

Acromegaly in an Elderly Woman

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Figure 1. Clinical features of acromegaly, demonstrating changes in (A) facial structures, (B) the hand, and (C) the feet.

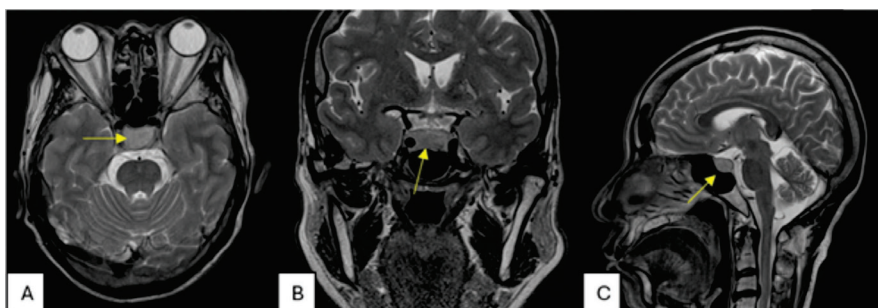


Figure 2. Brain MRI demonstrating an enlarged pituitary adenoma (yellow arrow) on (A) axial, (B) coronal, and (C) sagittal views.

Pituitary adenomas are common benign tumors of the anterior pituitary, accounting for approximately 15% of central nervous system tumors. They are classified as functioning or non-functioning, with functioning adenomas causing hormone excess syndromes such as acromegaly.¹ Based on size, they are further categorized into microadenomas (<10 mm) and macroadenomas (≥10 mm). While microadenomas constitute the majority of cases and are often incidentally detected, macroadenomas account for approximately 48% of pituitary adenomas and are more likely to present with mass effect and overt clinical manifestations.² This pattern is particularly observed in older women, in whom pituitary adenomas are more frequently diagnosed at a larger size, likely due to delayed recognition of hormonal abnormalities after menopause and a higher prevalence of non-functioning tumors, resulting in presentation predominantly with compressive symptoms rather than classic endocrine syndromes.³

In rare cases, pituitary adenomas may exhibit plurihormonal secretion, leading to overlapping clinical features and increased diagnostic complexity. In this medical illustration, we describe a case of a pituitary macroadenoma presenting with classical features of acromegaly, underscoring the importance of comprehensive endocrine evaluation for suspected growth hormone excess.

A 61-year-old woman presented with progressively worsening features suggestive of acromegaly. She had noticeable changes in her facial appearance, including coarsening of facial features and enlargement of facial structures (**Figure 1A**). She also reported gradual enlargement of her hands and feet, as reflected by an increase in finger and shoe sizes. On examination, there was clear acral enlargement, with thickened hands (**Figure 1B**) and broadened feet (**Figure 1C**). Neurological examination revealed no visual impairment, with intact visual acuity and no visual field defects. In addition, the patient complained of persistent headaches and aches in her bones and joints. She also has a history of hypertension with two anti-hypertensive agents.

Given the clinical suspicion of acromegaly,

endocrine evaluation was initially focused on growth hormone excess. Growth hormone (GH) level was markedly elevated at 18.9 ng/mL (normal: <10 ng/mL), and insulin-like growth factor-1 (IGF-1) was significantly increased at 865.6 ng/mL (normal: 76–231 ng/mL), confirming biochemical evidence of GH excess. Subsequent laboratory assessment was performed to evaluate other pituitary hormones and thyroid function. Thyroid function tests were within normal limits, with thyroid-stimulating hormone of 1.48 mIU/L (normal: 0.35–4 mIU/L) and free thyroxine of 0.97 ng/dL (normal: 0.7–1.48 ng/dL). In addition, her prolactin level is 9.56 ng/mL (normal: 5.18–26.53 ng/mL) and her morning cortisol level is 13.2 µg/dL (3.7–19.4 µg/dL), both within normal limits, indicating no biochemical evidence of hypersecretion of other pituitary hormones. Luteinizing hormone (LH), follicle-stimulating hormone (FSH), estradiol, and progesterone levels were not assessed, as the patient was postmenopausal and measurement of these gonadotropins was not expected to provide additional clinically relevant information.

Considering the elevated GH and IGF-1 levels, a pituitary etiology was suspected. Magnetic resonance imaging (MRI) of the brain revealed a macroadenoma of the anterior pituitary, measuring 1.3 × 2.5 × 1.0 cm, involving both the right and left sides, with no other intracranial abnormalities (**Figure 2**). The patient subsequently underwent endonasal endoscopic transsphenoidal surgery for tumor resection.

Pituitary macroadenomas are benign tumors arising from the anterior pituitary gland.¹ In this case, the patient, an older woman, demonstrated clear biochemical evidence of growth hormone (GH) excess. Elevated GH and IGF-1 levels explain the acromegalic features observed, including craniofacial changes, soft tissue enlargement, and gradual alteration in facial appearance.^{4,5} These features typically develop insidiously and may go unrecognized for years, particularly in older patients, where the changes are often subtle and may be attributed to normal aging.³ As a result, diagnosis is frequently delayed, and patients often present with larger tumors at the time of detection. This is consistent with epidemiological observations showing that

pituitary adenomas in older individuals are more commonly diagnosed as macroadenomas and are more likely to present with mass effects rather than overt endocrine symptoms.³ Therefore, the presence of characteristic physical features alongside hormonal abnormalities highlights the importance of maintaining a high index of suspicion and performing comprehensive endocrine evaluation to ensure timely diagnosis and appropriate management. However, in this case, the patient has no visual field defect (no mass effect).

In addition, the patient's history of hypertension and complaint of persistent headache further support the possibility of underlying endocrine pathology. Hypertension is a common manifestation in acromegaly, mediated by mechanisms such as sodium retention, increased vascular resistance, and hormonal dysregulation.⁶ Meanwhile, headache may result from the mass effect of the pituitary macroadenoma or increased intracranial pressure, and is a frequent presenting symptom in patients with sellar lesions.¹ MRI confirmed the presence of a pituitary macroadenoma, supporting the diagnosis of a pituitary source of hormonal excess. Transsphenoidal surgery remains the first-line treatment for functional pituitary adenomas and offers both diagnostic confirmation and therapeutic benefit.⁷

This case highlights a typical presentation of a pituitary macroadenoma manifesting as acromegaly with subtle but progressive clinical features. It underscores the importance of maintaining a high index of suspicion in patients presenting with unexplained facial and acral changes. Comprehensive hormonal evaluation, combined with appropriate imaging, is essential for accurate diagnosis. Early recognition and timely surgical intervention can lead to significant clinical improvement and prevent further disease progression.

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