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Case Report

An Unusual and Interesting Case of Headache: Pituitary Abscess Caused by *Pseudomonas putida*

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Abstract

Persistent headache and visual disturbance are very common entities seen with Pituitary macroadenoma. Such patients may or may not have any sign of bacterial infection such as fever, chills, or any other systemic symptoms. Such patients may have a bacterial abscess associated with the pituitary macroadenoma. Such association may not be explainable on clinical grounds. Mostly diagnosis of pituitary abscess can be made only during endoscopic resection of pituitary macroadenoma, when frank pus is seen. Here, we present a female patient presenting with a persistent headache for 3 months with visual defects with panhypopituitarism. On neuroimaging, she was found to have a pituitary macroadenoma. She was not having a fever or chills. On endoscopic resection of this pituitary macroadenoma, frank pus was noted. This pus yielded *Pseudomonas* species on culture and sensitivity. She was given thyroxine replacement and injection of hydrocortisone. She was given 6 weeks of antibiotics as per culture reports. Post-operative, she was significantly clinically better.

Key words: Pituitary Abscess, Pseudomonas, Pituitary Macroadenoma, Putida

INTRODUCTION

The symptoms of headache, visual abnormality are very typical of pituitary adenoma but not sufficient to diagnose pituitary abscess. These symptoms at first instance may not be sufficient to diagnose a pituitary abscess. Only during resection of these pituitary lesions can abscess be identified. Features such as fever, leukocytosis may be seen in <33% patients with pituitary abscess.[1]

The presence of headache and visual abnormality may highly suggest a pituitary lesion. Mostly, there is absence of systemic symptoms. These symptoms are usually always present as a pituitary adenoma, but a high suspicion of pituitary abscess has to be borne in mind always.[2] Pituitary abscess is rare. Dutta *et al.* studied 3 cases of pituitary abscesses, where all patients had signs of toxemia, fever, and endocrine dysfunction. These patients had *Pseudomonas*, *Acinetobacter*, and *Staphylococcus* as etiologies, respectively. However, in our case, the patient did not have systemic symptoms such as fever or toxemia.[3]

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Bacterial pituitary abscess is rare but manifests similarly to other pituitary masses with headaches, visual field defects, and hormonal disturbances. For the correct pre-operative diagnosis of this condition, the physician must have a high index of suspicion, and the characteristic ring enhancement must be present on imaging studies.[4]

Hanel *et al.* reported a 35-year-old female patient who presented with chronic headache without a septicemic illness, meningitis, cavernous sinus thrombosis, or sinus infection. Her initial diagnosis was of a pituitary adenoma. She underwent a sublabial transsphenoidal approach to the pituitary gland. After dural opening, purulent material was obtained, and no tumour. Culture reports did not yield any particular etiology. She was put on antibiotics and discharged after 4 weeks. And concluded that early diagnosis and adequate treatment of this life-threatening lesion may result in an excellent prognosis.[5]

CASE REPORT

A 58-year-old female patient presented with headache, markedly reduced appetite, and multiple vomiting episodes

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intermittently since 2–3 months. Her symptoms worsened over the past 04 weeks, for which she approached Accord Hospital, Moshi. She was coherent, conscious, and obeying all commands. She had no diplopia, squint. Her hearing was normal bilaterally. She was not having vertigo, giddiness, or tinnitus. Her taste sensation was normal. There was no abnormality in salivation, chewing, or deglutition. The power of the bilateral upper and lower limbs was normal. Sensory examination of bilateral extremities was within normal limits. There was no significant photo phobia, phonophonia. Her bowel and bladder habits were normal. There was no abnormal sensation over the face. There were no dental complaints.

Her heart rate was 76/min, blood pressure was 146/86 mmHg, Sao2 was 99% on room air, respiratory rate was 14/min, temperature was 97.8°F, random blood sugar was 184 mg/dL/min. magnetic resonance imaging (MRI) brain and perimetry was planned. Perimetry showed bitemporal hemianopia. Three-tesla MRI brain showed 1.5*1.8*2.3 cm moderately and heterogeneously enhancing lesion appearing isointense on T1 and hyperintense on T2, involving sellar and supra-sellar regions, and the pituitary gland was not seen separately. The lesion was displacing the optic chiasm superiorly. The lesion was abutting the internal carotid artery on both sides-Knosp grade 1. These vessels show normal post-contrast opacification. These findings were suggestive of pituitary macroadenoma.

Thyroid function test showed (Sr) T3 1.21 ng/mL (0.35–1.93), thyroid-stimulating hormone 0.197 (0.350–4.94), T4 3.8 (4.87–11.72), Sr follicle-stimulating hormone 1.66 mIU/mL (19–100.6), LH 0.47 mIU/mL (14.2–52.3), Sr prolactin 48.60 ng/mL (4.79-23.3), and Sr cortisol 0.42 mg/dL (5–23). E2 estradiol was 14.70 pg/mL (<28). Sr creatinine was 0.77 mg/dl, Sr uric acid was 4.3 mg/dL, Sr sodium was 145 mEq/L, Sr potassium was 4.2 mEq/L, Sr chloride was 100 mEq/L. Total bilirubin was 1.50 mg/dL, direct bilirubin 0.47 mg/dL, Sr serum glutamic-oxaloacetic transaminase 33.5 (5–40 U/L), Sr serum glutamic pyruvic transaminase 30.1 (5–40 U/L), Sr alkaline phosphatase 121.90 U/L (30–120). Sr total proteins were 6 g/dL, Sr albumin 3.9 g/dL. Computed tomography scan abdomen with contrast shown mild hepatomegaly (17 cm). 2D echocardiogram shown mild concentric left ventricular hypertrophy with grade 1 diastolic dysfunction.

In view of persistent headache, markedly reduced appetite, and presence of bitemporal hemianopia, she was planned for resection of pituitary macroadenoma. She underwent trans sphenoidal excision of pituitary lesion, where frank pus discharge was evident from the pituitary fossa. Pus culture and sensitivity yielded *Pseudomonas putida* susceptible to ceftazidime, ciprofloxacin, amikacin, cefepime, imipenem, and meropenem. Pus was negative for acid-fast bacilli. Pus sample was negative for *Mycobacterium tuberculosis* complex and mycobacterium other than tuberculosis by polymerase chain reaction test.

Pituitary tissue resected shows scanty deposits of pituitary tumor arranged in small nests, clusters, and perivascular collections consistent with pituitary adenoma. Tumor cells show round regular, angulated nuclei and moderate pink cytoplasm. Cells did not show mitoses or prominent nucleoli. There was no sign of necrosis or malignancy. These findings were consistent with pituitary adenoma.

She was put on inction ceftazidime 2 g intravenous 8 hourly for 6 weeks. She recovered well on antibiotics. She was discharged with thyroxine 75 mcg/day and Tablet Wysolone 10 mg on a tapering schedule. She was seen in follow-up after 6 weeks also, when she was doing good without much symptoms. This case illustrates an unusual pituitary adenoma with abscess caused by *Pseudomonas* species. Well-localized *Pseudomonas* infection causing an isolated pituitary abscess is an extremely rare entity.

DISCUSSION

This case presented with a persistent headache, reduced appetite. She was found to have vision loss on perimetry in the form of bitemporal hemianopia. She was also found to have signs of panhypopituitarism. In the absence of fever, chills, it fitted perfectly to pituitary macroadenoma as evident on neuroimaging. However, such macroadenomas can contain a pituitary abscess within. Hence, surgical exploration of pituitary macroadenomas can be really lifesaving. As only on resection of such lesions, the pus could be seen and could be sent for culture and sensitivity. Hence, sending such a sample is an extremely important step in identifying and adequately treating the etiology of pituitary abscess. Hence, any patient coming with symptoms of headache, reduced appetite should always be carefully evaluated and monitored. Such patients may have an underlying pituitary macroadenoma that must be kept in mind, and that lesion may also contain an abscess. Hence, prompt neuroimaging, perimetry, and surgical resection can potentially reduce complications and make patients' life better.

CONCLUSION

Headache with reduced appetite, vomiting are extremely common symptoms in general. Persistence of these symptoms may be neurological. Hence, if such symptoms are persistent and recurring, prompt neurological imaging must be sought. Pituitary adenoma on neuroimaging may have a pituitary abscess within. In such cases, the

drained pus or secretions must be sent for culture and sensitivity for bacterial and tubercular etiology always. Pituitary adenoma can have abscess within, which, too, with *Pseudomonas* must be kept in mind always, and proper antibiotics must be continued for adequate duration to completely eliminate the pituitary abscess etiology as per culture and sensitivity.

Patients presenting with pituitary adenoma may harbour an abscess underneath. The etiology may still be *Pseudomonas* even in the absence of signs such as fever and toxemia. Hence, appropriately treated with abscess drainage and adequate antibiotic treatment as per culture and sensitivity for at least 04 weeks may not only save the patient's life, but may also save the pituitary function in its entirety.

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