

# PSYCHOSES ASSOCIATED WITH THYROTOXICOSIS: A RETROSPECTIVE STUDY OF TWENTY CASES

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## SUMMARY

*A total of 23 patients with psychoses associated with thyrotoxicosis were admitted to the psychiatric unit of a University Hospital over a 13-year period, of which 20 patients were included in this retrospective study. It was found that a parallel relationship between thyrotoxicosis and psychosis appears to exist in six patients, while in the remaining 14 patients, the course of the two disease processes were largely independent of each other. Paranoid delusions and auditory hallucinations were the most prominent psychiatric symptoms. Depression was commonly seen even in patients who were not having an affective illness. In four patients, a mixed schizo-affective psychosis was seen, suggesting that the diagnostic distinction between the affective and schizophrenic reactions are often blurred in psychosis associated with thyrotoxicosis.*

## INTRODUCTION

The simultaneous occurrence of both thyrotoxicosis and overt psychosis in the same

patients had prompted many investigators to inquire into a possible relationship between the function of the thyroid gland and the concurrent mental state.<sup>1,2</sup> Recent studies have continued to produce conflicting results. Checkley<sup>3</sup> studied five patients with manic-depressive psychosis who had eight well-documented episodes of thyrotoxicosis. However, only three of these episodes coincided with the affective illness. He concluded that thyrotoxicosis had little effect upon the course of a manic-depressive illness. On the other hand, McLarty *et al.*,<sup>4</sup> were convinced that thyrotoxicosis contributed significantly to the psychiatric illness of five of their eight psychiatric patients who were clinically hyperthyroid. In addition, they reported that treatment of the thyroid condition resulted in some improvement of the psychotic condition although the long-term prognosis did not seem to be greatly affected. This paper attempts to clarify further the relationship between thyrotoxicosis and psychoses.

## METHODS

This is a retrospective study of all the patients who were admitted to the psychiatric unit of the University Hospital, Petaling Jaya, between 1967 and 1979 with a diagnosis of 'thyrotoxic psychosis'. A total of 23 patients were recorded but only 20 case-notes were traceable. Therefore, discussion is based on the analysis of these 20 cases.

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## RESULTS

The 20 cases consisted of 17 female and three male patients. They were made up of 19 Chinese, a Malay and an Indian patient. Age distribution is as shown in Table I.

Five patients were single, while 14 were married and one was widowed. Two patients were from upper, socio-economic group, eight from middle and the remaining 10 belonged to the lower socio-economic group.

**TABLE I**  
AGE DISTRIBUTION OF 20 PATIENTS  
WITH THYROTOXICOSIS AND PSYCHOSES

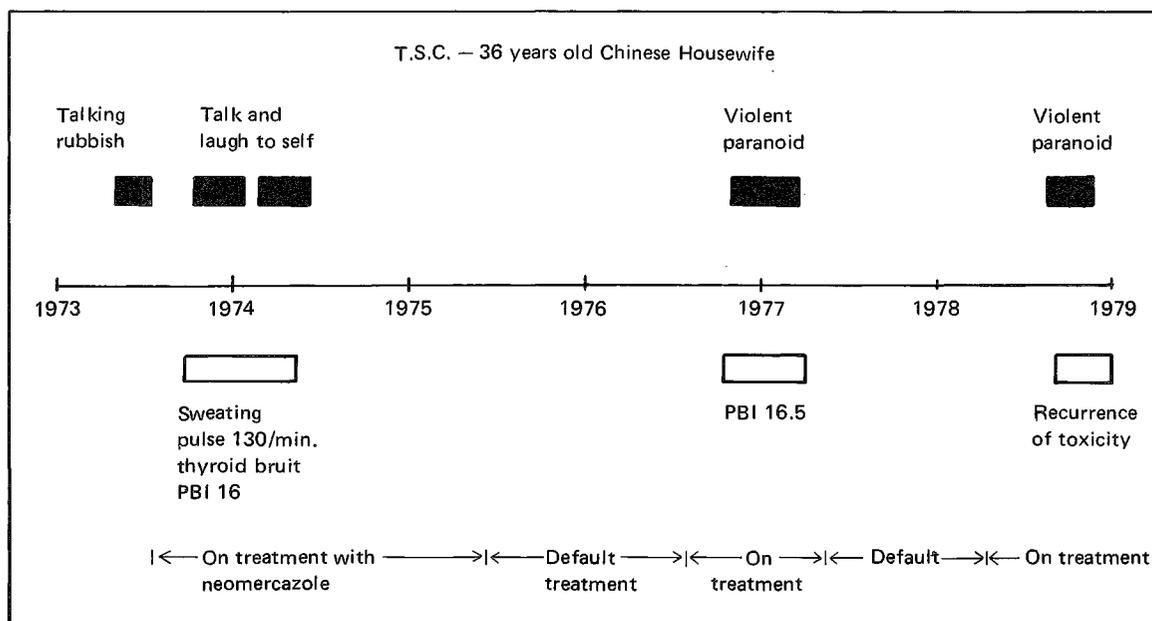
Age (years)	Female	Male	Total
20 – 24	2	0	2
25 – 29	3	1	4
30 – 34	3	0	3
35 – 39	5	1	6
40 – 44	1	0	1
45 – 49	3	0	3
50 – 54	0	1	1
Total	17	3	20

In six of the cases, possible precipitating events were reported which occurred within six months of the psychoses occurring. These included death of loved ones, business failure and childbirth. It was not recorded if there were any events precipitating the thyrotoxicosis.

In the family history, three of the patients were adopted and details of illnesses in the family were not available. One patient had a relative who was also thyrotoxic. Five other patients had relatives who were mentally ill.

With regards to premorbid personality, six patients were described as sociable or extrovert, seven introvert, two schizoid and two paranoid or suspicious. There was no mention of the personalities of the remaining three.

Looking into each case closely at the course of thyrotoxicosis and psychotic illness to determine if there was any parallel relationship between the two disease processes, it was found that in only six of the cases, could it be said that an intimate relationship existed. In the other 14 cases, which included the five patients with



**Fig. 1** Case summary of a patient whose course of illness shows a parallel relationship between thyrotoxicosis and psychosis.

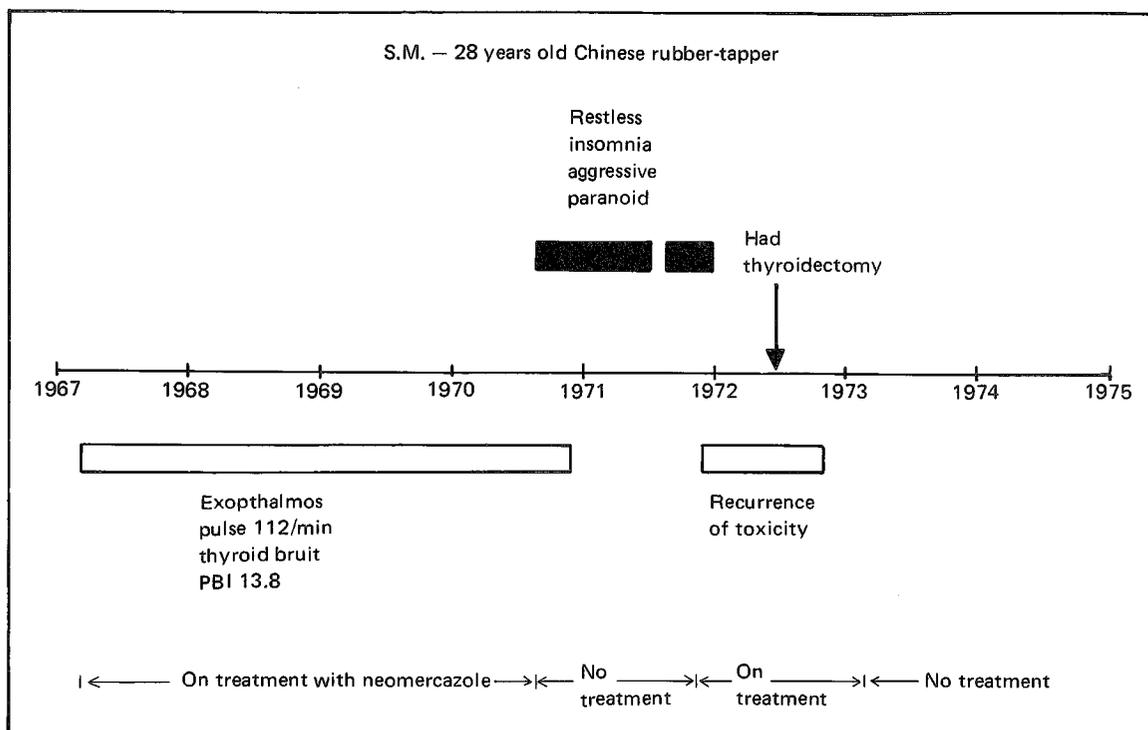


Fig. 2 Case summary of a patient whose course of illness does not show a parallel relationship between thyrotoxicosis and psychosis.

family history of mental illness, the course of the two illnesses appeared to independent of each other. Fig. 1 is a case-summary of a patient exhibiting a parallel relationship while Fig. 2 is that of a patient without such a relationship.

The psychiatric presentation is summarized in Table II.

Table III gives the breakdown of the psychiatric diagnoses of the patients.

Incidentally, it was found that four patients had long-standing bronchial asthma, one had diabetes mellitus, one had vitiligo and one had vaso-motor rhinitis.

At the time of this study, seven patients were lost to follow-up, five patients appeared to have recovered from both thyrotoxicosis and psychoses, two patients were still on treatment for both

conditions while six patients although euthyroid were still receiving treatment for their psychoses.

## DISCUSSION

The male-female ratio was approximately 1:6 and 15 of the patients (75%) were less than 40 years of age. This finding is consistent with the clinical picture of thyrotoxicosis.<sup>5</sup>

Although possible precipitating events for psychoses were recorded in six of the patients, there was no indication of any event precipitating the thyrotoxicosis. It had been suggested by Lidz in 1949 (quoted in Smith *et. al.*,<sup>6</sup>) that events that terminated or threatened to terminate an essential relationship frequently occurred immediately prior to the onset of thyrotoxicosis. However, other workers found no support for this theory.<sup>6,7</sup> On the other hand, it would seem that some degree of emotional instability characterizes a proportion of subjects liable to thyrotoxicosis

and it is perhaps in these cases that psychiatric precipitants play a special part in the genesis of the disorder.<sup>5</sup> Such vulnerability may further explain why some thyrotoxic patients remain

**TABLE II**  
**PSYCHIATRIC PRESENTATION OF**  
**20 PATIENTS WITH THYROTOXICOSIS**  
**AND PSYCHOSES**

Symptoms	No. of Patients
Hallucinations:	14
Auditory only	9
Auditory and visual	5
Delusions:	16
Paranoids only	10
Paranoid with delusion of identity	2
Paranoid with morbid jealousy	2
Paranoid with delusion of guilt	1
Paranoid with grandiose delusion	1
Disorientation:	5
To time, place and person	3
To place only	2
Disturbed memory	6
Poor concentration	6
Affect:	
Depression	10
Anxiety	3
Lability of mood	2
Euphoria	1
Blunt affect	4

**TABLE III**  
**PSYCHIATRIC DIAGNOSES OF**  
**20 PATIENTS WITH THYROTOXICOSIS**  
**AND PSYCHOSES**

Diagnosis	No. of Patients
Acute confusional state	1
Schizophrenia	11
MDP – Bipolar	2
MDP – Unipolar (Depressed)	2
Mixed Schizoaffective	4
Total	20

emotionally unstable after resolution of the endocrine disorder. In this study, there did not appear to be a great excess of abnormal personalities. However, the finding that four of the patients (20%) had bronchial asthma may suggest a psychosomatic relationship of some kind.

Of the 20 patients, six of the patients showed a parallel relationship in the course of their thyroid and psychotic illnesses. The other 14 patients (including the five patients with a family history of mental illness) showed a course largely independent of each other. Thus, it would seem that in most of the cases, there is no casual relationship between thyrotoxicosis and psychoses, especially when there is a family history of mental illness or when there is a previous history of psychiatric illness or thyrotoxicosis alone. In the remaining cases, where a functional relationship appear to exist, the possibility of coincidence, which is often overlooked, must be kept in mind.<sup>8</sup> However, the parallel course which the two processes sometimes pursue suggest that a casual relationship of some sort is likely to exist. At all events, once the processes are under way, they probably augment one another.<sup>5</sup>

Paranoid delusions and auditory hallucinations appear to be the most prominent symptoms (occurring in 80% and 70% of the patients respectively). Some form of disorientation was seen in five of the patients (25%). Disturbed memory and poor concentration occurred in six patients (30%). Whybrow and Hurwitz<sup>9</sup> studied 10 patients in detail and found that four of the patients had increased difficulty in concentration and some impairment of recent memory. However, these cognitive impairments returned to normal when euthyroidism was reestablished.

Eleven of the patients were diagnosed as suffering from schizophrenia, four as manic-depressive psychoses, while four had a mixed schizo-affective psychoses, and the remaining patients had an acute confusional state. This

varied clinical presentation is consistent with most investigators' observations that there is nothing about the psychoses found in association with thyrotoxicosis.<sup>7,8,10</sup> In Bursten's study of ten cases of psychoses among 54 hyperthyroid patients,<sup>1</sup> there were five patients diagnosed as schizophrenia, two acute brain syndromes, one chronic brain syndrome, one 'psychosis of undetermined type' and one psychotic depressive reaction. Therefore, it is no longer believed that a specific 'thyroid psychosis' exists, but it is generally agreed that a distinctive colouring may be lent by the hyperthyroidism. Thus, a manic component may accompany otherwise typical schizophrenic symptomatology and agitation is often profound in the presence of depressions.<sup>1,5</sup> Most observers also agreed that whatever form the psychoses may take, paranoid features are especially common.<sup>1,5,11,12</sup> The diagnostic distinction between the affective and schizophrenic reactions are often blurred and a mixture of psychiatric features is relatively common.<sup>5</sup> In this study, five patients (20%) were diagnosed as having a mixed schizo-affective psychosis. In addition, although only four patients were diagnosed as having affective illnesses, depression was a prominent feature in 10 patients (50%).

The precise etiology of the psychotic development in thyrotoxic patients is incompletely understood. Constitutional predisposition is often implicated in explaining affective and schizophrenic developments, but even so, the situation may be more complex. The psychoses may be precipitated by the metabolic derangements, or by the resulting emotional turmoil; alternatively, an ingravescent psychosis may have served to precipitate the thyrotoxicosis; or both thyrotoxicosis and psychosis may be simultaneously produced by shifts in psychodynamic equilibrium in specially vulnerable individuals.<sup>1,5</sup>

In conclusion, it will be useful if a prospective study is carried out to look into the relationship of thyrotoxicosis and psychoses in more detail.

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