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Case Report

Medical Management of Acromegaly in a Middle-aged Woman with Pituitary Macroadenoma and Metabolic Comorbidities: A Case Report

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Abstract

A 62-year-old Iraqi woman exhibited progressive enlargement of her hands, feet, and facial features over several years, accompanied by poorly controlled type 2 diabetes mellitus, hypertension, and dyslipidemia—metabolic disorders that had become increasingly challenging to manage despite conventional treatment. These gradual physical changes, which are often very small in middle-aged and older people, eventually made doctors think that the person might have acromegaly. Biochemical testing confirmed the diagnosis by showing consistently high levels of growth hormone, no suppression on oral glucose tolerance testing, and insulin-like growth factor-1 concentrations that were much higher than normal for someone of the same age and sex. A macroadenoma measuring 14 × 12 × 9 mm was found on a pituitary magnetic resonance imaging scan. There was no suprasellar extension, optic chiasm compression, or visual field problems on formal testing. After a thorough discussion of treatment options, the patient opted against transsphenoidal surgery, citing personal preference and apprehensions about surgical risks, and instead chose to initiate primary medical treatment. She began taking Sandostatin LAR (octreotide), a long-acting somatostatin receptor ligand, at a low dose that was gradually increased over the next few months based on how well she tolerated it and how her biochemical response changed. Regular follow-up lab tests showed that insulin-like growth factor-1 levels were steadily dropping toward the normal range. This showed that the excess growth hormone was being successfully suppressed. A follow-up MRI about a year into treatment showed a good response, with the adenoma getting smaller and cystic degeneration appearing in the tumor, which is what you would expect from somatostatin analog–mediated regression. This hormonal enhancement was accompanied by improved management of her metabolic comorbidities, including enhanced glycemic control, lowered blood pressure, and optimized lipid profiles, highlighting the close association between acromegaly and cardiometabolic complications. This case underscores the necessity of early recognition of acromegaly in patients primarily exhibiting metabolic disturbances and subtle physical manifestations, particularly when surgical intervention is not feasible. It also shows how effective somatostatin analogs can be as a powerful nonsurgical treatment that can help with biochemical control, tumor reduction, and overall metabolic health. In these cases, successful management depends on a personalized, multidisciplinary framework that includes regular endocrinological evaluations, hormonal monitoring, and periodic imaging. This is done to get the best disease control, reduce long-term complications, and improve quality of life.

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Keywords

Acromegaly, Pituitary Macroadenoma, Octreotide, Somatostatin Analog, IGF-1, Medical Management

1. Patient Demographic Information

Age: 62
Gender: Female
Ethnicity: Iraq
Occupation: Administrator job in medical center

2. Clinical History

Symptoms:

1) She noticed gradual enlarged hands and feet
2) She noticed that she can not be able to put her rings that used to fit
3) She noticed that her shoe size has progressively increased from 39 to 41
4) She noticed gradual changes in her face's shape, enlarged nose & thickened lips
5) Excessive sweating and body odor with more oily skin
6) A deepened husky voice
7) Increased snoring

Family history and lifestyle factors:

1) Family history: Not contributory
2) Lifestyle: Not contributory

Previous Treatments:

She is taking medications for her type 2 DM, hypertension, dyslipidemia, and thyroid nodule.

3. Presentation

We present the case of a 62-year-old woman from Iraq who was diagnosed with pituitary macroadenoma and acromegaly on January 6, 2024. Her medical history is significant for long-standing Type 2 Diabetes Mellitus, hypertension, dyslipidemia, and thyroid nodules, which had been challenging to manage despite multiple medications. Given the nature of her condition, surgical intervention was recommended as the optimal treatment option; however, the patient declined the procedure. Consequently, a tailored medical management plan was developed, and she was subsequently referred to Thumbay University Hospital, Ajman, for further specialized care.

4. Diagnostic Assessment

List of diagnostic tests performed and their results, interpretations, and differential diagnoses.

Serum insulin-like growth factor-1 (IGF-1, somatomedin-C) was markedly elevated at 1,121 ng/mL (reference range: 59.5-179.0).

A growth hormone stimulation test demonstrated persistently elevated and paradoxically rising GH levels:

Growth hormone - Baseline: 8778.0 pg/mL
Growth hormone - 30 minutes: 7658.0 pg/mL
Growth hormone - 60 minutes: 12512.0 pg/mL
Growth hormone - 90 minutes: 25607.0 pg/mL
Growth hormone - 120 minutes: 28350.0 pg/mL

Pituitary MRI revealed an enlarged pituitary gland due to a well-defined ovoid lesion predominantly involving the left lateral wing of the anterior lobe (adenohypophysis), measuring 14 × 12 × 9 mm. The lesion exhibited a heterogeneous texture, with mixed high and low signals on T2-weighted imaging [T2WI] and heterogeneous isointense to low signal on T1-weighted imaging [T1WI]. Post-contrast series demonstrated faint heterogeneous enhancement, which was less than that of the adjacent normal pituitary parenchyma. The superior surface of the pituitary gland appeared elevated and convex, with mild rightward deviation of the pituitary stalk. These findings were consistent with a pituitary macroadenoma.

The hypothalamus and optic chiasm appeared normal.

It demonstrated normal morphology of the cerebral and cerebellar hemispheres, with scattered foci of altered signal intensity in the subcortical and deep supratentorial frontoparietal white matter bilaterally. These lesions exhibited high T2/FLAIR signal intensity, isointense T1 signal, and no diffusion restriction on DWI/ADC, suggestive of chronic white matter ischemia.

The ventricular system was normal in size, shape, and position. The brainstem exhibited normal morphology and signal intensity, and the brain cisterns in the posterior cranial fossa and supratentorial region were well-visualized.

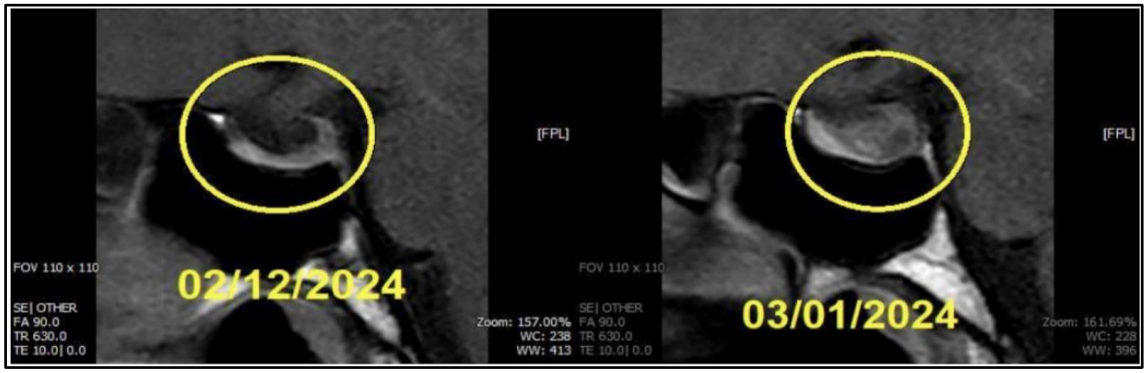

Figure 1. *Sagittal T1-weighted MRI comparison of the pituitary gland showing a significant increase in the size of a sellar/suprasellar mass between February and March 2024.*

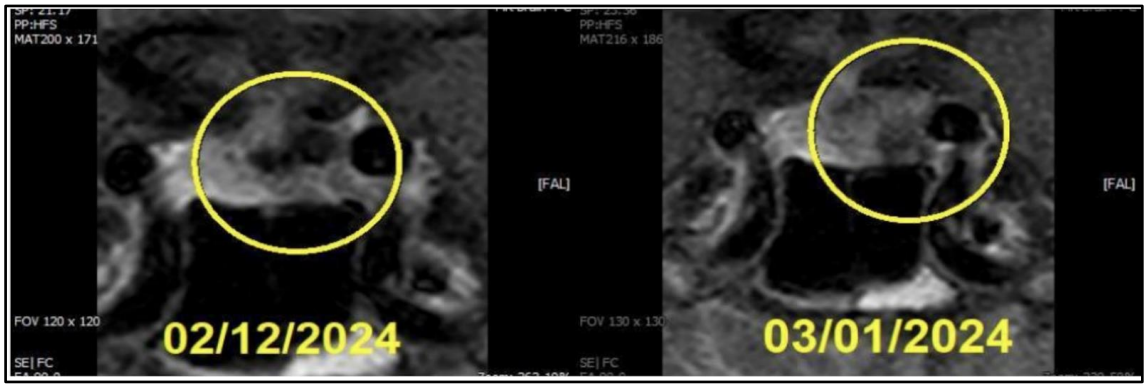

Figure 2. *Coronal MRI views of the sellar region demonstrating interval growth of a soft tissue lesion with displacement of adjacent structures and narrowing of the suprasellar cistern.*

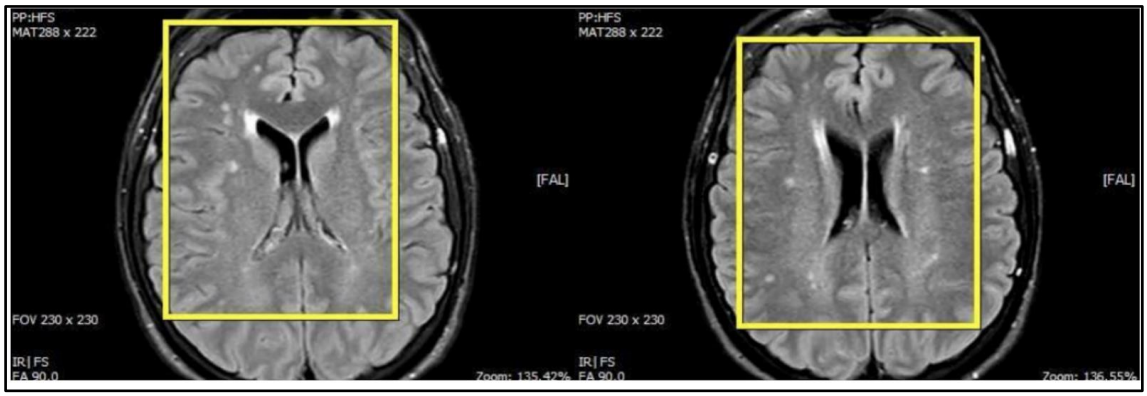

Figure 3. *Axial FLAIR MRI sequences of the brain showing multiple hyperintense white matter lesions, which appear more numerous or prominent in the follow-up scan.*

5. Therapeutic Intervention

Description of treatments administered, treatment responses, side effects, and other relevant details.

From February 6, 2024, the patient was initiated on Sandostatin LAR 20 mg administered intramuscularly [I/M] at 28-day intervals for a duration of three months, concluding on April 4, 2024. Following the second dose, laboratory investigations revealed a growth hormone [GH] level of 1908.00 pg/mL and an insulin-like growth factor 1 [IGF-1, Somatomedin-C] level of 310.60 ng/mL.

Given the persistence of elevated IGF-1 levels, the treatment regimen was escalated to Sandostatin LAR 30 mg, administered from May 5 to July 4, 2024, at the same 28-day intervals. A laboratory evaluation on June 28, 2024, demonstrated a further reduction in IGF-1 to 292.90 ng/mL.

Subsequently, the dosage was increased to Sandostatin LAR 40 mg, administered from August 5 to October 4, 2024, with IGF-1 reassessed on August 9, showing a decrease to 238.00 ng/mL. The patient continued on Sandostatin LAR 40 mg, and by November 9, 2024, IGF-1 had further declined to 120.00 ng/mL, achieving normalization.

6. Outcomes, Prognosis, and Follow up

The patient was followed up from January 2024 onwards after opting for medical therapy as a choice over surgery. Sandostatin LAR [Octreotide] was prescribed as part of the regimen, with gradual increase according to lab values and improvement clinically. The patient began with 20 mg [Feb–Apr 2024], 30 mg [May–July 2024], and 40 mg [Aug–Dec 2024]. Lab work was done at intervals, with radiological follow-up regarding tumor size modification and response to therapy. Research indicates that somatostatin receptor ligands (SRL) like Octreotide can reduce tumor volume in 36–75% of cases [6, 7].

Biochemical control also increased with time, as indicated through reductions in IGF-1 and GH levels. Clinically, stabilization of symptoms, with partial metabolic control improvement and facial feature slowing, resulted. Improvement notwithstanding, however, long-term condition for acromegaly necessitated continued monitoring and long-term care. [5] The final result for the patient constituted a successful response to dose increase therapy, confirming that medical therapy can be a viable alternative for patients not willing or able to undergo surgery [8].

7. Discussion

The late diagnosis of the patient highlights the challenge of recognising acromegaly as symptoms develop slowly and are not detected for many years despite repeated medical visits. The choice of medical over surgical treatment is a reflection of individualized treatment regimens, particularly for elderly patients or those with metabolic co-morbidities that increase surgical risk. While transsphenoidal surgery is the initial line of treatment, with 80–90% remission for microadenomas, medical therapy is a crucial alternative for those with macroadenomas, those who are not candidates for surgery, or those who decline surgery [13]. For this patient, Octreotide [Sandostatin LAR] successfully reduced tumor volume and normalized IGF-1, highlighting the effectiveness of somatostatin receptor ligands [SRLs] for managing acromegaly. Despite the effectiveness, however, there are several limitations that must be kept in mind. One is variability of response to SRL, with partial biochemical control occurring for some patients, necessitating adjunctive therapies or dose adjustments [9]. Long-term safety considerations are significant, as SRL therapy is linked to side effects including gastrointestinal symptoms, gallstone formation, and potential alterations in glucose metabolism, necessitating ongoing surveillance [1, 2]. A further limitation is the brief follow-up duration for this case, which restricts the assessment of long-term sustainability of the achieved improvements, as long-term monitoring for disease recurrence or drug resistance is necessary. Another point is that monotherapy with octreotide alone is all that this case entailed, but some patients will require combination therapy with pegvisomant [a receptor antagonist for GH] or with cabergoline [a dopamine agonist] for best control of disease [3, 4].

For individuals with partial responses to SRLs, alternative therapy should be utilized. Pegvisomant, a GH receptor antagonist, has been effective at normalizing IGF-1, either as monotherapy alone, or as a combination with SRLs, in 80–90% of patients, but is restricted due to high cost and necessity for regular monitoring for liver enzymes [9] Pasireotide, a second-generation SRL, has also been shown to have better control for IGF-1 [10] compared with Octreotide but with greater risk for hyperglycemia [Samson et al., 2024]. More recently, progress has also been made with oral preparations for SRLs, such as Mycapssa® (octreotide oral capsules), with encouraging biochemical control and greater patient convenience, but with variability for absorption as a drawback [12]. One novel therapy currently being tested is Paltusotine, a once-daily oral nonpeptide SRL, with encouraging normalization for IGF-1 with few side effects, as part of ongoing Phase 3 trials [13, 14].

Implications for this case highlight the importance of a multidisciplinary team consisting of endocrinologists, radiologists, and neurosurgeons for optimal outcomes. With continued improvements in medical therapy, new pharmacological agents such as paltusotine and newer oral SRLs have potential for practice-changing improvement with better, more convenient, and better-tolerated therapy for managing acromegaly. Refinement of personalized strategies for those with partial responses to currently available therapies, as well as those not currently amenable to surgery, will depend on further research.

8. Conclusion

This case highlights the importance of early detection and individualized treatment strategies for acromegaly. While surgery remains the first-line choice for therapy, medical therapy with somatostatin receptor ligands and dose escalation therapy may provide optimal control for nonsurgical candidates [8]. The findings highlight the necessity for continued screening and multidisciplinary treatment, particularly for those with metabolic comorbidities. Continued development in medical therapy, including newer preparations of SRL and second-line therapy, offers encouraging options for long-term control of the condition [11]. The case is a helpful model for optimization of treatment protocols for difficult cases of acromegaly, highlighting the role of individualized therapy and careful monitoring toward improvement in patient outcomes.

Abbreviations

GH	Growth Hormone
IGF-1	Insulin-Like Growth Factor-1
MRI	Magnetic Resonance Imaging
SRLs	Somatostatin Receptor Ligands
IM	Intramuscular
DM	Diabetes Mellitus
T1WI	T1-Weighted Imaging
T2WI	T2-Weighted Imaging
FLAIR	Fluid-Attenuated Inversion Recovery
DWI	Diffusion-Weighted Imaging
ADC	Apparent Diffusion Coefficient
SRL	Somatostatin Receptor Ligand
GHRA	Growth Hormone Receptor Antagonist

Author Contributions

Abdelrahman Shehata: Conceptualization, Resources
Ayesha Aijaz: Data curation, Methodology
Ibrahim Ibrar: Investigation, Project administration
Abia Gouher: Visualization, Formal Analysis
Muhammad Kamil Shahbaz: Validation, Software
Mahir Jallo: Supervision, Writing – review & editing

Conflicts of Interest

The authors affirm that they have no personal, business, or financial relationships that can be interpreted as potential conflicts of interest with regard to this study.

References

[1] Melmed S. Acromegaly. N Engl J Med. 2020; 382(10): 944–956. https://doi.org/10.1056/NEJMra1810772

[2] Gadelha MR, Kasuki L, Lim DST, Fleseriu M. Systemic complications of acromegaly and the impact of the current treatment landscape: an update. Endocr Rev. 2019; 40(1): 268–332. https://doi.org/10.1210/er.2018-00115

[3] Holdaway IM, Bolland MJ, Gamble GD. A meta-analysis of the effect of lowering serum levels of GH and IGF-1 on mortality in acromegaly. Eur J Endocrinol. 2008; 159(2): 89–95. https://doi.org/10.1530/EJE-08-0267

[4] Giustina A, Barkhoudarian G, Beckers A, et al. Multidisciplinary management of acromegaly: a consensus. Rev Endocr Metab Disord. 2020; 21(4): 667–678. https://doi.org/10.1007/s11154-020-09588-z

[5] Fleseriu M, Hashim IA, Karavitaki N, Melmed S, Murad MH, Salvatori R, et al. Hormonal replacement in hypopituitarism in adults: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2016; 101(11): 3888–3921. https://doi.org/10.1210/jc.2016-2118

[6] Katznelson L, Laws ER Jr, Melmed S, Molitch ME, Murad MH, Utz A, et al. Acromegaly: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2014; 99(11): 3933–3951. https://doi.org/10.1210/jc.2014-2700

[7] Melmed S. Medical progress: Acromegaly. N Engl J Med. 2006; 355(24): 2558–2573. https://doi.org/10.1056/NEJMra062453

[8] Ershadinia N, Tritos NA. Diagnosis and treatment of acromegaly: an update. Mayo Clin Proc. 2022; 97(2): 333–346. https://doi.org/10.1016/j.mayocp.2021.11.007

[9] Fleseriu M, Langlois F, Lim DST, Varlamov EV, Melmed S. Acromegaly: pathogenesis, diagnosis, and management. Lancet Diabetes Endocrinol. 2022; 10(11): 804–826. https://doi.org/10.1016/S2213-8587(22)00244-3

[10] Puig-Domingo M, Bernabéu I, Picó A, et al. Pasireotide in the personalized treatment of acromegaly. Front Endocrinol (Lausanne). 2021; 12: 648411. https://doi.org/10.3389/fendo.2021.648411

[11] Samson SL. Is diabetes with acromegaly for life? Pituitary. 2024; 27(5): 433–436. https://doi.org/10.1007/s11102-024-01438-4

[12] Biermasz N, Fleseriu M, Dreval AV, et al. Oral octreotide capsules lowered incidence and improved severity of acromegaly symptoms compared with injectable somatostatin receptor ligands: results from the MPOWERED trial. Endocrine Abstracts. 2021; 73: PEP8. 1. https://doi.org/10.1530/endoabs.73.PEP8.1

[13] Giustina A, Biermasz N, Casanueva FF, et al. Consensus on criteria for acromegaly diagnosis and remission. Pituitary. 2024; 27(1): 7–22. https://doi.org/10.1007/s11102-023-01360-1

[14] McGovern G. FDA accepts NDA for paltusotine to treat adult patients with acromegaly. Pharmacy Times. Published December 9, 2024.