredrickson and Brubaker, 1986; McConahey *et al.*, 1986; Hay, 1990; Mazzaferri, 1991; Piemonte and Guerra, 1992), generally on the same side as the tumour or less often (10 per cent of cases) bilaterally (Demeure and Clark, 1990). Some authors report the presence of micrometastases in up to 90 per cent of prophylactic dissections of the neck (Noguchi *et al.*, 1990).

Second, it is necessary to consider the specific lymphatic network of the thyroid. This is so rich and complex with such numerous anastomotic connections as to explain the incidence in some neoplasms (particularly papillary) of multifocal localizations. These are sometimes contralateral or may even follow random lymphatic pathways (Hay, 1990).

Finally, it is necessary to underline the existence of a direct correlation between thyroid lymphatics and lymph nodes of the retropharyngeal space, following the embryonic migration of the thyroid from the base of the tongue (Robbins and Woodson, 1985).

Such considerations allow us in some way to understand the unpredictable evolution of this case. The histological examination of the specimen showed the presence of metastases in seven out of 21 lymph nodes in the third level and in five out of 17 lymph nodes in the fifth level. From this can be noted the way in which the neoplastic emboli spread beyond the primary lymphatic stations (in particular pretracheal and paratracheal) and the superior and inferior jugular lymph nodes in order to reach the parapharyngeal space. The typically slow progression of the tumour in question could have allowed neoplastic cells to colonize even particularly distant stations through a reversal of the lymphatic stream.

## Conclusion

We believe that the interest of our report lies in the characteristics of the lesion and the modality of the onset.

In the pathology of the thyroid and parapharyngeal spaces, this clinical manifestation is an unusual event. After careful scrutiny of world literature, the only analogous cases are those described by Robbins and Woodson (1985), Lau *et al.* (1986) and Pearlman *et al.* (1988).

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Address for correspondence:

Dr Fulvio Ferrario,  
Department of Otorhinolaryngology,  
'Ospedale di Circolo e Fondazione Macchi',  
Viale Borri, 57,  
21100 Varese,  
Italy.

Fax: 39-332-278426.