

# Massive Retrosternal Goitre Presenting with Superior Vena Cava Obstruction

T. Ross<sup>1</sup>, A Cavazza<sup>1</sup>, C Collins<sup>1</sup>

<sup>1</sup> West Middlesex University Hospital, Chelsea and Westminster NHS Foundation Trust

Chelsea and Westminster Hospital  
NHS Foundation Trust



West Middlesex University Hospital

## Case Report

A 50 year old female was admitted to our district general hospital, with a four week history of shortness of breath and decreased exercise tolerance. She had a strong family history of thyroid disease.

On examination, she had a bilateral swelling in the neck extending to the supraclavicular region and a swollen, plethoric face. She had a positive Pemberton's sign.

Thyroid function tests were carried out, which showed a raised T3 (8.3), normal T4 (11.9) and low TSH (0.09).

A CT neck was carried out to assess for evidence of superior vena cava obstruction (SVCO). The scan showed partial SVCO secondary to a large retrosternal goitre.

The patient was treated with high dose steroids and once euthyroid, was subsequently transferred to a tertiary centre for thyroidectomy. This was performed without complication via a trans-cervical approach. Parathyroid auto-transplantation was performed into the sternocleidomastoid due to gland devascularisation. Post-operative histology showed no evidence of malignancy.

## Background

Retrosternal goitre is defined as thyroid enlargement that descends below the thoracic inlet. It is thought to have an incidence of 6.28%<sup>1</sup>. There is no greater incidence of malignancy in retrosternal goitre when compared to cervical goitre.

Despite retrosternal invasion of goitre being recognised as a complication of thyroid enlargement, the incidence of SVCO is low<sup>2</sup>. SVCO is, however, a strong indication for surgery. It can present great anaesthetic and surgical challenges for all involved.

Thyroidectomy for retrosternal goitre requires careful surgical planning, and the hands of an expert thyroid surgeon in a tertiary centre.

## Discussion

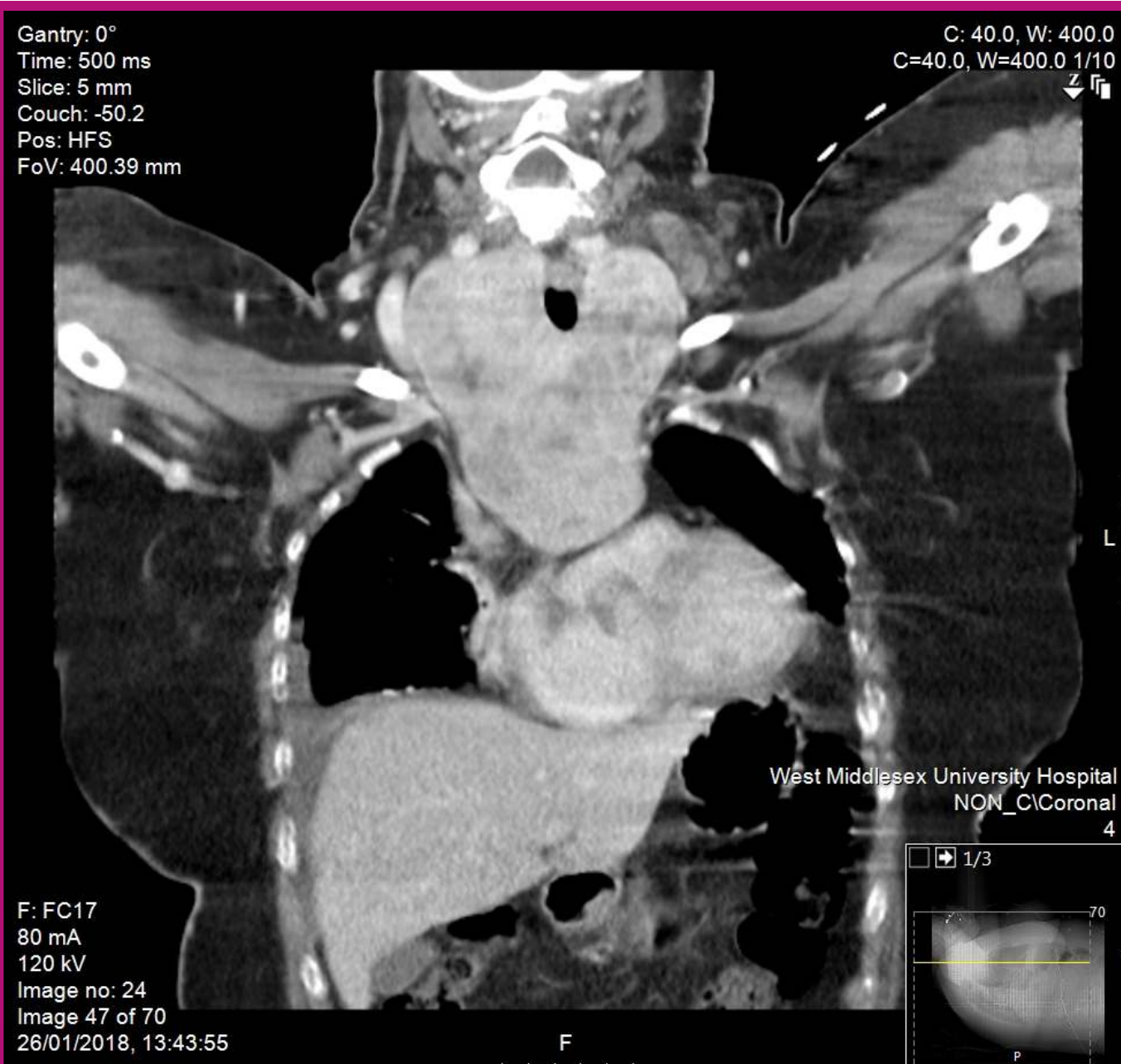
During thyroidectomy, 84% of goitres can be successfully resected via a trans-cervical approach<sup>1</sup>. The risk of converting to sternotomy is increased by extension into the posterior mediastinum, adherence to structures in the mediastinum, ectopic goitre and extension below the aortic arch<sup>3</sup>. These factors should be accounted for using pre-operative computerised tomography. Due to the significant post-operative morbidities associated with a trans-thoracic approach, trans-cervical approach should be carried out wherever possible<sup>3</sup>.

The rate of parathyroid auto-transplantation is higher in retrosternal goitre excision, compared to thyroid disease confined to the neck (37% vs. 22%,  $p < 0.01$ )<sup>2</sup>.

## Conclusions

SVCO is an unusual presentation of retrosternal extension of a goitre. It should be managed with steroids in the acute setting, and once euthyroid, the patient should undergo total thyroidectomy by an expert surgeon in a tertiary centre.

Careful pre-operative planning, including CT, is required to delineate the extent of retrosternal involvement. Most can be removed via a trans-cervical approach, which reduces post-operative morbidity associated with division of the sternum.



## References

- <sup>1</sup> Huins, Charles T. et al. A new classification system for retrosternal goitre based on a systematic review of its complications and management. *Int J Surg* 2008, 6(1):71 - 7
- <sup>2</sup> Hedayati N, McHenry CR. The clinical presentation and operative management of nodular and diffuse substernal thyroid disease. *Am Surg* 2002;68:245–51
- <sup>3</sup> Qureishi, Ali et al. Can pre-operative computed tomography predict the need for a thoracic approach for removal of retrosternal goitre? *Int J Surg* 2015;11(3):203-208