

Galactorrhea without Hyperprolactinemia in a Male Patient with Acromegaly: A Case Report

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Abstract

There are numerous pathologic causes of galactorrhea. Hyperprolactinemia and hypothyroidism are frequently associated with galactorrhea as a result of hormonal imbalances. Patients with acromegaly sometimes have hyperprolactinemia, and some also have galactorrhea. Here, we report on a male patient with acromegaly who suffered from galactorrhea without hyperprolactinemia. This 42-year-old patient had a pituitary adenoma, but his serum hormone levels were within normal ranges, except for the growth hormone and insulin-like growth factor 1. Transsphenoidal surgery was performed and subsequent histopathologic studies confirmed it was a plurihormonal adenoma. After surgery, his GH and IGF-1 levels decreased to within the normal ranges, and his galactorrhea also disappeared. To the best of our knowledge, this is the first reported case of a male patient with acromegaly who suffered from galactorrhea without hyperprolactinemia.

Keywords: Acromegaly; Galactorrhea; Male; Surgery

Introduction

Patients with acromegaly often have elevated serum Prolactin (PRL) levels as well as elevated serum Growth Hormone (GH) levels. Patients with acromegaly and hyperprolactinoma often have galactorrhea, although galactorrhea is rare in males. To the best of our knowledge, this is the first case report of a male patient with acromegaly and galactorrhea who presented normal PRL levels.

Case Report

A 42-year-old man was admitted to our hospital because a pituitary adenoma was detected at another hospital. Before admission to our hospital, he had been diagnosed with necrotizing lymphadenitis and was treated with oral steroids (prednisolone 15 mg/day) for 2 weeks. Several years before, he underwent surgical resection of a benign tumor in his femur, which was performed at another hospital. Since then, he was not treated with any other drugs. On admission to our hospital, he reported a history of galactorrhea that persisted for 6 months (Figure 1). He weighed 62.0 kg, was 167 cm tall, and his appearance was typical of patients with acromegaly. However, he was not aware of the changes to his physical appearance associated with acromegaly. His serum PRL level was normal (12.6 ng/ml), but GH and IGF-1 levels were elevated (7.76 ng/ml and 1808.1 ng/ml, respectively). The levels of other pituitary hormone level, including Adrenocorticotropic Hormone (ACTH), Thyroid Stimulating Hormone (TSH), Luteinizing Hormone (LH), and Follicle Stimulating Hormone (FSH), were within normal ranges. No suppression of GH was detected during a 75 g oral glucose tolerance test, with a nadir GH level of 5.89 ng/ml. In addition, the GH responses

to thyrotropin-releasing hormone and luteinizing hormone-releasing hormone loading tests were abnormal.

Radiologic examination revealed tufting of the digits, thickening of the heel pad (23–24 mm) (Figure 2), and protrusion of the mandibular. Magnetic resonance imaging revealed a tumorous mass on the lower left side of the sella turcica (Figure 3). ¹¹C-methionine and ¹⁸F-Fluorodeoxyglucose (FDG)-Positron Emission Tomography (PET) revealed an increased uptake of both tracers, with maximum standardized uptake values (SUVmax) of 4.5 and 2.8, respectively (Figure 3). Taken together, his clinical and imaging findings were consistent with acromegaly.

We resected the tumor via a sublabial transsphenoidal approach. Intraoperatively, a soft, grayish-white tumor, which had invaded the left cavernous sinus, was found and resected.

Histologically, the eosinophilic tumor cells showed diffuse proliferation, with clear nucleoli of a range of sizes. Immunohistochemistry revealed the expression of ACTH, PRL, GH,

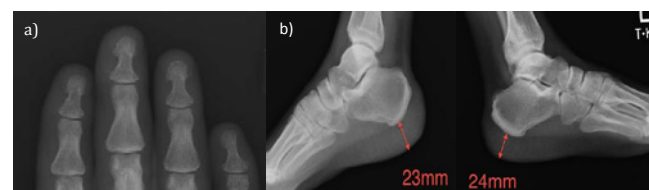


Figure 2: (a) X-ray photograph showing "cauliflower-like" changes of his phalanx of fingers. (b) X-ray images of the left and right heel.



Figure 1: The patient showed signs of galactorrhea when he pressed his right (Rt.) and left (Lt.) nipples.

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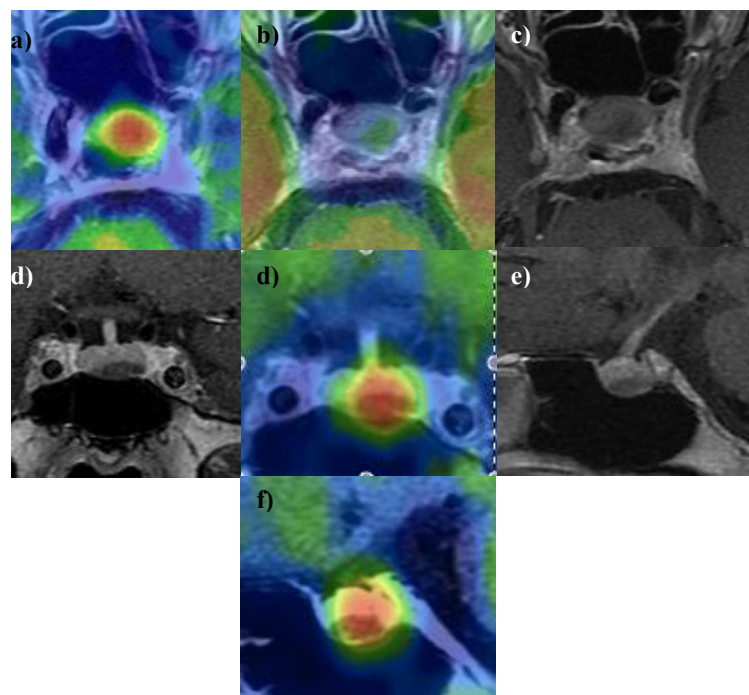


Figure 3: The tumor was located at lower left side of sella turcica. (a,b) 11C-methionine (MET)-enhanced (a) and 14F-fluorodeoxyglucose-enhanced (b) positron emission tomography (PET). (c) T1-weighted magnetic resonance image (MRI) with gadolinium contrast enhancement. (d,f) Coronal gadolinium-enhanced MRI. (e,f) MET-enhanced PET. PET images showed increased uptake of 11C-methionine and 14F-fluorodeoxyglucose, with maximum standardized uptake values of 4.5 and 2.8, respectively.

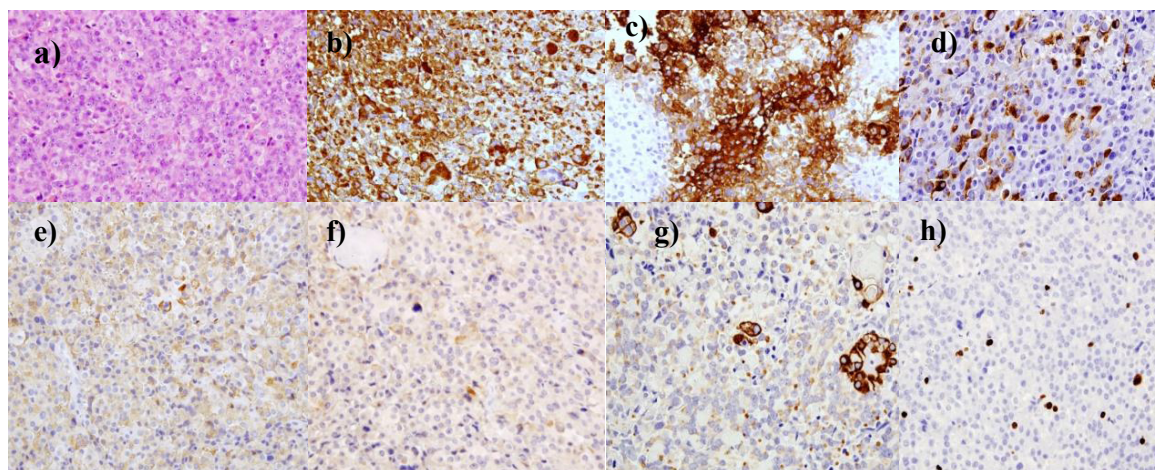


Figure 4: (a) The eosinophilic tumor cells showed diffusely proliferation on hematoxylin/eosin staining. (b–f) Immunohistochemically, the cells were positive for growth hormone (b), adrenocorticotropic hormone (c), prolactin (d), luteinizing hormone-β (e), and thyroid stimulating hormone-β (f). (g) Keratin staining revealed some fibrous bodies. (h) Ki-67 staining revealed slightly elevated proliferative activity

TSH-β, LH-β, and α-subunit, but not FSH-β. Keratin staining revealed the presence of cytoplasmic fibrous bodies in the tumor cells. The MIB-1 index was slightly elevated, at about 3% (Figure 4). The histological findings were consistent with a GH secreting plurihormonal adenoma.

The patient recovered uneventfully after surgery and his galactorrhea resolved before he was discharged on postoperative day 12. His serum GH and IGF-1 levels were within normal ranges on postoperative day 10. Two months after surgery, the GH responses to TRH/LHRH loading tests were normal. Additionally, GH was suppressed following a 75 g OGTT (nadir GH=0.14 ng/ml).

Discussion

It is uncommon for patients with acromegaly to have normal serum pituitary hormone levels as well as normal GH levels. Some patients develop hyperprolactinemia and occasionally galactorrhea. In a study of 500 patients with acromegaly, galactorrhea was noted in ~9% and hyperprolactinemia was detected in 17.6% [1]. However, the proportion of patients with galactorrhea is much lower among male patients with acromegaly [2], and even male patients with prolactinoma rarely have galactorrhea at about 15% or less in the literature [3,4].

Our patient with acromegaly, however, is unique because he suffered from galactorrhea despite having normal serum PRL levels. Although immunohistochemical studies showed that some of the adenoma cells expressed PRL, the amount of PRL secreted from the adenoma cells was probably too low to increase serum PRL levels above the normal range.

Hypersecretion of cortisol, as in Cushing's disease, is sometimes associated with hyperprolactinemia and galactorrhea. Although our patient was treated with oral steroids, his serum PRL levels remained normal throughout the treatment period.

There are several reports concerning the relationship between GH and lactation. For example, it was reported that human GH acts as stronger lactogen in primates than ovine PRL [5]. Additionally, human GH was reported to be a potent lactogen in organ culture of bovine lactating mammary tissue [6]. Interestingly, GH can act directly on the mammary gland independently of lactogenic receptors and prolactin, although the mechanism involved in its actions is still unknown [7]. Taking into account the effects of PRL, we suspect that the GH galactogenic effect was responsible for galactorrhea in our patient. However, the exact mechanism is unclear and will be addressed in future studies.

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