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Primary Pituitary Abscess Gland Mimicking Adenoma: A Rare Case Report

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Abstract

Pituitary abscess gland is an uncommon lesion on sellar region. Clinical diagnosis is not easy to make and it is difficult to make difference from other pituitary lesions on clinical and sometimes on Neuroimaging. This pathology is characterized by vague symptoms, headaches, generalized tiredness and hypopituitarism manifestations. A 35-year-old woman was admitted to neurosurgery with complaints of headaches and blurred vision. MRI of the head revealed a suprasellar mass that was centrally hyperintense lesion on T2-weighted images with peripheral hypointensity. Treatment of the lesion of this lesion pituitary area through a transsphenoidal approach and spectrum antibiotic therapy with ceftriaxone metronidazole and vancomycin for 6 weeks. The patient continues to have pituitary insufficiency and is treated with oral hydrocortisone. After the diagnosis, the surgery and antibiotics should be commenced rapidly. Our aim is to report this rare case and to show how sometimes it is difficult to make diagnosis and clinical features vary mimicking other pituitary lesions before pre-operative and how to manage pituitary abscess gland. The outcome is usually good with proper treatment.

Keywords

Pituitary Abscess, Endoscopy Transsphenoidal, Antibiotics

1. Introduction

Pituitary abscess (PA) is a rare disease with an incidence of 0.2% and 1.1% of operative pituitary lesions and the first case was reported by Simmond in 1914 [1]. The diagnosis is delayed due to non-specific symptoms and indistinguishable radiological findings. The diagnosis is usually made intraoperatively or postoperatively and intravenous antibiotics are administered empirically [2] [3]. Pi-

tuitary abscess is an uncommon disease that usually presents with vague symptoms. To reach a diagnosis in such cases is usually difficult.

Preoperative diagnosis is a dilemma as symptoms such as pituitary abnormal function are non-specific, and radiological findings are not distinctive of an abscess and symptoms like headache or visual disturbances are vague. Therefore, the majority of the cases have been diagnosed either post-mortem or post-operatively. Pituitary hormone deficiencies remain in the majority of patients following treatment, though no long-term follow-up data exist in the literature. Two recent small studies suggest that the most determining factor for the persistence of pituitary hormone deficiencies is the duration of symptoms before diagnosis.

2. Case Report

A 35-year-old woman 6 months postpartum presented with a five-month complaint of persistent frontal headache, visual blur and vomiting. The patient had no other symptoms. She had no history of or current evidence of infection, sinusitis or meningitis. Her ophthalmological report was marked more marked by an attack of the right eye that left the visual field with a papillary value at the bottom of the eye and generalized body fatigue.

3. Investigation

A MRI of pituitary region showed before and after contrast injection revealed a sellar enlargement with erosion of the dorsum sellae and intrasellar expanding lesion with suprasellar extension to chiasmatic cistern was found. The lesion was heterogeneous with hyposignal (**Figure 1**) at the center and contrast enhancement at the periphery of the lesion (**Figure 2**). The optic chiasm was compressed and displaced superiorly by the lesion. The diagnosis of cystic pituitary macroadenoma was made.

4. Management

At the time she was admitted to the hospital. Laboratory tests and endocrinological evaluation showed a decrease in cortisol with normal values for TSH, T3, T4, FSH, LH and GH.

She had benefited from transsphenoidal surgery. After dural opening and gland penetration, a thick greenish purulent fluid was obtained. After drainage gland inspection did reveal signs of inflammation without tumor lesions or other lesions.

5. Outcome and Follow-Up

On immediate outcome, after surgery the patient recovered with no headache and vomiting, bacterioscopy revealed polymorphonucleated cells but no germs.

The patient was treated with intravenous ceftriaxone metronidazole vancomycin for a total of 6 weeks. He was doing well with improvement in symptoms and normal functional status.

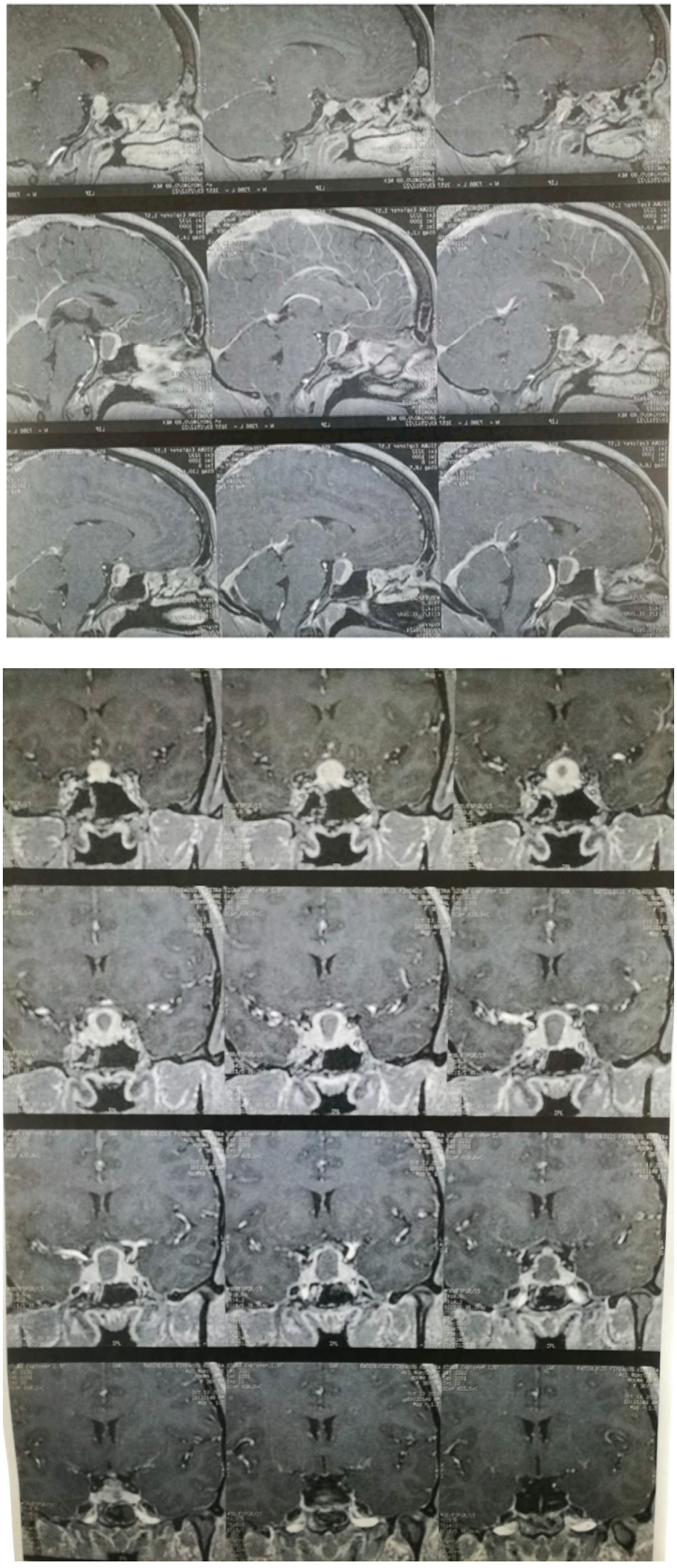


Figure 1. Pre operative MR images sagittal and coronal T1-weighted demonstrating an iso intense lesion in the pituitary fossa, with ring enhancement after contrast injection.

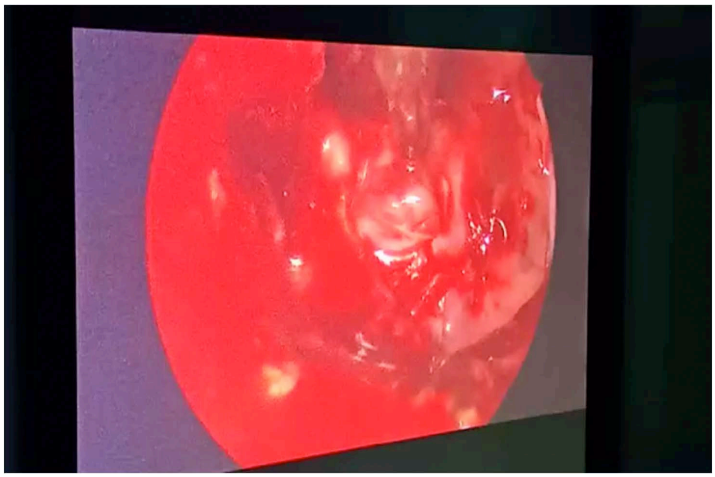


Figure 2. Endoscopic view of pus after opening the dura mater during the transsphenoidal approach.

The patient continued to have pituitary insufficiency on follow-up and the hydrocortisone continued.

She developed diabetes insipidus one day after surgery, which was managed with Minirin®. The patient continued to have pituitary insufficiency on follow-up and the hydrocortisone continued. No further headaches have been noticed or other symptoms. Follow-up MRI was done and showed no more enhancing residual abscess pockets within the pituitary fossa suggesting complete resolution (**Figure 3**).

6. Discussion

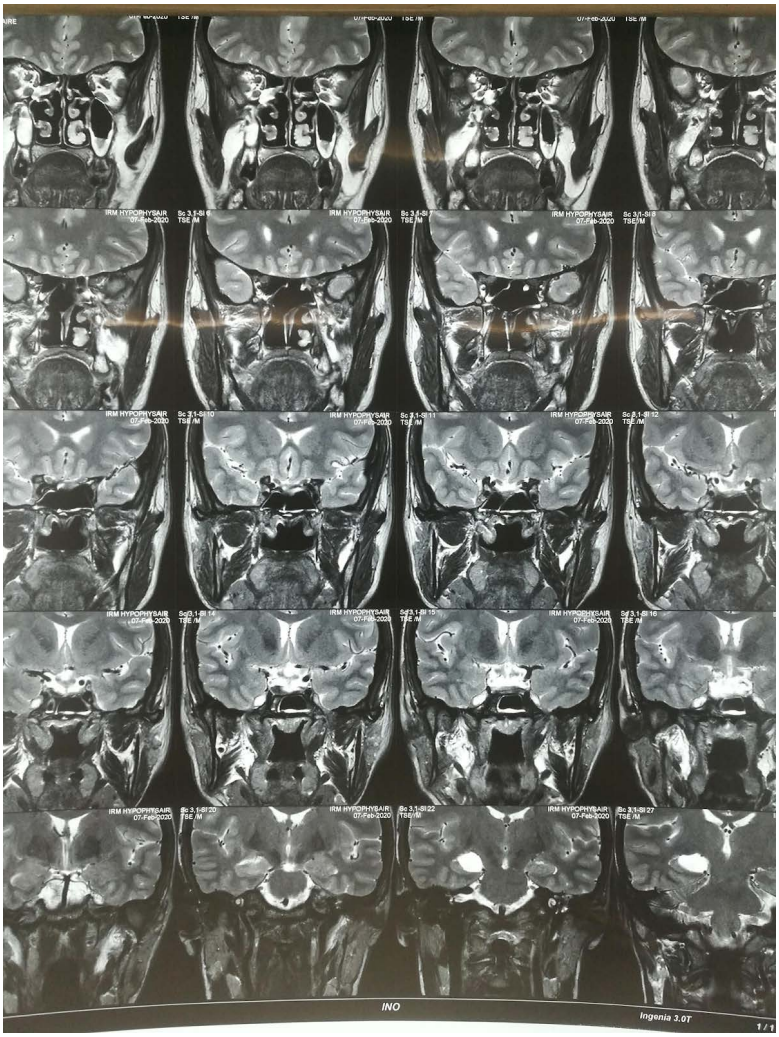
The pituitary gland can demonstrate a variety of pathologies with different clinical presentations [4] [5]. The primary subtype constitutes the majority of the pituitary abscess. Pituitary abscesses, rare lesions, may be divided into primary and secondary types. Primary pituitary abscesses occur within a previously healthy gland, while secondary abscesses arise within an existing lesion, such as an adenoma, craniopharyngioma, or Rathke's cleft cysts cases. In about 50% of primary abscesses, the source of the infection remains unknown and is often called "primitive" pituitary abscesses.

On other hand, the secondary subtype usually rises from within an existing pituitary lesion. Pituitary abscess is a rare pathological condition of multifactorial etiology [2]. Primary pituitary abscess occurs due to hematogenous seeding or by direct extension of adjacent infection, either in CSF or in the sphenoid sinus and more rarely as a complication of thrombosis of the cavernous sinus [3]. On other hand, the secondary subtype usually rises from within an existing pituitary lesion such as an adenoma, a craniopharyngioma or a Rathke cleft cyst. Other risk factors are underlying immunocompromised condition, previous pituitary surgery or irradiation of the pituitary gland.

In this case, it was one case with no history of fever and sign of infection. No growth was found in culture despite no preoperative administration of antibio-

tics. The variety of bacterial pathogens cultivated from pituitary abscess include: Staphylococcus aureus, *Streptococcus pyogenes*, *Pseudomonas*, *Klebsiella ozaenae, Bacteroides*, Gram-positive coryneform rods, *Acinetobacter*, *Candida albicans* and *Actinomyces* [1] [2] [7]. Other less likely to be isolated organisms are fungi and parasite. It was suggested once that pituitary abscess does not represent a bacterial infection. It is just an inflammatory reaction secondary to pituitary infarction. As the highest frequency of the sterile cultures and along with it, the associated endocrine abnormalities can be explained by simple inflammation of the gland.

Radiologically, it is still very challenging to differentiate between a pituitary abscess and adenoma. The CT and MRI (including the diffusion-weighted images) find both conditions. But in this case iso or hypointense lesion on T1W1, iso or hyperintense on T2W1 and ring enhancement on gadolinium administration mild ring enhancement which signifies lack of matured capsule. Differential diagnoses of sellar cystic lesions include pituitary adenoma, carcinoma, abscess, arachnoid cyst, colloid cyst, Rathke cleft cyst, craniopharyngioma and metastasis.



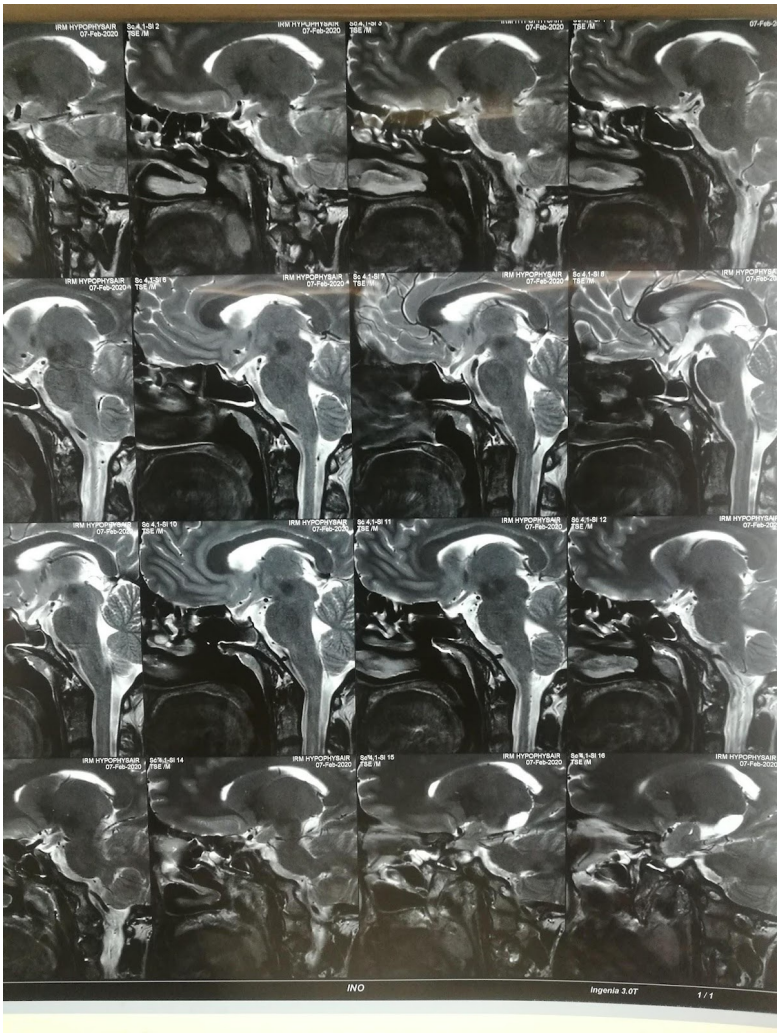


Figure 3. Post operative MR images, performed 1 year after surgery revealed complete evacuation of the abscess, with no obvious intrasellae pathological condition.

Surgical drainage is the standard treatment for a pituitary abscess [6] [7] [8] [9]. The management of choice is surgical drainage by transsphenoidal approach followed by anti-biotherapy [7] [8] [9]. In about 50% of primary abscesses, the source of the infection remains unknown and is often called primitive pituitary abscesses [10]. However, craniotomy is an alternative approach but has fallen out of favor because it is more invasive and has a greater complication rate including bleeding, meningitis, vascular injury, CSF leakage and infection. This approach is mainly recommended for larger lesions with extensive suprasellar extension [11], where transsphenoidal surgery is ineffective. The operation could also increase the risk of or delay the recovery from anterior pituitary insufficiency and diabetes insipidus [10] [12]. Transsphenoidal excision of the lesion with decompression of the sella is the most effective and safe approach for patients presenting with mass effect [13]. Endoscopic transsphenoidal is most important to do a Gram = standing and culture of the pus and treat with appropriate antibiotics in the postoperative period to reduce the risk of recurrence. Hor-

mone replacement therapy is administered based on hormone deficits of the pituitary gland [1] [11] [12].

7. Conclusion

Pituitary abscess is a rare disease. Preoperative diagnosis is difficult because of rarity of disease, non-specific symptoms and ring enhancing other pituitary lesions. One of the differential diagnoses of cystic suprasellar mass is pituitary abscess. This case presents one of the rare causes of pituitary insufficiency. A pituitary abscess must be tickled in the differential diagnosis of a patient with hypopituitarism and signs of systemic infection, and the patient should have an MRI assessment. Treatment consists of debridement, systemic administration of antibiotics for 4 - 6 weeks [13] [14] [15] and hormonal replacement.

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Patient Consent

Written informed consent was obtained from the patient for publication of the submitted article and accompanying images.

Conflicts of Interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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