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# RESEARCH ARTICLE

## PITUICYTOMA – CASE REPORT OF A RARE NEOPLASM OF THE HYPOTHALAMIC-PITUITARY REGION WITH EMPHASIS ON RADIOLOGIC FINDINGS

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**ABSTRACT**

Pituicytoma is an extraordinarily uncommon, low-grade glioma originating from the posterior pituitary or infundibulum, typically manifesting with symptoms associated with mass effect or hormonal disturbances. Its diagnosis generally necessitates an integrated approach, combining clinical assessment, advanced imaging modalities, and histopathological confirmation. Imaging is pivotal in detecting the lesion and distinguishing it from other sellar and suprasellar masses. This case underscores the radiological characteristics of pituicytoma, highlighting the critical role of a multidisciplinary approach in its diagnosis and management.



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# INTRODUCTION

Pituicytoma is a rare, benign, low-grade glioma arising from the neurohypophysis or infundibulum, constituting less than 1% of sellar and suprasellar neoplasms (1). It predominantly affects adults between the third and sixth decades of life and typically presents with nonspecific symptoms, including headache, visual disturbances, and hypopituitarism, due to mass effect on adjacent structures. Its clinical presentation often leads to misdiagnosis as more common lesions, such as pituitary adenomas or craniopharyngiomas (1). Magnetic resonance imaging (MRI) is pivotal in diagnosis, commonly revealing a well-demarcated lesion that is isointense on T1-weighted imaging, hyperintense on T2-weighted imaging, and demonstrates homogeneous enhancement after gadolinium administration (2). However, a definitive diagnosis requires histopathological examination. Microscopically, pituicytomas are composed of spindle-shaped cells arranged in fascicular patterns, with immunohistochemical positivity for glial fibrillary acidic protein (GFAP) and thyroid transcription factor-1 (TTF-1) (3). Surgical resection remains the primary treatment modality, with gross total resection yielding favorable outcomes. The surgical approach, either transsphenoidal or transcranial, depends on the tumor's size and location (4), as incomplete resections carry a risk of recurrence, necessitating long-term follow-up (4). This report highlights the clinical, radiological, and histological features of pituicytoma, underscoring the importance of a multidisciplinary approach for accurate diagnosis and effective management.

# OBJECTIVE

This case report aims to delineate the principal findings of pituicytoma, focusing on the imaging features that aid in its diagnosis. A case is reviewed to demonstrate the role of MRI and other imaging techniques in distinguishing pituicytoma from other similar sellar and suprasellar lesions. Key clinical and radiological insights are provided to improve recognition and management of this rare tumor.

# CASE DESCRIPTION

A 55-year-old male was admitted to the Hospital Geral de Fortaleza (HGF) in July 2024 with a history of pituitary macroadenoma. The patient presented with a three-year history of severe headaches, nausea, vomiting, and recent visual loss, necessitating urgent surgical intervention. MRI revealed a

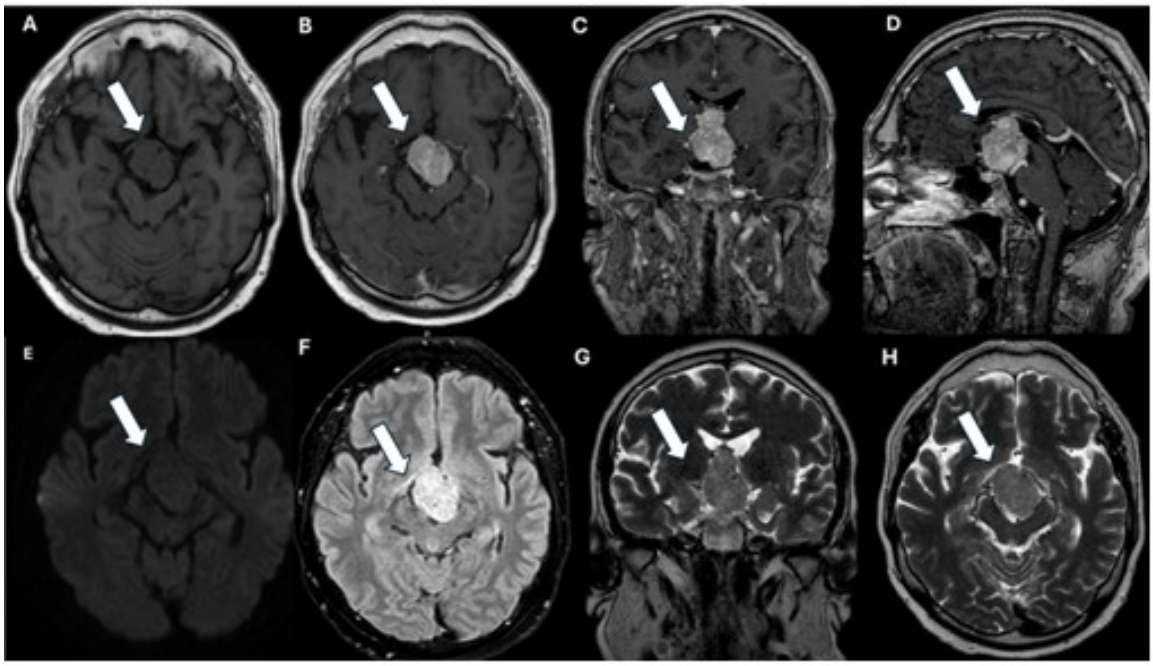


**Figure 1. Contrast enhanced MRI. T1-weighted sequences in the axial plane without contrast (A) and post contrast in the axial (B), coronal (C) and sagital planes (D) demonstrating a suprasellar mass with avid enhencement. DWI se-quence (E) and FLAIR sequnce (F) in the axial plane show a hyperintense lesion without water molecule restriction. T2 weighted sequences in the coronal (G) and axial (H) planes depict intermediate signal mass compresing the third ventricle and the interpeduncular cystern.**

large solid suprasellar lesion, with intense contrast enhancement, without water restriction, compressing the third ventricle and showing retrochiasmatic growth, affecting the visual pathways. Sella turcica was not involved (fig.1). The initial diagnosis was a large pituitary macroadenoma. Patient subsequently underwent neurosurgery for tumor removal, with the final diagnosis confirmed through histological and immunohistochemical analysis. Pituicytoma, a rare, low-grade glioma originating from pituicytes—specialized glial cells of the posterior pituitary or infundibulum—is primarily found in adults, with no significant gender predilection (2, 4). It is frequently clinically mistaken for other sellar or suprasellar masses, such as pituitary adenomas, due to overlapping symptoms and radiological findings. Patients typically present with symptoms resulting from local mass effect, including headaches, visual disturbances due to optic chiasm compression, and varying degrees of hypopituitarism, or, less commonly, diabetes insipidus (2). The slow growth of pituicytomas often leads to an insidious onset of symptoms, resulting in delayed diagnosis. Histologically, pituicytomas are composed of spindle-shaped cells arranged in fascicles or a storiform pattern, with strong immunoreactivity for glial fibrillary acidic protein (GFAP) and S-100 protein, indicative of their glial origin. Low Ki-67 proliferation indices further support their benign nature (2, 4). MRI is the diagnostic modality of choice, with typical findings on T1-weighted images showing iso- or hypointensity, variable hyperintensity on T2-weighted images, and homogeneous vivid contrast enhancement. However, radiological features can overlap significantly with those of pituitary adenomas, necessitating histopathological confirmation for definitive diagnosis (1). Differential diagnoses include pituitary adenomas, craniopharyngiomas, meningiomas, pilocytic astrocytomas, and Rathke's cleft cysts (1). Surgical resection, typically via a transsphenoidal approach, remains the primary treatment, offering favorable outcomes in most cases. However, complete resection may be challenging due to proximity to critical neurovascular structures (4). Recurrences are rare, and the prognosis is generally favorable, with minimal risk of malignant transformation.

# CONCLUSION

Pituicytoma is a rare, benign tumor of the sellar and suprasellar region, often misdiagnosed due to its nonspecific clinical presentation and similarity to other lesions. Advanced imaging, particularly MRI, plays a crucial role in its identification, while definitive diagnosis requires histopathological confirmation. Surgical resection remains the treatment of choice, with favorable outcomes in most cases. Awareness of its unique features is essential for accurate diagnosis and effective management.

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