Conversion of autoimmune hypothyroidism to hyperthyroidism with thyroid eye disease

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Background

41 year old lady

Current smoker

Medical history:

Hypothyroidism x 15 years

+ve TPO antibodies

On levothyroxine

Psychotic depression

Borderline personality disorder

Presentation

Four year history with progressive eye signs

TFTs - suppressed TSH

On examination active thyroid eye disease

- Restriction of extra-ocular movement
- Proptosis
- Diplopia
- Reduced visual acuity

Eye Disease

- Advised to stop smoking
- Commenced 12 week course of pulsed intravenous methylprednisolone
- Good initial response however disease after 6 months
  - Persistent diplopia
  - Significant proptosis
- Underwent orbital decompression with excellent functional response

Thyroid function tests

- Gradual reduction in levothyroxine dose
- Persistent biochemical evidence of hyperthyroidism
- +ve TSH receptor antibodies and Thyroid uptake scan showed increased uptake throughout the gland
- No clinical features of thyrotoxicosis
- Commenced on carbimazole with dose adjustment over 8 months
- Developed hypothyroidism on treatment which continued on withdrawal of carbimazole
- Recommenced on thyroid replacement therapy

Thyroid Function Test Results During Treatment

	April 13	Aug 13	Sept 13	April 14	July 14	Sept 14	Nov 14
TSH	<0.05	<0.05	<0.05	6.87	3.65	5.94	0.46
Free T4	28.7	22.3	24.3	7.8	10.1	8.3	12.5
Free T3	7.4	7.7	10.6	2.3	4.2		
	Levothyroxine dose reduced	Dose further reduced	Carbimazole started	Carbimazole stopped	Off treatment	Recommenced levothyroxine	

Challenges to treatment

- Given her significant psychiatric history she was reviewed regularly by the local mental health team. Her mental state deteriorated during the course of steroids but responded well to psychiatric intervention.
- She had poor engagement with the endocrine team leading to a delay in optimising her thyroid function. A multidisciplinary approach centred on the opthamology clinic was ultimately successful.

Discussion

- Though most commonly considered as Graves' ophthalmopathy, thyroid eye disease has been described in all forms of autoimmune thyroid disease.
- We postulate that this lady had TSH receptor antibodies which were variably stimulating or blocking the TSH receptor as the likely underlying cause for her presentation.
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  Though rare this illustrates the need to have a high index of suspicion for possible conversion of hypothyroidism to hyperthyroidism in such patients.
- Attributing the biochemical abnormality solely to over replacement with thyroid hormone misses an opportunity to commence appropriate therapy.

References

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Clinical Cases - thyroid/others

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