

# Acute Airway Obstruction Due To Metastatic Renal Cell Carcinoma Cancer

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## Abstract

This is the first reported case of an emergency total thyroidectomy following acute airway obstruction in secondary thyroid cancer. The patient had a previous nephrectomy for renal cell carcinoma some 21 years previously, and the thyroid histology revealed the presence of a clear cell renal metastasis. The presentation and the latent period from nephrectomy, make this case unique. The clinician must always be mindful of previous malignancy in cases of goitre-related airways obstruction.

## CASE REPORT

A 69 year old lady, with known thyroid goitre, presented acutely to the emergency department with cyanosis and near-total upper airway obstruction. Over the preceding one week she had been having increasing shortness of breath and over twenty four hours had been unable to lie flat and had developed significant stridor. Her medical history included obstructive sleep apnoea for which she had nocturnal CPAP, euthyroid goitre and a previous renal cell carcinoma which was resected in 1985. Following her surgery, she received no adjuvant therapy.

On clinical examination, she was grossly centrally cyanosed with a reduced conscious level. She was making some respiratory effort but there was minimal air entry. An initial blood gas revealed severe respiratory acidosis. A chest x-ray showed bilateral consolidation consistent with pulmonary oedema. Managing her airway proved particularly troublesome given that she could not lie flat to allow intubation and that there was no palpable cricothyroid membrane owing to her goitre. Her airway was therefore initially maintained with intermittent positive pressure ventilation via a bag and mask and she recovered sufficiently to allow transfer to the intensive care unit. Incidentally, her thyroid function tests were completely normal.

A CT scan (see Fig 1.) revealed severe tracheal obstruction at the low cervical level from a massive goitre.

## Figure 1

Figure 1: Acute CT showing large goitre with significant tracheal compression



Of note, there was no retrosternal extension of the goitre. She was then prepared for theatre and underwent an emergency total thyroidectomy. The anaesthetist noted that her cords were opposed despite full relaxation but she was able to intubate with fiberoptic assistance. At operation, the thyroid was very bulky with massive venous engorgement and the right lobe was noted to be larger than the left. There was no evidence of tracheomalacia. Apart from difficult haemostasis, the operation was uneventful.

She made a good post-operative recovery and returned home several days later.

The thyroid tumour identified within the thyroidectomy specimen was similar to the previously excised renal cell carcinoma and was thus consistent with a metastasis from this site. Of note, immunostaining for thyroglobulin was negative, indicating secondary thyroid pathology.

A staging CT post-operatively revealed no evidence of further metastatic spread. Interestingly, she no longer suffers from obstructive sleep apnoea and her CPAP machine is now redundant.

### DISCUSSION

Although the finding of a thyroid metastasis from a distant primary source is not uncommon at autopsy in patients who died of disseminated malignancy, clinically significant metastases are rare.<sup>1</sup> Primary tumours that can metastasise to the thyroid include breast, colon, bronchoalveolar, melanoma and leiomyosarcoma. Breast and lung carcinoma seem to be the most frequent source of secondary thyroid cancer identified post-mortem but renal carcinoma appears to be the most common to present clinically. Pre-existing thyroid pathology has been suggested to provide a nidus for metastases to the thyroid.<sup>2</sup> There are only a few reports in the literature of clinically significant thyroid metastasis requiring surgery but these have all been planned operations either for the purpose of obtaining tissue diagnosis,<sup>3</sup> or to remove a confirmed metastasis.<sup>4</sup> This is the first reported emergency total thyroidectomy for airway obstruction due to metastatic renal cell carcinoma.

Respiratory symptoms caused by goitre are rare as the tracheal lumen may be compressed by up to 75% before the airway is compromised.<sup>6</sup> Emergency thyroidectomy for airway obstruction secondary to goitre is thus extremely rare. There are only three previous reported cases for emergency thyroidectomy following acute respiratory arrest

and these were due to spontaneous intraglandular haemorrhage, follicular carcinoma and a benign goitre in an elderly gentleman.<sup>5,6</sup> In all three of these cases, there was a moderate retrosternal component to the goitre. However in this case, there was no suggestion of acute haemorrhage or primary thyroid carcinoma and there was no retrosternal goitre.

The other interesting feature here is the length of time from nephrectomy to presentation of the metastasis. In this case, there was a 21 year lag phase and this is one of the longest latency periods reported; a recent report cited 19 years as being highly unusual and very rare.<sup>1</sup> This has implications for surveillance following nephrectomy, even in those patients who are staged as being node negative at the time of the original operation. Conversely, there may be an occult renal cell carcinoma in a patient presenting with a secondary thyroid tumour.<sup>7</sup>

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