

# Psychiatric morbidity in primary hyperparathyroidism

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**Summary:** Psychiatric symptoms are well recognized as a feature of patients with primary hyperparathyroidism. We have applied a standardized psychiatric interview to 15 patients before and after surgery. Thirteen had a lower 'psychiatric score' (less psychiatric morbidity) after surgery and improvements were particularly seen in symptoms of fatigue, depression, irritability, sleep disturbance and lack of concentration. The levels of intellectual impairment and of anxiety were unchanged after surgery. The 'psychiatric scores' in an additional group of 21 hyperparathyroid patients, in whom a decision to treat conservatively had been made independently, were similar to those in the surgically treated patients after surgery. Among all the untreated patients no relationship was found between overall 'psychiatric score' and serum levels of calcium or parathyrin.

## Introduction

While in recent years clinicians have been increasingly aware of the psychiatric symptoms of primary hyperparathyroidism,<sup>1,2</sup> most previous psychiatric assessments have been subjective and the extent to which psychiatric factors should influence the choice of treatment is not known. Estimates of the frequency of psychopathology vary greatly; the incidence of general psychiatric symptoms in different series has been as low as 4%<sup>3</sup> and as high as 57%.<sup>4</sup>

In part these variations may reflect variations in the severity of the hyperparathyroidism in the different series; most of the severe symptoms were associated with severe hypercalcaemia. There is little disagreement that such patients need early parathyroid exploration. The common problem at present, however, is the apparently symptomless patient found 'by accident' to have hypercalcaemia; most such patients are elderly women with only a modest disturbance of the plasma calcium (less than 3.0 mmol/l).

The management of these patients remains controversial. It was at one time thought that all such patients should, unless strong contraindications were present, be treated surgically to prevent an 'inevitable decline' in renal function. It is now clear from our own work<sup>5</sup> and that of others<sup>6,7</sup> that renal impairment is the exception rather than the rule. Progression to acute hypercalcaemia is also very uncommon.<sup>5,6</sup> It may be that the possibility of progressive bone loss will become a factor to influence the choice of treatment, but further objective data are needed to establish this.<sup>8</sup> While fatigue and other mental symptoms dominate the clinical picture in a few patients<sup>9</sup> the majority of the

currently recognized patients are apparently symptomless. It is sometimes suggested that the psychiatric symptoms of primary hyperparathyroidism are only recognized in retrospect after the condition has been cured.<sup>10</sup>

While parathyroid exploration is generally a safe operation, most series show a small mortality and some morbidity.<sup>11–13</sup> It is particularly distressing when symptomless patients die as a result of the operation. We have applied a standardized psychiatric interview to patients before and after surgery and also to patients managed conservatively. We hoped to determine the most common psychiatric abnormalities in primary hyperparathyroidism and also to determine whether a formal psychiatric assessment may have a part to play in the decision whether or not to treat surgically an apparently asymptomatic patient.

## Methods

We used the standardized psychiatric interview described by Goldberg and others.<sup>14</sup> This is a semi-structured inventory intended for use in community surveys and designed to be acceptable to patients who do not consider themselves to be psychiatrically disturbed. Given a trained and standardized interviewer it is remarkably reproducible.<sup>14,15</sup>

The first section consists of a conventional unstructured history of the patient's present, past and family history. The second section is a structured systematic enquiry about symptoms the patient may have had in the preceding week. Mandatory questions are asked on somatic symptoms, fatigue, sleep disturbance, hypnotic use, irritability, lack of concentration,

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depression of mood, anxiety, phobias, obsessions and compulsions, and depersonalization. Each symptom is scored on a five-point scale corresponding to its frequency and intensity. The higher the score the greater the morbidity.

The final section is completed after the interview is over and reflects the doctor's clinical impression of the patient. A rating on the five-point scale is made for the following 12 abnormalities: slowness or lack of spontaneity, suspicious or defensive attitudes, histrionic behaviour, depression, anxiety or agitation, elation or euphoria, flattening or incongruity, delusions or thought disorders, hallucinations, intellectual impairment, excessive concern with bodily functions, and depression in thought content.

Since intellectual impairment is a relatively common symptom in hyperparathyroidism, and since many of our patients were elderly, to assist making a rating on the five-point scale, we used the information/orientation subtest from the Clifton assessment procedure for the elderly<sup>16</sup> and standard tests for memory, including recall of a name and address and of concentration including serial subtraction of sevens.

### Patients

These tests were applied to 15 patients who subsequently had a successful parathyroidectomy, in each case with the removal of a parathyroid adenoma and restoration of normal values for serum calcium. A second group of patients consisted of 21 in whom an independent decision to treat conservatively had already been made by a metabolic physician and an endocrine surgeon on the basis of age, concurrent medical disorders and severity of overt symptoms. In each case the hypercalcaemia was long standing (2 to 7 years); in all the patients parathyroid hormone levels in serum were either raised or detectable despite the hypercalcaemia. In no case was there biochemical evidence to suggest familial benign hypercalcaemia.

### Results

Table I shows the overall scores of the 15 patients treated surgically, before and approximately 3 months

after operation. In the group as a whole the improvement was significant ( $P < 0.05$  using the Wilcoxon signed rank test). There were two patients in whom there was a deterioration. Patient 1 had a previous psychiatric history of depressive symptoms in the setting of a difficult life situation, and had three previous episodes of drug overdose. Patient 2 was a retired teacher with responsibility for a more disabled sister. She felt unable to contemplate parathyroid surgery until she had disposed of her home and, with

**Table I** Overall score in 15 patients before and after parathyroidectomy

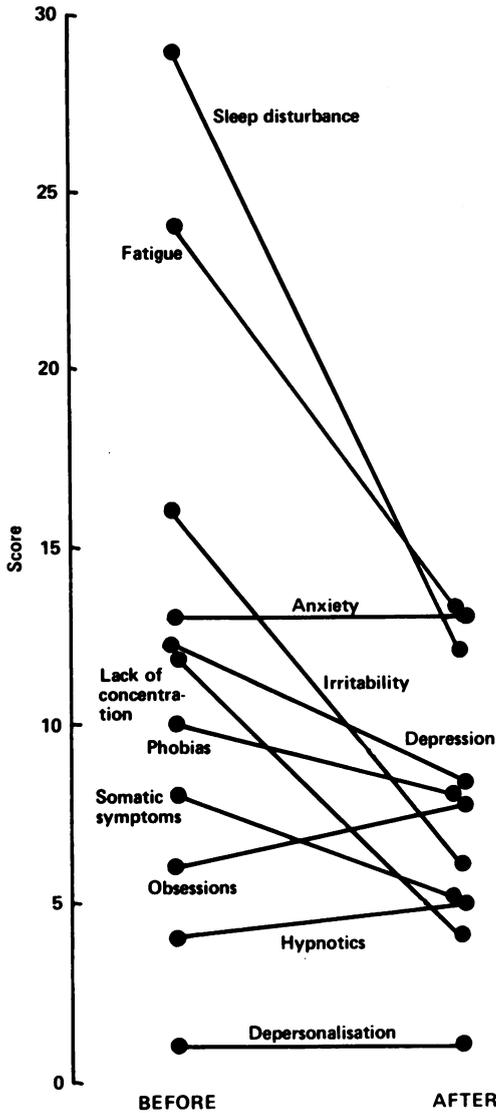
Case	Age	Sex	Overall score	
			Before	After
1	34	F	31	41
2	77	F	6	11
3	62	F	1	0
4	80	F	17	15
5	71	F	18	15
6	68	F	6	4
7	62	F	23	9
8	71	F	10	9
9	56	F	39	9
10	57	F	13	3
11	36	M	4	3
12	62	F	8	5
13	67	F	10	7
14	64	F	17	8
15	57	F	18	16

her sister, moved into residential accommodation. After surgery she felt better physically, but was severely frustrated that she had given up her home, and was misplaced in a home for the elderly in which she was then by far the most able resident. Figure 1 shows the sums of the scores for the 15 patients before and after surgery for each of the reported symptoms.

Table II shows the mean and range of scores found in the group of patients in whom a decision to treat conservatively had already been made. The highest score (25) was in a man who had recently been involved in a severe road traffic accident; two further high values (17 and 14) were in patients with recent bereavements. There was no relationship between the

**Table II** Comparison of overall scores in patients treated conservatively with those treated surgically

	Number of		Age Mean (Range)	Score Mean (s.d.)
	Men	Women		
Conservatively treated	2	19	73 (46-93)	9.0 (5.8)
Before surgery	1	14	62 (35-80)	14.7 (10.4)
After surgery	1	14	62 (35-80)	10.3 (9.7)



**Figure 1** Sums of the scores for each reported symptom in 15 patients with primary hyperparathyroidism before and 3 months after parathyroidectomy.

overall score and either the serum calcium or the serum parathyryn in both groups of patients with hyperparathyroidism.

**Discussion**

Among the reported symptoms the most common abnormalities in the whole group of 37 patients with primary hyperparathyroidism were sleep disturbance, fatigue, depression, lack of concentration and irritability. Taking the operated patients by themselves, the symptoms with the most striking improvement after surgery were sleep disturbance, fatigue, irritability, depression, lack of concentration and somatic symptoms. We found no significant improvement in anxiety or in intellectual impairment; this may reflect the fact that the intellectual impairment is common in this age group and unrelated to the parathyroid disorder. Joborn and her colleagues<sup>17</sup> found a similar range of psychiatric symptoms to that in our study; like us they showed appreciable improvement after surgery in fatigue, depression, lack of concentration and irritability. Somatic symptoms were not assessed in their study. Unlike us, they found some improvements, not tested statistically, in anxiety and memory; our tests for intellectual impairment covered both memory and orientation.

We expected that formal psychiatric assessment might play a part in the decision whether or not to treat surgically in an apparently asymptomatic patient. We found that patients in whom a decision to treat surgically had been made by a metabolic physician and an endocrine surgeon were also, to a large extent, those who had a high psychiatric score on formal assessment. It would appear that simple informal questions relating to mood, irritability, lack of concentration, fatigue and sleep disturbance, probably suffice to reflect the treatable psychiatric features.

We found no relationship between the overall psychiatric score and serum levels of calcium and parathyryn. In this respect our results are different from those of Petersen<sup>4</sup> but similar to those of Hecht and colleagues.<sup>18</sup>

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