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Letter to the Editor

The Clinical Dilemma of Lithium-induced Hyperparathyroidism in a Treatment Responsive Patient: A Case Report

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To the Editor:

Lithium-induced hyperparathyroidism is relatively rare being reported in 64 patients (1–4). Of 64 cases, 25 patients were additionally described as having parathyroid adenomas, while 7 had parathyroid hyperplasia. Most cases of lithium-induced hyperparathyroidism have been reversible following discontinuation of the drug. The following case describes a patient diagnosed with bipolar affective disorder, who was successfully treated with lithium, but experienced lithium-induced hyperparathyroidism.

The patient is a 45 year-old married white female diagnosed with bipolar affective disorder type I, hyperparathyroidism, hypertension, and hypothyroidism. The onset of affective illness occurred in 1987 (27 years old), which resulted in her only hospitalization. She has done well since then as long as her lithium concentration is greater than 0.8 mEq/L. Parathyroid problems began in 1995 with polydipsia and hypercalcemia (9.7 mg/dl) and by 1999 she became symptomatic. In April 2003, her calcium of 12.2 mg/dl and her parathyroid hormone (PTH) of 247 pg/ml was surgically treated by a partial parathyroidectomy, 3.5 out of 4, which revealed a large adenoma of the left inferior gland, a smaller adenoma of the right inferior gland, and enlarged but normal-cellular glands, superiorly. By November 2004, the thirst and constipation returned and her calcium was 10.4 with a PTH of 72. Her endocrinologist recommended discontinuing the lithium. For the last year, lamotrigine 125 mg/d, lithium 1200 mg/d, risperidone 0.5 mg prn and levothyroxine 100 mcg/d have effectively controlled her symptoms. The patient does not want to discontinue her lithium. She has seen that even a single missed dose of lithium can result in manic or depressive symptoms for several days. Attempts to replace lithium have always resulted in a relapse. She tolerates risperidone in small doses, as needed for mood swings, but several other antipsychotics have caused akathesia, especially in the higher doses needed to replace lithium.

Several case series give a sense as to the prognosis for patients experiencing this lithium-induced hyperparathyroidism (1–4). PTH concentrations among 19 patients receiving lithium were significantly higher in contrast to 150 normal healthy subjects although the calcium concentrations did not differ (2). Following withdrawal from lithium the PTH levels returned to normal. A survey of the calcium metabolism of 19

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patients with bipolar affective disorder treated with lithium for 10–20 years found 8 with elevated PTH concentrations and 4 with hypercalcemia (3). Two patients required surgical removal of three out of four enlarged hyperplastic parathyroid glands. Of 537 patients who had undergone neck exploration and parathyroid excision for possible hyperparathyroidism, 40 exhibited neuropsychiatric symptoms as the primary manifestation of hyperparathyroidism and 11 were receiving lithium maintenance therapy (2–30 years) (4). Surgery was performed on 10 of the patients with three having two enlarged glands removed, six having a single gland removed, and one having a subtotal excision with 3.5 glands removed. All 11 patients were restarted on lithium following surgery. Unfortunately two patients experienced a recurrence of hyperparathyroidism. One had two enlarged glands removed previously. Upon further neck exploration three years later, two enlarged inferior parathyroid glands were located. Analysis of the medical records of 400 patients diagnosed with bipolar affective disorder found that of the 348 receiving lithium maintenance therapy, 15 were hypercalcemic, a figure 4-fold greater than expected (1). Bilateral neck exploration identified enlarged glands that required resection. Histology of the resected glands revealed 14 adenomas and one parathyroid hyperplasia. All 15 patients became eucalcemic following resection and all resumed their lithium therapy. Only one patient experienced a recurrence two years after resuming lithium therapy.

Based on the two- to three-year follow-up studies (1,4), lithium-induced hyperparathyroidism was reversible in 88% (23/26) of patients. Unfortunately, in the present case, the patient is among the 12% of patients in whom recurrences occur. However, the above cases suggest that recurrence can be surgically managed. The literature is uncertain as to whether the patients benefit from lowering the lithium dose.

REFERENCES

1. Awad SS, Miskulin J, Thompson N: Parathyroid adenomas versus four gland hyperplasia as the cause of primary hyperparathyroidism in patients with prolonged lithium therapy. *World J Surg* 2003; 27:486–488
2. Davis BM, Pfefferbaum A, Krutzik S, Davis KL: Lithium's effect on parathyroid hormone. *Am J Psychiatry* 1981; 138:489–492
3. Stancer HC, Forbath N: Hyperparathyroidism, hypothyroidism, and impaired renal function after 10 to 20 years of lithium treatment. *Arch Intern Med* 1989; 149:1042–1046
4. Abdullah H, Bliss R, Guinea AI, Delbridge L: Pathology and outcome of surgical treatment for lithium-associated hyperparathyroidism. *Br J Surg* 1999; 86:91–93