

# HYPERTHYROID PSYCHOSIS

KUA EE HEOK

## SUMMARY

*Thyrotoxic psychosis is an uncommon phenomenon and the presentation is usually of the affective disorders. Three cases manifesting psychotic symptoms akin to schizophrenia are described. The neurobiochemistry and treatment are discussed.*

## INTRODUCTION

Disorders of the thyroid gland commonly produce mental changes, albeit these are usually minor disturbances. The neurotic symptoms of thyrotoxicosis like anxiety and irritability are prosaic and may antedate physical complaints. There is a plethora of literature on the psychosis associated with myxoedema but a paucity of information on hyperthyroidism. Reviews by Greer and Parsons<sup>1</sup> and Whybrow *et al.*<sup>2</sup> show the protean presentation and enormous variation in thyrotoxic psychosis.

Affective disorders and confusional states are not uncommon, but schizophrenia-like manifestation is exceedingly rare. Episodes of excitement akin to hypomania and depressive mood without retardation have been described.

Thyroid crisis is a sudden accentuation of the

---

Kua Ee Heok, M.B.B.S. (Mal), M.R.C. Psych (UK)  
Senior Registrar,

Botleys Park Hospital, Chertsey,  
Surrey, England.

Correspondence to: Dr. Kua Ee Heok,  
Woodbridge Hospital, Singapore

---

hyperthyroid state and is characterised by fever, tachycardia, tremor, diarrhoea, restlessness, cardiac arrhythmias, emotional lability with or without clouded consciousness and occasional psychotic symptoms.<sup>3</sup> This may be precipitated by infection, trauma, operation or abrupt discontinuance of antithyroid drugs.

## CASE HISTORY (1)

A 45 year-old English housewife was referred by the surgeon a day after an operation for a lipoma in the neck. Her behaviour was observed to be outlandish for she refused meals, claiming that they were poisoned. It was initially thought that it could be a transient post-operative paranoid state.

Mrs B.C. appeared suspicious, frail and taciturn. Over the last 3 months her husband had noticed that she was unusually cantankerous, had sleep difficulty and was "preoccupied with her own thoughts". She complained of tiredness of the legs after climbing a flight of stairs at home and lost about 5 lbs. over a month.

During the interview she spoke with a stutter and expressed paranoid ideas about the staff being conspirators in a plot to get rid of her.

Physical examination showed evidence of wasting of the proximal muscles of the legs, tachycardia - pulse 130/min., sweaty palms but the thyroid was not enlarged. Serum T<sub>4</sub> estimation was 180 nmol/li and the Free thyroxine index FTI 1.60.

## CASE HISTORY (2)

Mrs H.C. was a 53 year old Portuguese widow, who was referred by the general practitioner for a

recent onset of bizarre behaviour. Her son observed that she was increasingly restless - prancing up and down the house. She became very absorbed with her religion and complained about voices of various people whispering in her ears. Prior to admission she was noticed to laugh inappropriately and became more reserved.

Examination revealed an emaciated woman, reticent and anxious. She was well orientated and had a fine tremor of the fingers with a rapid pulse 140/min. The thyroid gland was not palpable and the blood tests showed elevated  $T_4$  level of 190 nmol/li and FTI 1.70.

### CASE HISTORY (3)

A 52 year old housewife with a history of a non-toxic goitre for 3 years was admitted into hospital after a sudden onset of truculent and agitated behaviour. Her husband mentioned that she had difficulty with sleep and poor concentration for the last 4 weeks. The last two days she was unduly excited, garrulous and her speech was incomprehensible.

On examination she was restless, distracted and disorientated in time and place. Her thought content was irrational with looseness of association of ideas and no evidence of hallucination or delusion. The thyroid gland was enlarged, pulse was rapid 140/min and she had profuse sweating. The serum  $T_4$  was 185 nmol/li and the FTI 1.72.

### DISCUSSION

The phenomenological presentation of these three cases is similar to schizophrenia. They are all middle-aged women, without past psychiatric history. The psychotic symptoms appeared at about the time when there were evidences of thyrotoxicosis. There will still be the unresolved contention about whether one is a concomitant with the other or they are unrelated illnesses. Psychological stress can precipitate hyperthyroidism and schizophrenia but each can also exacerbate the other.

All the three cases were jointly managed with the endocrinologist, who agreed that the first and third cases were in thyroid crisis. Besides anti-thyroid drug (neomercazole) Chlorpromazine 75 mg tds and propranolol 40 mg tds were prescribed. The psychiatric symptoms improved after five days and when the patients were euthyroid the antipsychotic

drugs were tailed off.

Burstein<sup>4</sup> had documented patients with thyroid crisis with severe mental symptoms. Many of these symptoms are similar to intense adrenergic stimulation and drugs which inhibit sympathetic activity often lead to improvement. There is no evidence however of increased production of catecholamines in hyperthyroidism but the present climate of opinion supports the theory that thyroid hormone increases the sensitivity of tissues to catecholamines. Hence adrenergic neuronal blocking agent like propranolol has shown to be effective in treatment.

Schizophrenia-like state in thyroid crisis responds dramatically to propranolol and chlorpromazine within 48 hours according to the series by Greer and Parsons.<sup>1</sup>

Due to the protean manifestation of thyroid disorders, it is mandatory for thyroid function screening in psychiatric patients. Carney *et al*<sup>5</sup> found abnormal results in 20 percent of in-patients with a preponderance of females and hypothyroidism. Nicholson and Liebling<sup>6</sup> screened women psychiatric patients more than forty years of age (excluding geriatric patients) and yielded significant abnormal  $T_4$  results in 8 percent of cases. The importance of this is the fact that thyrotoxic psychosis is easily treated - provided you diagnose it first.

### ACKNOWLEDGEMENT

I wish to express my gratitude to Miss Zohora Begum for typing this manuscript.

### REFERENCES

- <sup>1</sup> Greer S and Parsons V (1968) Schizophrenia-like psychosis in thyroid crisis. *Brit. J. Psychiat.* 114, 1357-1362.
- <sup>2</sup> Whybrow P C, Prange A J and Treadway C R (1969) Mental Changes accompanying thyroid gland dysfunction. *Arch. Gen. Psychiat.* 20, 48-63.
- <sup>3</sup> Ingbar S H (1966) Thyrotoxic Storm *New Engl. J. Med.* 274, 1252-1254.
- <sup>4</sup> Burstein B (1961) Psychosis associated with thyrotoxicosis. *Arch Gen. Psychiat.* 4, 267-273.
- <sup>5</sup> Carney W P *et al* (1981) Thyroid function screening in psychiatric in-patients *Brit. J. Psychiat.* 138, 154-156.
- <sup>6</sup> Nicholson G, Liebling L and Hall R (1976) Thyroid dysfunction in female psychiatric patients. *Brit. J. Psychiat.* 129, 238-241.