HYPERCALCEMIA IN PATIENT WITH ACROMEGALY AND PRIMARY HYPERPARATHYROIDISM

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INTRODUCTION

Hypercalcemia in acromegaly can be a result of several pathophysiological mechanisms. Multiple endocrine neoplasia type 1 (MEN1) syndrome, mitogenic effect of hyperactivated growth hormone (GH)-parathyroid gland axis ie primary hyperparathyroidism, and hypercalcemia mediated by elevated 1,25-dihydroxyvitamin D should be considered.
We describe a case of acromegaly associated with primary hyperparathyroidism.

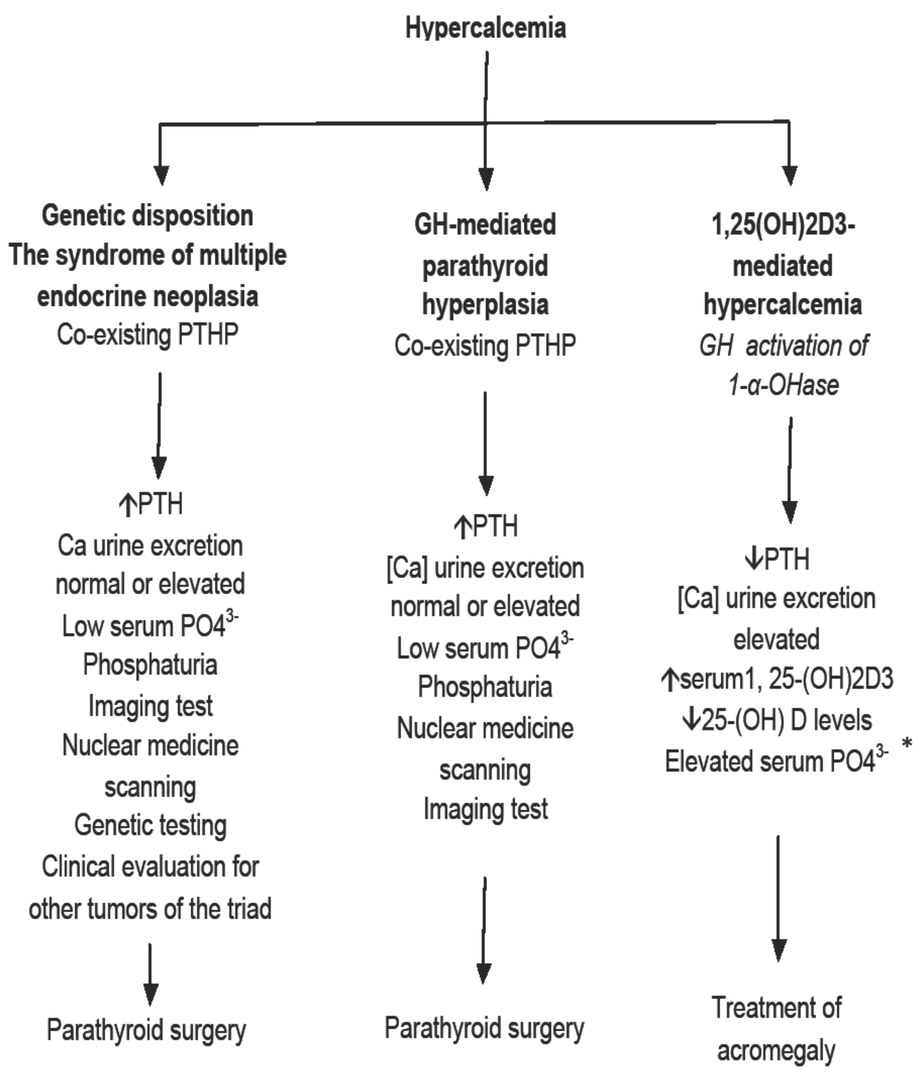
CASE REPORT

A 52 year-old female with classic features of acromegaly was diagnosed with GH secreting pituitary microadenoma. Evaluation at diagnosis showed elevated GH and insulin like growth factor 1 (IGF-1), presence of hypertension and multinodular goiter (volume 80 mm^3).
Diagnosis was confirmed with nonsuppressibility of GH after glucose challenge test. A biochemical work up revealed hypercalcemia in the setting of elevated parathyroid hormone (PTH) and low levels of vitamin D. Bone densitometry detected osteoporosis limited to the right radius (T score value -4.0 SD). Analysis of 24-hour urine showed normal calcium excretion and phosphaturia. This findings were consistent with diagnosis of primary hyperparathyroidism. Imaging and radioisotope studies identified enlarged thyroid gland, predominantly the left lobe with consequent tracheal compression, and higher radioisotope uptake in the lower pole of the left thyroid lobe.

PATIENT'S LABORATORY DATA

	Patient's values	Normal values
IGF-1	>1000	108-263 ng/ml
OGTT test-GH	4.0	<0.5 ng/ml
[Ca+] serum	1.51	1.10-1.40 mmol/L
PTH	158	15-65 pg/ml
25 (OH)D	5.6	>25 nmol/L
DEXA scan T score	-4.0 right radius	2.5 SD
[Ca] excretion in urine	1.2	1.3-1.0 mmol /L
[$PO4^{3-}$] excretion in urine	61	20-60 mmol/ L

DIAGNOSTIC APPROACH HYPERCALECEMIA IN PATIENT WITH ACROMEGALIA



Abbreviations
PTHP = primary hyperparathyroidism; 1-α-OHase = 1-α hydroxylase; $PO4^{3-}$=phosphate ; Ca = calcium; GH = growth hormone; IGF-1 = insulin- like growth factor-1; *IGF-1 mediated renal tubular phosphate reabsorption

CLINICAL COURSE

Because the patient denied surgery, treatment with cabergolin was administrated and a biochemical control was accomplished. Surgical excision of left lower parathyroid gland and subtotal thyroidectomy was done. Histopathological examination confirmed hyperplasia of parathyroid and thyroid gland. After surgery, serum calcium normalized, PTH levels significantly reduced to 73,2 pg/ml. Vitamin D remained low (17.8 nmol/L) and TSH levels elevated to 27mU/L (0.4-4) for which vitamin D and levothyroxin substitution was started.

CONCLUSION

The approach to hypercalcemia in the course of acromegaly implies evaluation for several potential pathophysiological mechanisms, which in turn dictates the treatment strategy – parathyroidectomy vs biochemical control of acromegaly.

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