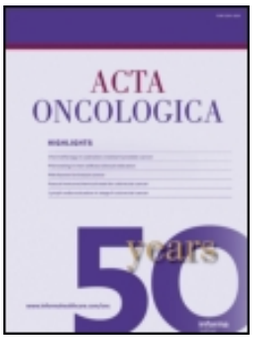

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Renal cell carcinoma metastasis to the thyroid: How long is long enough?

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Dear Editor,

The longest reported duration between diagnosis of primary tumor and metastasis to the thyroid gland is 21 years [1]. We encountered a case of renal cell carcinoma (RCC) metastasis to thyroid gland 30 years after resection of the primary tumor. This is the longest reported interval between diagnosis of non-thyroid primary tumor and development of metastatic disease to thyroid to date.

An 85-year-old female complained of dysphagia of six months duration. Her past medical history was significant for diabetes mellitus, hypertension and end

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stage renal disease secondary to diabetes for which she was on hemodialysis. She also gave a history of cholecystectomy, and a left-sided nephrectomy performed 30 years ago for a RCC. On physical examination, she was noted to have a palpable firm mass, around 5 cm in diameter, on the left side of neck that was mobile with swallowing. Rest of the physical examination did not reveal any significant abnormality.

Complete blood count was only significant for hemoglobin of 10.9 gm/dl, with a mean cell volume of 106 fl. Electrolytes, and liver function tests were normal. BUN and creatinine were elevated, consistent with her history of renal disease. Her thyroid stimulating hormone level was slightly elevated at 5.43 mcIU/ml with a normal T4 level of 1.1 ng/ml. A computed tomography (CT) of the neck was performed which showed a $4.3 \times 6.3 \times 8.8$ cm heterogeneously enhancing soft tissue mass originating from the left lobe of thyroid.

A fine needle aspiration cytology of the left lobe of thyroid returned positive for Hurthle cell neoplasm. She eventually underwent a left total thyroid lobectomy with right partial lobectomy. Histopathology showed an 8.5 cm mass composed of predominantly clear cells. Immunohistochemistry and immunofluorescence were positive for KIM-1, CD10, PAX2, PAX8 and vimentin. A diagnosis of metastatic RCC was made. She was started on sunitinib. However, she did not comply with the treatment or follow-up.

Metastases to the thyroid gland are uncommon. However, of all the metastatic malignant neoplasms to the thyroid, RCC accounts for almost half [1]. Late metachronous metastasis, as seen in our case, is a relatively common phenomenon with RCCs. In a retrospective study, 11.8% of patients with RCC developed distant metastasis more than five years after initial diagnosis [2]. Interestingly, patients with late metachronous metastasis of RCC tend to do better in terms of overall survival when compared to patients with synchronous or early metastasis [3]. The precise mechanisms behind quiescence of RCC before manifesting as metastasis to the thyroid gland decades later have not been studied. Further research in this area with focus on both 'soil' (microenvironment of thyroid gland) and 'seed' (tumor characteristics of RCC) factors [4] is needed to understand the underlying pathophysiologic mechanisms behind late metastasis of RCC to thyroid.

Our case is the longest reported interval between diagnosis of renal cell carcinoma and development of metastatic disease to the thyroid to date. It highlights the importance of eliciting, and considering remote history of renal cell carcinoma, even decades later, when evaluating thyroid masses.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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