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Coexistence of Pituitary Macroadenoma and Dacryoadenitis: A Complex Presentation in a Patient.

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Abstract

Pituitary adenomas are slow-growing, benign tumors of the anterior pituitary gland. While their small size usually makes their presence unknown, macroadenomas may cause clinical symptoms due to their mass effect. Dacryoadenitis is inflammation of the lacrimal gland, usually associated with infection. This case report details the clinical assessment and diagnostic journey of a 57-year-old male farmer, J.M., presenting with a constellation of symptoms including bilateral visual deterioration, persistent headaches, and left eye protrusion. Clinical examinations, imaging studies, and histological findings culminated in the identification of a coexisting pituitary macroadenoma and dacryoadenitis. This report highlights the challenges in diagnosing and managing such intricate presentations and emphasizes the necessity of interdisciplinary collaboration for accurate diagnosis and tailored treatment plans. Advancements in minimally invasive surgical techniques and targeted medical therapies have significantly improved patient outcomes and reduced treatment-related morbidity. Future practice should focus on early recognition and effective management of these complex presentations to enhance patient quality of life.

Keywords: Pituitary Macroadenoma, Dacryoadenitis, Bitemporal Hemianopsia

INTRODUCTION

Pituitary adenomas are common intracranial neoplasms that are slow-growing and benign. They are classified based on their size and histology. Pituitary adenomas larger than 10 millimetres (mm) are considered macroadenomas, while those smaller than 10 mm are classified as microadenomas (1). They usually go unnoticed, mostly being discovered on routine intracranial imaging (2). However, macroadenomas may present with symptoms such as visual impairment and

headaches due to their mass effect. While they can occur at any age, a peak incidence is observed in middle-aged adults. Gender differences exist, with a slight predilection for females. Genetic predisposition and environmental factors may contribute to the development of macroadenomas, warranting further investigation (3). Histologically, macroadenomas exhibit cellular heterogeneity, reflecting their diverse hormonal activity. The most common subtypes include somatotroph, lactotroph, corticotroph, and gonadotroph adenomas.

Dacryoadenitis is inflammation of the lacrimal gland. It may arise from infectious, autoimmune, or idiopathic causes (4). Histologically, dacryoadenitis presents a spectrum of findings, ranging from lymphocytic infiltrates to granulomatous inflammation. Immunohistochemical analyses are pivotal for identifying specific etiologies, including viral, bacterial, or autoimmune origins. Complications of dacryoadenitis extend beyond local inflammation, encompassing visual disturbances, proptosis, and systemic sequelae in severe cases. Chronic or recurrent inflammation may lead to fibrosis, posing a risk for functional impairment. We report a case of a 57-year-old male who presented with visual impairment, persistent headaches, and left eye protrusion for four months.

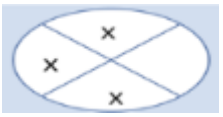
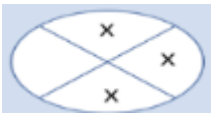
CASE PRESENTATION

J.M., a 57-year-old male farmer, sought medical attention due to a progressive decline in vision bilaterally over four months, concurrent with persistent headaches and left eye protrusion of similar duration. The evolution of symptoms and associated clinical findings prompted a comprehensive investigation into potential underlying etiologies. The patient presented with gradual visual decline leading to functional impairment, described as bumping into objects on the sides during activities. Persistent frontal headaches, relieved by over-the-counter analgesics, and left eye protrusion, painless and gradually increasing in size, were noted without associated trauma or typical migraine symptoms. Examination revealed reduced visual acuity, bitemporal hemianopsia, left eye proptosis, and ophthalmoparesis (Table 1). Imaging studies, including CT and MRI scans, identified isodense masses at the sella turcica and left lacrimal gland, extending intracranially and into the orbit without bony erosions (Figures 1 and 2).

Diagnosis

The differential diagnoses encompassed pituitary macroadenoma, optic chiasm glioma, lacrimal gland tumor, hemangioblastoma, or lymphoma. Biopsy results elucidated dacryoadenitis and pituitary adenoma, culminating in the diagnosis of coexisting pituitary macroadenoma and dacryoadenitis.

Table 1: *Ocular examination findings.*

	Right Eye	***Left eye***
Visual acuity	*6/9*	*6/24*
Color vision	*Normal*	*Normal*
Visual field		
Extra-ocular muscle motility	*Free*	
Eye lids and lashes	*Normal*	*Normal*
Conjuctiva	*Atopic*	*Atopic*
Cornea	*Clear*	*Clear*
Anterior chamber	*Deep and quiet*	*Deep and quiet*
Iris	*Normal*	*Normal*
Pupils	*Reactive to light, 3mm*	*Relative Afferent Pupillary Defect Grade 2+*
Lens	*Clear*	*Clear*
Fundus	*Cup-disc ratio 0.5, normal macula & vessels*	*Cup-disc ratio 0.5, normal macula and vessels*
Proptosis examination	*Normal findings*	*Inferonasal dystopia, 2mm extra-axial, lagophthalmos, resistant to retropulsion, no bruits, with intact orbital rim*
Relative exophthalmometry	*20 mm*	*35 mm*

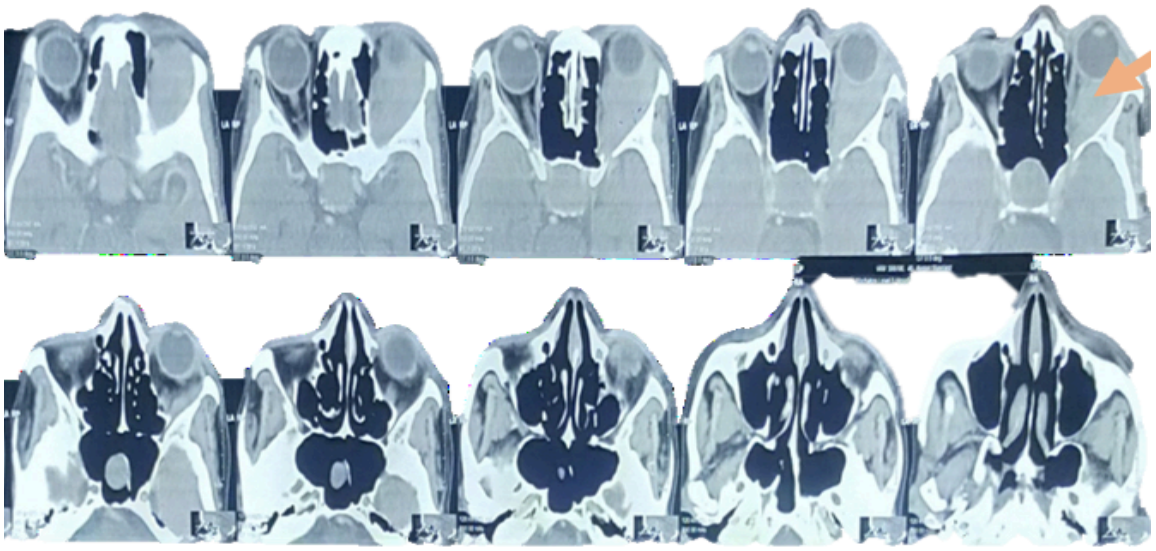


Figure 1: Contrast-enhanced CT Axial scan head, showing a mass in the left orbit (arrow)

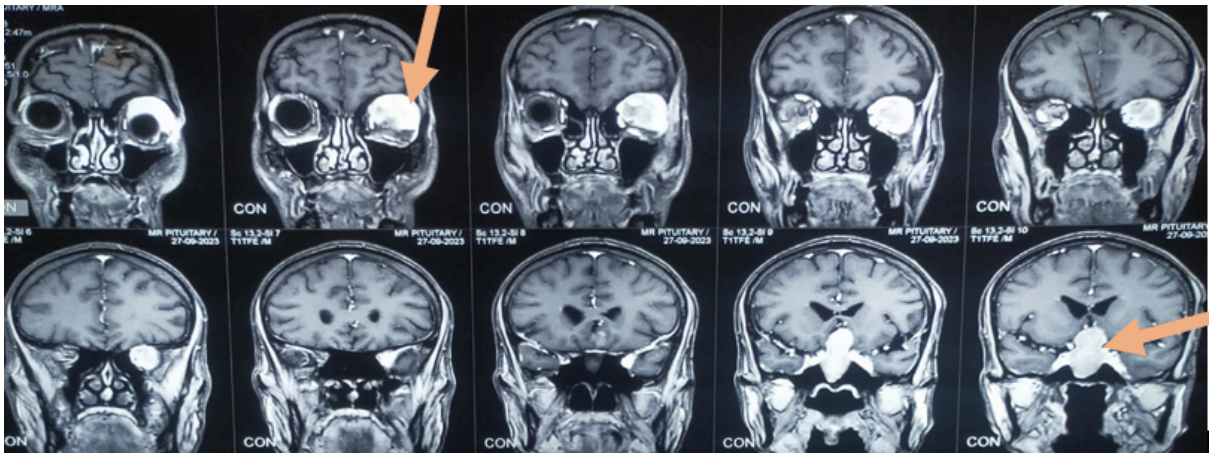


Figure 2: T1-weighted MRI scan with contrast showing a mass in the left orbit and a pituitary mass.

DISCUSSION

The presented case of a 57-year-old male with visual impairment, persistent headaches, and left eye protrusion underscores the complexity and clinical challenges associated with concomitant pituitary macroadenoma and dacryoadenitis. The etiology of visual impairment, headaches, and seizures secondary to a pituitary adenoma is multifaceted, rooted in the anatomical proximity of the pituitary gland to critical neurovascular structures. Pituitary adenomas, neoplasms arising from the pituitary gland, exert pressure on the optic chiasm as they expand within the sella turcica, leading to visual impairment(5). Compression of the optic nerves results in characteristic visual field deficits, such as bitemporal hemianopia(6). Additionally, the adenoma's mass effect on surrounding structures, including the cavernous sinus and adjacent brain tissues, contributes to headaches, often attributed to increased

intracranial pressure(7). This mass effect may also lead to proptosis(8). The neurovascular compression may also induce alterations in cerebral blood flow, predisposing individuals to headaches. Furthermore, as the adenoma grows and extends beyond the sella turcica, it can impinge upon surrounding brain regions, potentially triggering seizures through mechanisms that remain under investigation(9). The intricate interplay of anatomical relationships, hormonal dysregulation, and local mass effects underscores the complex etiology of these neurological manifestations in the context of pituitary adenomas.

The concurrent occurrence of pituitary macroadenoma and dacryoadenitis in our patient is an unusual clinical scenario. These two entities are distinct in their anatomical locations and etiological factors. Pituitary adenomas typically arise from the sella turcica(1), while dacryoadenitis involves inflammation of the lacrimal gland(4). Accurate diagnosis of the dual pathology was achieved through comprehensive imaging studies, including CT and MRI scans. These modalities revealed isodense masses at the sella turcica and left lacrimal gland, highlighting the importance of multimodal diagnostic approaches in complex cases. Histological evaluation, including immunohistochemical analyses, confirmed the pituitary macroadenoma's diverse hormonal activity and identified the specific etiology of dacryoadenitis possibly by direct extension and compression, obstruction of tear drainage or indirect effects through inflammation or infection. The clinical implications of this case extend beyond the rarity of simultaneous pituitary macroadenoma and dacryoadenitis. The patient's visual impairment, bitemporal hemianopsia, left eye proptosis, and ophthalmoparesis underscore the potential complications associated with these conditions. The risk of chronic inflammation leading to fibrosis in dacryoadenitis and the mass effect of pituitary adenomas both contribute to functional impairment, emphasizing the importance of timely diagnosis and intervention(10).

Conclusion:

J.M.'s case delineates the challenges encountered in diagnosing the coexistence of pituitary macroadenoma and dacryoadenitis and highlights the significance of interdisciplinary collaboration for accurate diagnosis and individualized treatment regimens. This report contributes to the expanding knowledge base concerning complex orbital pathologies, advocating for comprehensive evaluations and collaborative care in similar clinical scenarios. The management of macroadenomas is multidisciplinary, involving endocrinologists, neurosurgeons, and radiation oncologists. Treatment modalities include surgery, medical therapy, and radiation therapy, often employed in combination based on tumor characteristics and patient-specific factors.The multidisciplinary approach led to successful management of J.M.'s condition, with a favorable prognosis due to timely intervention and advanced treatment modalities.

Advancements in minimally invasive surgical techniques and targeted medical therapies have improved outcomes and reduced treatment-related morbidity. The convergence of symptoms and diagnostic findings underscored the complexity of these coexisting conditions, necessitating a multidisciplinary approach involving ophthalmologists, neurologists, and oncologists. Future practice should emphasize the importance of recognizing and managing such complex presentations to improve patient outcomes and quality of life.

REFERENCES

1. Russ S, Anastasopoulou C, Shafiq I. Pituitary Adenoma. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Dec 10]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK554451/
2. Molitch ME. Diagnosis and Treatment of Pituitary Adenomas: A Review. JAMA. 2017 Feb 7;317(5):516–24.
3. Araujo-Castro M, Berrocal VR, Pascual-Corrales E. Pituitary tumors: epidemiology and clinical presentation spectrum. Hormones (Athens). 2020 Jun;19(2):145–55.
4. Patel R, Patel BC. Dacryoadenitis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Dec 10]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK535384/
5. Ho RW, Huang HM, Ho JT. The influence of pituitary adenoma size on vision and visual outcomes after trans-sphenoidal adenectomy: a report of 78 cases. Journal of the Chinese Medical Association. 2013 Oct 1;76(10):566-71.
6. Jefferson G. Extrasellar extensions of pituitary adenomas. Proceedings of the Royal Society of Medicine. 1957 Jan;50(1):17.
7. Moradi Tabriz H, Mollahoseini R, Sadramely MR, Khodadadi K, Sabet MS, Sharifi G, Rahimi-Movaghar V. Visual outcome after surgery in patients with pituitary adenoma: A 15-year survey. Iranian Journal of Neurosurgery. 2018 Jan 1;4(1):23-7.
8. Briet C, Salenave S, Chanson P. Pituitary apoplexy. Endocrinology and Metabolism Clinics. 2015 Mar 1;44(1):199-209.
9. Raverot G, Vasiljevic A, Jouanneau E, Trouillas J. A comprehensive review of features of somatoproliferative tumor cells. Clinical Endocrinology. 2008;69(4):609-17.
10. Olson MC, Hizel LP, Allen CM, Swanson JW, Gilmore JL. Successful Treatment of a Recurrent Lacrimal Gland Mass Using Radiotherapy. Mayo Clinic Proceedings. 2001 Feb 1;76(2):205-9.