



# Metastatic papillary carcinoma to the neck, thinking beyond the thyroid gland

## *Carcinoma papilar metastásico a cuello, pensar más allá de la glándula tiroides*

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### Keywords:

Lung cancer,  
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### Palabras clave:

Cáncer de pulmón,  
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inmunohistoquímica.

### ABSTRACT

**Introduction:** A description of a male patient with prior treatment for a right lung adenocarcinoma and a close follow-up for a right thyroid lobe 7 mm papillary cancer, who developed massive right neck metastasis. **Objective:** To describe the diagnostic dilemma to confirm or rule out the origin of the multiple neck metastasis to avoid unnecessary treatments. **Methods:** The biopsies from the lung, thyroid and neck tissues were reviewed and examined with immunohistochemistry. **Results:** The neck metastasis originated from an adenocarcinoma of the lung with papillary features. **Conclusions:** Unnecessary radioactive iodine treatments were avoided, thanks to the tumor markers.

### RESUMEN

**Introducción:** Se describe un paciente hombre con historia previa de tratamiento por adenocarcinoma de pulmón derecho y seguimiento de cáncer papilar de tiroides de 7 mm, quien desarrolla múltiples metástasis cervicales derechas. **Objetivo:** Describir el dilema para confirmar o descartar el origen de las metástasis cervicales a fin de evitar tratamientos innecesarios. **Métodos:** Las biopsias del pulmón, tiroides y cuello fueron revisadas y examinadas mediante inmunohistoquímica. **Resultados:** Las metástasis cervicales se originaron en un adenocarcinoma pulmonar con patrón papilar. **Conclusiones:** Gracias a los marcadores tumorales se evitó el tratamiento con yodo radioactivo.

## INTRODUCTION

Papillary thyroid carcinoma is diagnosed nowadays at very early stages, to the point that an observe-and-watch/wait, active-surveillance approach has been indicated for some patients who understand their disease and will follow their doctor's instructions.<sup>1</sup>

It has become almost a «standard of care» to follow up oncologic patients not only with a computer tomography (CT) scan, magnetic resonance imaging (MRI) etc. but also with a positron emission tomography (PET) CT. This exam allows evaluating the tumor response to the treatment, but also seeks to rule out a recurrent or metastatic tumor; it may show unexpected lesions, which may be benign, inflammatory or malignant. Thyroid nodules-

incidentalomas, diagnosed with a PET CT should undergo a fine needle aspiration biopsy (FNAB), as it is not rare that this lesion can harbor a malignant tumor.<sup>2,3</sup>

## METHODS

A patient treated for right lung cancer and right thyroid lobe micropapillary carcinoma with multiple metastatic neck nodes is presented. The pathology slides of the lung, neck and thyroid lesions were reviewed in order to clarify the patient's final diagnosis. The patient's consent to review his pathology slides and publish his case was obtained; additionally, the Institutional Review Board of *Clínica Las Americas* in Medellín, Colombia, approved this publication.

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**CASE REPORT**

A 69-year-old male was diagnosed with right upper lobe lung adenocarcinoma, requiring surgical resection followed by complementary chemotherapy; twelve months after finishing his treatment, a follow up PET CT was ordered, showing a controlled primary lesion and a right thyroid nodule. Thyroid ultrasound revealed a right middle third 7-mm well-defined nodule with no neck nodes. In the Fine Needle Aspiration Biopsy (FNAB), a classic papillary carcinoma was diagnosed. As the lung cancer established the patient's prognosis, it was decided and agreed to follow the patient with no further intervention. Sixteen months after this decision, the patient developed multiple palpable right neck nodes measuring up to 2.5 cm in Levels II, III and IV. There were no ultrasound changes in his right thyroid lobe microcarcinoma. An FNAB of these nodes revealed metastatic papillary carcinoma.

The patient had an uneventful total thyroidectomy, and mediastinal and right neck dissection. During the neck dissection, a frozen section was obtained, as the solid whitish neck nodes certainly did not appear to be those usually seen in metastatic thyroid cancer with a dark cystic pattern. Indeed, the frozen section was reported to be consistent with metastatic papillary carcinoma. This was later confirmed as the final pathology, having 30 out of 31 positive nodes for papillary metastatic cancer, some of them with extra nodal extension. A right

thyroid lobe 7 mm micropapillary carcinoma was confirmed.

It just did not seem right that a 7 mm right papillary carcinoma had so many positive ipsilateral neck nodes. So, a complete revision of all of the patient's pathology slides from the moment that his lung cancer was diagnosed to the thyroid- and neck-related malignancy was conducted. Multiple immunohistochemistry tests and analysis were performed. Tissue blocks were subject to pathologic studies including: Immunohistochemistry for Napsin-A and TTF1, Thyroglobulin, PAX-8. This review showed no connection at all between the thyroid papillary cancer and the neck metastasis but a strong relationship with the right lung lesion, which was then reclassified as adenocarcinoma with papillary features (*Figures 1 and 2*).

**DISCUSSION**

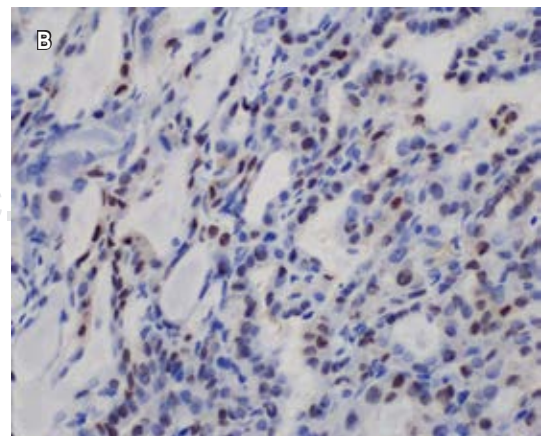
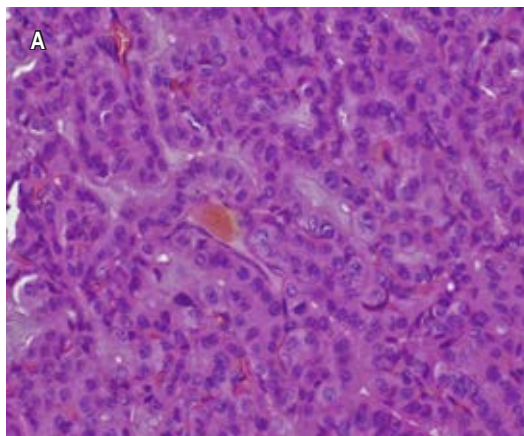
Although most malignant lymphadenopathy in the neck represent metastases from head and neck primary tumors or lymphomas, occasionally metastatic disease from remote, infraclavicular sites might present itself as a cervical mass. The reported frequency of cervical lymph-node involvement in patients with lung cancer varies from 1.5 to 32%. When neck metastases occur, the supraclavicular group is most often compromised, although involvement of Level I and II nodes has also been reported.<sup>4-6</sup>

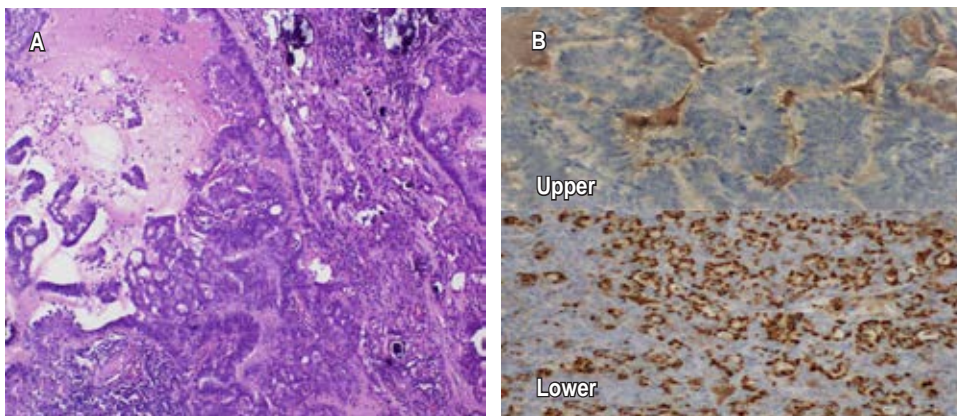
Undoubtedly, the lung cancer established this patient's prognosis, making the thyroid

**Figure 1:****A)** Right thyroid lobe papillary carcinoma.

Enlarged nuclei, clear nuclear chromatin, nuclear crowding and overlapping with loss of the basal polarity. HE 40X. **B)**

PAX-8 immunohistochemical stain depicting nuclear staining in right thyroid lobe carcinoma. HE 40X.





**Figure 2: A)** Lymph node metastases from right lung adenocarcinoma with papillary features. Malignant columnar tumor cells growing on the surface of fibrovascular cores, Psammoma bodies are present. HE 40X. **B) Upper** Negative thyroglobulin immunohistochemical stain in right neck lymph node metastases from lung carcinoma. **Lower** Napsin-A immunohistochemical stain showing diffuse cytoplasmic staining in right neck lymph node metastases from right lung adenocarcinoma with papillary patterns. HE 40X.

lesion a «minor problem»; however, at that time the lung tumor appeared to be under control. Even though neck metastasis from papillary microcarcinoma of the thyroid might be observed, it was quite surprising to palpate and observe such an «explosive» array of right neck metastasis from a 7 mm right thyroid lobe papillary carcinoma, almost sixteen months after the first diagnosis, really questioning at this time the active-surveillance approach. A complete revision of all tissues obtained from the beginning, using specific Immunohistochemistry for thyroid and lung tissue, certainly allowed the authors to come to the conclusion that the multiple neck lymphadenopathy was not caused by the small thyroid lesion itself, but from the lung malignancy, showing progressive metastatic extension not suspected up to that moment. The lung lesion was then reclassified as adenocarcinoma with papillary features, explaining the findings in the neck, thus avoiding unnecessary radioactive iodine.<sup>7-10</sup>

Shortly after the metastatic lung cancer to the neck was diagnosed, the patient underwent four cycles of chemotherapy. Unfortunately, he died afterward due to the unresponsive disease.

### CONCLUSION

Even though the diagnosis of «metastatic papillary cancer» in the neck in the presence of an ipsilateral micropapillary carcinoma thyroid nodule seemed to be a straight-forward diagnosis, even in this patient with lung cancer indicating that a second aggressive malignancy was diagnosed. The macroscopic appearance of the neck nodes during surgery just did not resemble the usual macroscopic presentation of a true thyroid carcinoma. Fortunately, with today's new pathology techniques, this dilemma has been resolved, avoiding unnecessary treatment such as radioactive iodine.

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