

# A mediastinal mass in a patient with thyrotoxicosis - recognising the association between Thymic hyperplasia and Graves' Disease

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**Introduction:** There is a rare but well documented association between thymic hyperplasia and Graves Disease particularly in young patients. Treatment of the Graves disease can lead to reduction in the thymic enlargement, as illustrated by this case. Recognition of this association is important as these patients often undergo extensive and possibly unnecessary investigation.

## Case:

- A 19 year old female was with symptoms of thyrotoxicosis
- Clinically thyrotoxic with no eye signs
- Blood tests confirmed thyrotoxicosis and Graves' disease (Box 1)
- Initiated on carbimazole
- Later attended A&E with pleuritic chest pain and underwent CTPA which showed 7.6 x 2.1 x 7.1cm anterior mediastinal mass (Figure 1)
- Referred to Haematology for further investigation
  - Underwent CT guided biopsy which suggested thymic hyperplasia or thymoma
- Thyroidectomy performed for definitive treatment of Graves' disease and initiated on levothyroxine
- A repeat CT scan 6 months post-surgery showed almost complete resolution of the mediastinal mass (Figure 1).

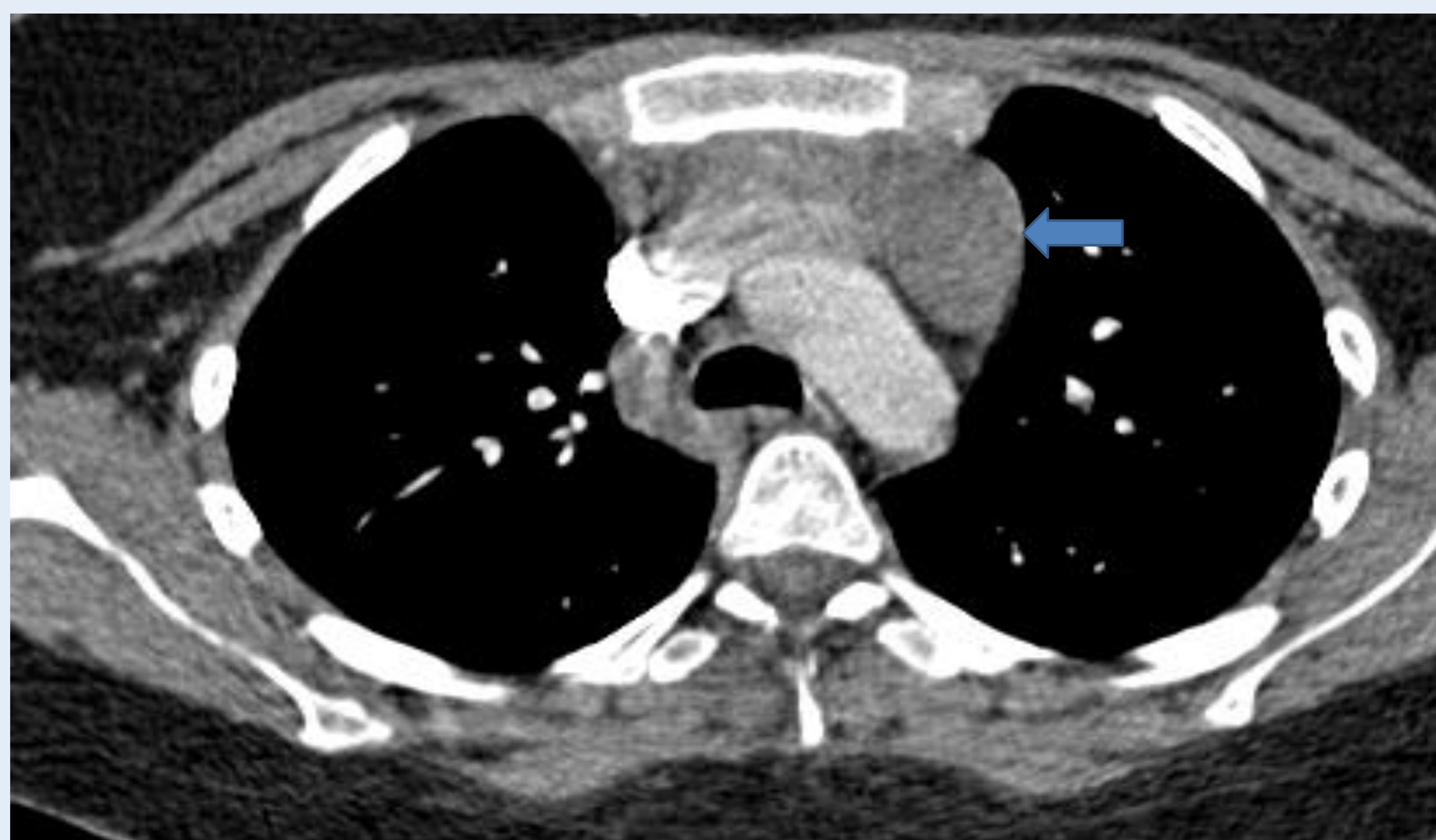
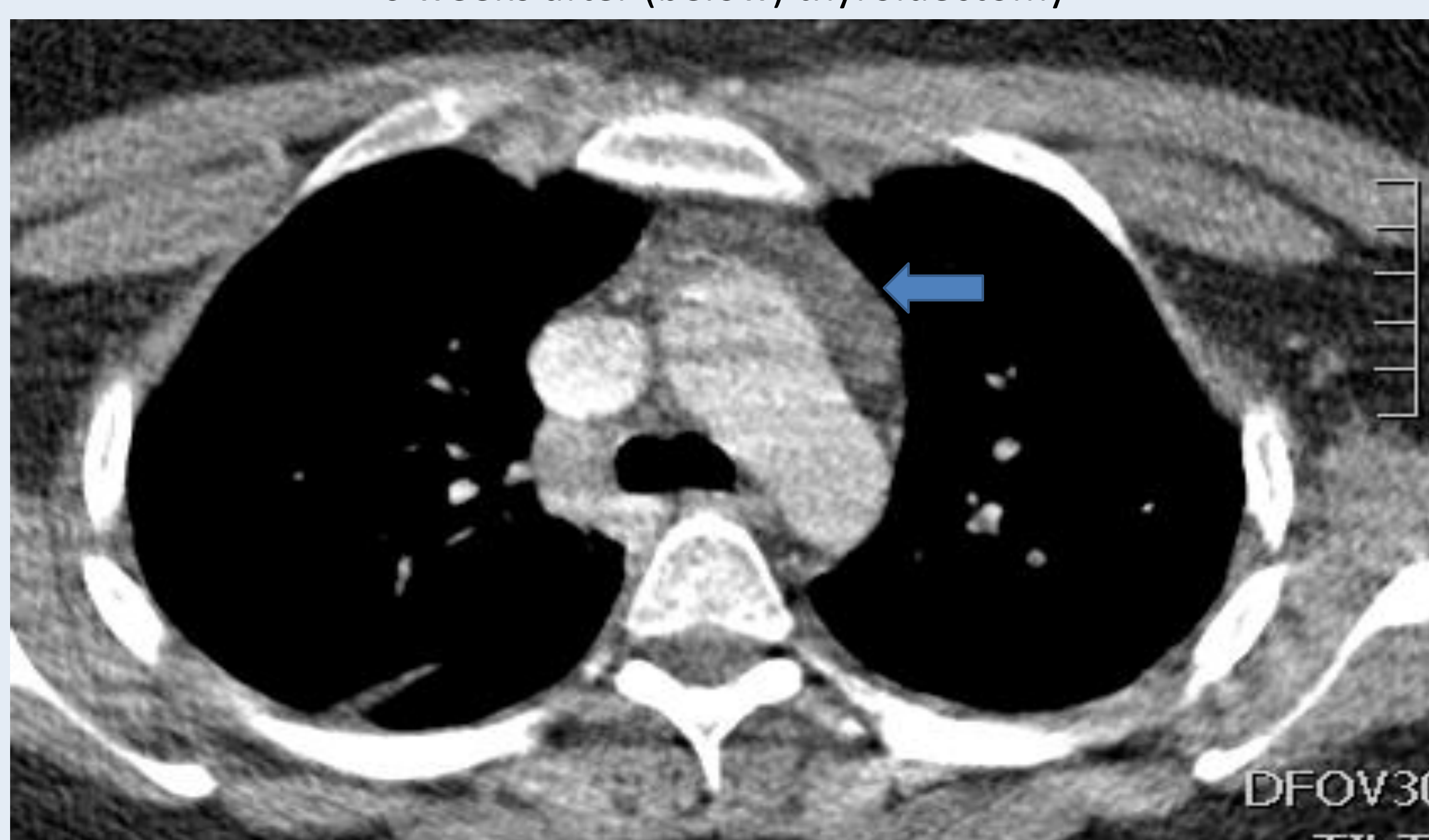


Figure 1: CT scan showing thymus before (above) and 6 weeks after (below) thyroidectomy



## Box 1: Blood results

TSH	<0.01 mu/L (0.27-4.2)
T3	24.8 pmol/L (3.5-6.5)
T4	46.8 pmol/L (10.0-21.0)
TBII	2.8 U/L (<1)

## Discussion and learning points:

- The case above illustrates an instance where Graves' associated thymic hyperplasia resolved following definitive treatment of the hyperthyroidism.
- The association between Graves' disease and thymic hyperplasia is rare but well documented<sup>1-5</sup>
- In the majority of cases thymic enlargement is minimal, but occasionally it may be massive<sup>4,5</sup>
- The exact pathophysiology not known - possible presence of TSH receptors in thymic epithelial cells that may be involved in the autoimmune response<sup>3,6</sup>, but as yet this remains unproven
- A number of case reports that suggest that the process is benign in nature and **successful treatment of the Graves' disease can lead to a reduction in size of the enlarged thymus<sup>2-5</sup>**
- Recognition of the association between Graves' and thymic hyperplasia can **potentially avoid unnecessary investigations and major surgery.**

## References

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