

## Case Report

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## Palliative Management of Tracheal Stenosis Caused by Anaplastic Thyroid Carcinoma Transformed from Papillary Thyroid Carcinoma: A Case Report

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## ABSTRACT

Tracheal stenosis due to invasion of thyroid malignancy is a rare entity. Management of the airway in such a patient is a critical step in palliative care. We discuss the successful management of tracheal stenosis due to anaplastic transformation of papillary thyroid carcinoma in an 84-year-old female. There are several methods for airway management in tracheal stenosis. Self-expanding stent placement is a less invasive, efficient procedure for tracheal stenosis.

**Keywords:** *Tracheal stenosis, papillary thyroid carcinoma, Anaplastic thyroid carcinoma, Tracheal invasion, Stenting*

## INTRODUCTION

An 84-year-old lady presented with stridor for one month duration. She had undergone subtotal thyroidectomy two years prior for thyroid malignancy. Histology at the time revealed a papillary thyroid carcinoma extensively infiltrating the thyroid gland and capsule posteriorly. A subtotal thyroidectomy had been done as a bail out procedure due to disrupted tissue planes and bleeding. A multi-disciplinary team had then decided on radiotherapy and radioiodine treatment, but the patient had defaulted. She then developed stridor which slowly progressed. She remained ambulant and vital parameters were stable, but she episodically got exacerbations due to secretions. At the time of the most recent presentation she had a hard nodular goiter.

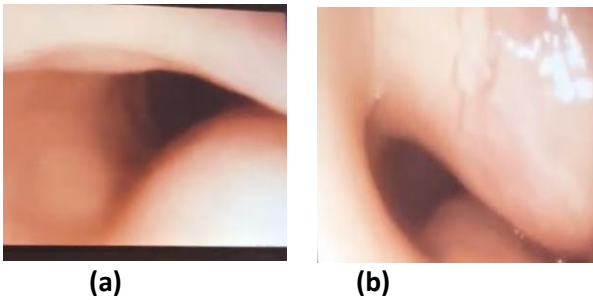
Flexible bronchoscopy revealed tracheal narrowing and posterior dynamic bulging. CECT neck and chest showed carcinoma of thyroid causing severe tracheal narrowing with minimal luminal diameter of 6mm from C6-T1 and bilateral internal jugular vein compression (T4a, N1a, M0).

The patient refused any further operative procedures at the time, including tracheostomy, despite extensive counselling.

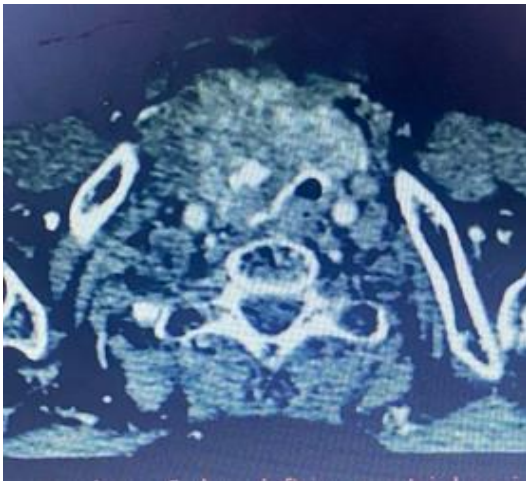
The patient was then transferred to National Hospital for Respiratory Disease for an attempt at tracheal stenting. However, the patient acutely deteriorated in the ward and at that time she had consented for an emergency thyroidectomy and tracheostomy, as it was deemed to be the most



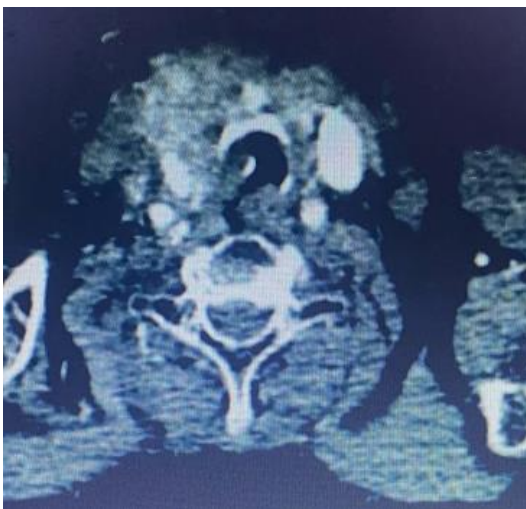
definitive and robust therapeutic option at the time. Both were attempted but failed due to extensive tumour invasion. She then underwent tracheal stenting.



**Figure (a) and (b):** bronchoscopic view of tracheal stenosis.

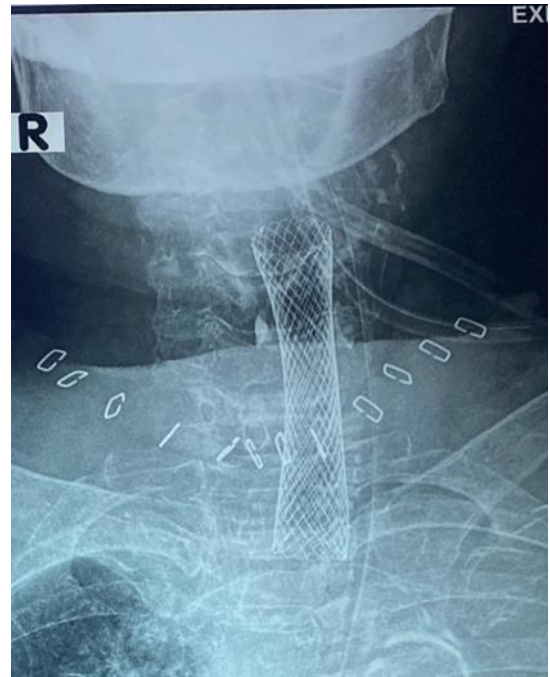


**(c)**



**(d)**

**Figure (c) and (d):** tracheal narrowing with heterogeneously enhancing thyroid malignancy.



**(e)**



**(f)**

**Figure (e) and (f):** Post stenting X-rays.

Post stenting, she was aphonic due to the proximal flange of the stent obstructing the function of the vocal cords. She subsequently developed aspiration pneumonia due to her inability to effectively cough. She was on strict naso-gastric feeding to avoid aspiration. PEG tubes were considered to improve her enteral feeding, but due to concerns of dislodging the tracheal stent during

any upper GI endoscopic procedure it was decided to go ahead with an open feeding gastrostomy under intercostal block. This mode of regional anaesthesia was selected as the airway management would be complex if general anaesthesia was utilised. Feeding was successfully established through the gastrostomy and the NG tube was removed. The chest infection was managed with intravenous antibiotics.

## DISCUSSION

Tracheal invasion from thyroid carcinoma is a rare phenomenon but it is the main cause for the death related to thyroid cancer (1). Anaplastic thyroid carcinoma accounts for 2%-5% of all thyroid cancers but it is the commonest thyroid malignancy causing tracheal invasion (2).

Airway management of these patients is crucial and decision making is critical. Timing, mode of intervention, prognosis and limited treatment options need to be considered. The management options are tracheal resection and repair, tracheostomy, tracheal dilatation and self-expanding stent placement. Tracheal stenting is a feasible option when operative procedures are deemed too risky or likely to fail. Stenting, however, is not a definitive solution, with migration and aspiration often complicating the clinical situation. Self-expanding stents are commonly used. In contrast to silicone stents, metal stents are easy to place but the risk of tumour ingrowth and migration is relatively high (3).

Feeding while on a tracheal stent remains a significant problem, which we managed to resolve with the gastrostomy. However, airway management for the procedure needs careful planning as options remain limited with imminent danger or airway occlusion.

Phonation was affected in our patient due to the position of the proximal flange of the stent across the vocal cords. In addition, this increases laryngeal secretions and also impedes the ability to generate an effective cough. Therefore, aspiration risks are significant, making oral feeding very risky. However, the evidence for tracheal stenting

related complications is scarce. A study by Dr. Scott A. Zakalunzy et al. (2003) published a study which describes all of the above complications of stenting (4).

These palliative measures are by no means definitive, and the threat of airway occlusion and asphyxiation is ever present. Counselling the patient and the family members is an important part of overall care.

## CONCLUSION

The airway management of a patient with tracheal invasion and stenosis by thyroid malignancy is a complex problem, often with limited safe surgical options. Tracheal stenting offers a temporary solution to maintain airway patency, but at the same time increasing risk of aspiration and making oral feeding dangerous.

### Author declaration

#### Authors' contributions:

Study concept and design: N.J. and K.R., Acquisition of data :N.J. and D.U., Analysis and interpretation of data : K.R. and S.H. , Drafting of Manuscript: N.J. and K.R. , Patient management: K.R. , S.H. ,N.J., D.U.

#### Conflicts of interest:

The authors declare that there is no financial or non-financial conflict of interest.

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#### Consent for publication:

Informed consent has been obtained from the patient for the publication of this case report.

## REFERENCES

1. Yuji Kanazawa, Masato Takeuchi, , Ichiro Tateya, , Koichi Omori, Koji Kawakami, Clinical epidemiology of tracheal invasion from thyroid cancer in Japanese population: Functional outcomes and effect of aging,Cancer Epidemiology,Volume A, October 2017.
2. Nagaiah, G., Hossain, A., Mooney, C.J., Parmentier, J. and Remick, S.C., 2011. Anaplastic thyroid cancer: a

review of epidemiology, pathogenesis, and treatment.  
Journal of oncology, 2011.

3. D.J. Feller-Kopman, R. Bechara, Bronchoscopy, General And Interventional, Encyclopedia of Respiratory Medicine, 2006.
4. Zakaluzny, S.A., Lane, J.D. and Mair, E.A., 2003. Complications of tracheobronchial airway stents. Otolaryngology—Head and Neck Surgery, 128(4), pp.478-488.