

# HYPERTHYROIDISM CAUSING ATRIAL FIBRILLATION IN A YOUNG MAN

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A 28-year-old male with hyperthyroidism and atrial fibrillation was presented at a medico-surgical round at the Somerset Hospital and the rarity of this association at this age without underlying cardiac disease was pointed out.<sup>1</sup> Hence, it was decided to report this case.

## CASE REPORT

The patient, a Coloured provision store manager, was admitted to King Edward Ward on 17 February 1966.

Four months before admission he was treated for laryngitis by his general practitioner. One month later he developed symptoms characteristic of hyperthyroidism, with profuse sweating (even in cold weather), preference for cold weather, irritability, and approximately 20 lb. weight loss. Appetite was unchanged, and there was no diarrhoea. No angina pectoris. Three days before admission his wife noted that his eyes were proptosed and the goitre was then noted by his general practitioner.

## Examination

The patient was a well-built Coloured male, with warm sweaty palms, profuse sweating during the examination and striking, abrupt and overactive mannerisms. Eyes were characteristically staring with marked proptosis and lid lag.

The thyroid gland was diffusely enlarged, soft in consistency, with a smooth surface. There was no retrosternal prolongation. No bruit was audible on auscultation. There was no enlargement of the draining lymph nodes, and no signs of involvement of the carotid sheath.

*Pulse rate.* 100 beats per minute, totally irregular—atrial fibrillation, confirmed on the electrocardiogram (Fig. 1). Sleep-

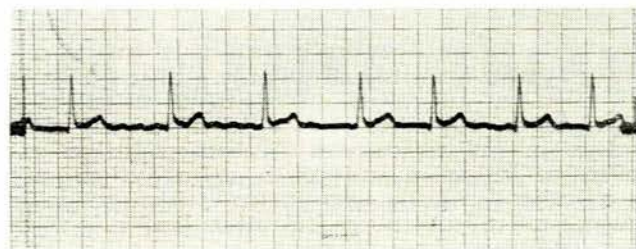


Fig. 1. ECG done on 22 February 1966, showing atrial fibrillation.

ing pulse rate was 90 beats per minute. Blood pressure was 125/60 mm.Hg.

*Heart.* No abnormality other than the atrial fibrillation. No signs of congestive cardiac failure. All tendon reflexes were brisk and there was a fine tremor of the hands. All other systems were normal.

*Urine.* Showed 1+ glycosuria on Tes-tape examination.

## Special Investigations

X-ray of the chest was normal. The heart was normal in size and shape. Radioactive iodine studies confirmed the

clinical diagnosis of thyrotoxicosis, viz.: 6-hour uptake 84%, 24-hour uptake 85%, red blood cell uptake 33.3%.

The serum protein-bound iodine was 11.6  $\mu\text{g.}/100$  ml. The glucose-tolerance curve was normal and the Wassermann reaction was positive.

Methimazole (Neomercozole) 20 mg. three times per day, together with thyroxin, 0.1 mg. per day, was commenced on 22 February 1966.

During his stay in hospital the patient became generally calmer, his tremor was less marked and his weight increased from 162 to 184 lb. The white cell count remained within normal limits. Proptosis receded somewhat, but the improvement was not as marked as the other signs.

The patient also received a course of penicillin for his positive Wassermann reaction.

He was discharged on 27 March 1966 and therapy was continued as an outpatient, and 2 months after its commencement, the atrial fibrillation was replaced by a sinus cardiac rhythm. This was confirmed by the electrocardiogram which was within normal limits (Fig. 2). Re-examination of the heart did not show any evidence of valvular lesions.

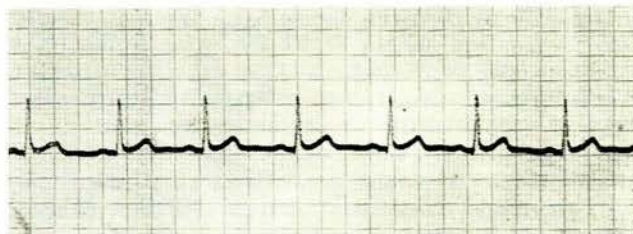


Fig. 2. ECG done on 21 April 1966, showing sinus rhythm (after 2 months on methimazole).

On 23 June 1966 a subtotal thyroidectomy was performed by Dr. D. Stein. Histology of the gland showed minimal signs of residual hyperthyroidism.

The postoperative course was uneventful, and the patient resumed work in July 1966.

## DISCUSSION

The most common ectopic cardiac rhythm in hyperthyroidism is atrial fibrillation. However, it usually occurs in hyperthyroid patients who are elderly or those who have some underlying hypertensive, valvular, coronary or other form of heart disease. Its occurrences in a young hyperthyroid patient with normal cardiac function is not unknown, but is definitely rare,<sup>2</sup> and then usually occurs only with a severe degree of hyperthyroidism.

Atrial fibrillation in patients without apparent heart disease helps arouse the suspicion of hyperthyroidism when it might otherwise be overlooked.

The mechanism of atrial fibrillation in hyperthyroidism is not clear. One suggestion is that it may be precipitated by vagal activity; transient atrial fibrillation being in-

duced in hyperthyroid patients by injection of acetyl B methyl choline.<sup>3</sup>

Some other points about atrial fibrillation which should be remembered are:

- (i) In the early stages of the disease it is apt to be paroxysmal in occurrence.
- (ii) It is less well controlled by digitalis than fibrillation in euthyroid patients.
- (iii) As in this case it may disappear spontaneously as thyroid function returns to normal on medical therapy. If it persists, it may be abolished by quinidine.

#### SUMMARY

The association of hyperthyroidism and atrial fibrillation in a 28-year-old man is reported. When methimazole

therapy caused clinical euthyroidism, the atrial fibrillation ceased. There was no evidence of underlying hypertensive, coronary, valvular or other forms of cardiac disease. Subtotal thyroidectomy was performed and the patient is now well and at work. It is suggested that this case is a very rare example of hyperthyroidism causing atrial fibrillation at so young an age as 28 years.

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#### REFERENCES

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