Journal of Experimental Research

June 2018, Vol 6 No 2

Email: editorinchief.erjournal@gmail.com editorialsecretary.erjournal@gmail.com

Received: *May. 2018*

Accepted for Publication: *May 2018*

Pituitary Abscess Mimicking Pituitary Macroadenoma: An Unusual Sellar Lesion (Case Study)

[1]Ozor II*, [2]Okorie EC, [3]Tripathy LN, [3]Harsh J

[1]Neurosurgery unit , Department of Surgery/Anatomy, ESUT Teaching Hospital (ESUTH)/ College of Medicine, Parklane, Enugu, Nigeria.
[2]Neurosurgery Unit, Department of Surgery. University of Nigeria Teaching Hospital (UNTH), Enugu, Nigeria.
[3]Medica Institute of Neurosurgical Diseases, Medica Superspecialty Hospital, Kolkata, India.

***Author for Correspondence:** ikemozor@yahoo.com

ABSTRACT:

Pituitary abscess can be defined as an involvement of the pituitary gland by an intrasellar inflective process. Correct diagnosis is difficult before surgery. It is usually made unexpectedly at surgery or autopsy. The objectives include to draw attention of Neurosurgeons to its rarity so as to consider it in the list of differential diagnosis of sellar lesions, offer appropriate and optimal treatment and finally to review the literature of the subject matter. We report a sixty-three year old right handed Bhutanese referred from a Government hospital in Bhutan with recurrent intermittent headache and vomiting of two years and one week duration respectively. He was in apparent good health prior to onset of symptoms and there was no identifiable aetiology. Physical and neurological examination was unremarkable. MRI revealed a sellar lesion with parasellar extension suspected to be pituitary macroadenoma. Patient had microsurgical trans-sphenoidal drainage of the abscess after resurcitation and optimization. Pituitary abscess was diagnosed intra-operatively. Patient was placed on antibiotics and was discharged home on a stable condition. Microbiology (culture + AFB) was negative and histology revealed a pituitary abscess in a probably existing pituitary adenoma. In conclusion, pituitary abscess still remains rare and potentially life-threatening. Diagnosis before surgery is difficult. It should be entertained in the differential diagnosis in patients with hypopituitarism with sellar or parasellar mass.

Key Words: Transphenoidal, Diagnosis, Abscess, Macroadenoma, Pituitary.

INTRODUCTION

Pituitary abscess was first described by SIMMOND in 1914. The incidence is low and difficult to exactly estimate. Cushing's classic series of pituitary tumours showed no reference. The study done by Jain et al (1997) revealed that pituitary abscess accounted for 0.6% of all pituitary lesions. According to Hanel et al (2002) it accounted for about 0.2% in a series of five hundred and three (503) sellar lesions. About 0.6% incidence has been noted by an Indian largest series. The index case is the only one seen in MEDICA Superspecialty Hospital, Kolkota , India , in a series of about fifty cases. There is a slight female preponderance but no familial predisposition.

The study intends to draw attention of Neurosurgeons to its rarity so as to consider it in the list of differential diagnosis of sellar lesions, to offer appropriate and optimal treatment and to review the literature of the subject matter.

CASE REPORT:

We report a 63 year old right handed Bhutanese referred from a Government hospital in Bhutan with recurrent intermittent headache and vomiting of two years and one week duration respectively. He was in apparent good health prior to onset of symptoms and there was no identifiable aetiology.

Physical and neurological examination was unremarkable. MRI revealed a sellar lesion with parasellar extension suspected to be pituitary macroadenoma. Patient had microsurgical transsphenoidal drainage of the abscess after resuscitation and optimization.

Pituitary abscess was diagnosed intra-operatively. Patient was placed on antibiotics and was discharged home on a stable condition. Microbiology (culture + AFB) was negative and histology revealed a pituitary abscess in a probably existing pituitary adenoma.

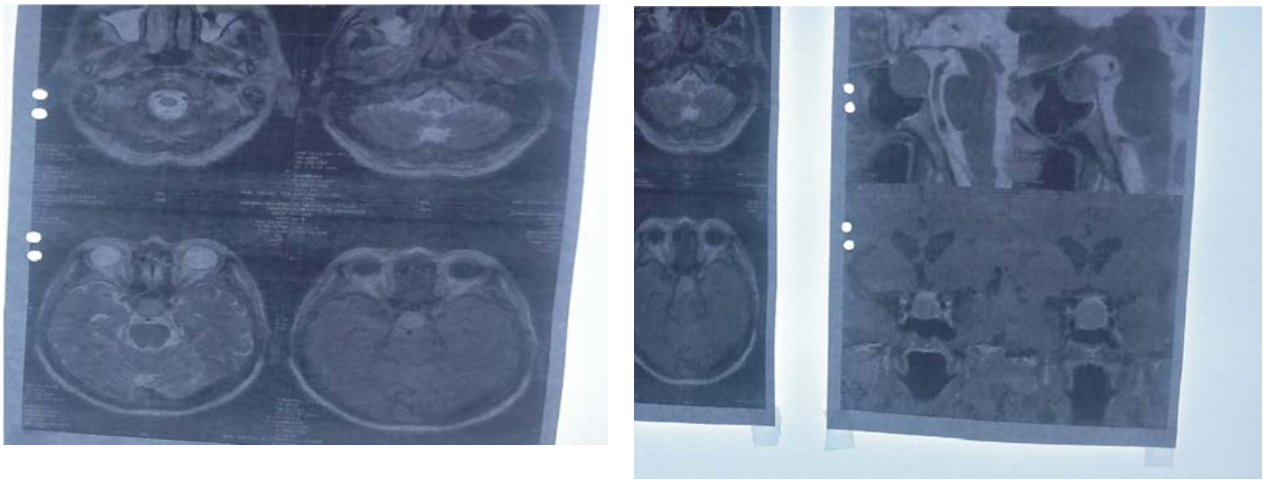

Fig. 1: MRI BRAIN OF THE PATIENT:
(A pituitary mass, measuring 1.9 x 1.9cm, ring enhancement, causing extrinsic pressure effect on the optic chiasm and pituitary stalk. ICA displaced laterally)

Table 1: Hormonal Profile of the Patient

HORMONAL PROFILE

TEST	RESULTS	NORMAL RANGE	REMARK
PROLACTIN	2.69ng/dl	3.46 – 19.4	DECREASED
CORTISOL	< 1.0ug/dl	2.90- 17.30	DECREASED
T3, TRIIODOTHYRONINE	0.56ug/dl	0.58 – 1.59	DECREASED
T4, THYROXINE	3.11ug/dl	4.87- 11.72	DECREASED
TSH	0.92uUI/ml	0.35- 4.94	NORMAL
TESTESTORONE	< 10.00ng/dl	241.00- 827.00	GROSSLY LOW

DIAGNOSIS

The working diagnosis was Pituitary macroadenoma with hypopituitarism.

TREATMENT

The patient was optimized for surgery including hormonal correction with thyroxine, testosterone and hydrocortisone. Microsurgical transsphenoidal approach to the pituitary gland was adopted following standard procedure on the 3rd day of admission. On incision of the capsule free drainage of purulent material was observed. The specimen was sent for histology and microbiology testing. The adopted post-operative order included intravenous antibiotics (vancomycin and ceftriaxone) and continued hormonal correction. He was discharged uneventfully on the eight post- operative day. Microbiology (culture including fungal + AFB) was negative. Histopathology revealed a pituitary abscess in association with existing pituitary microadenoma.

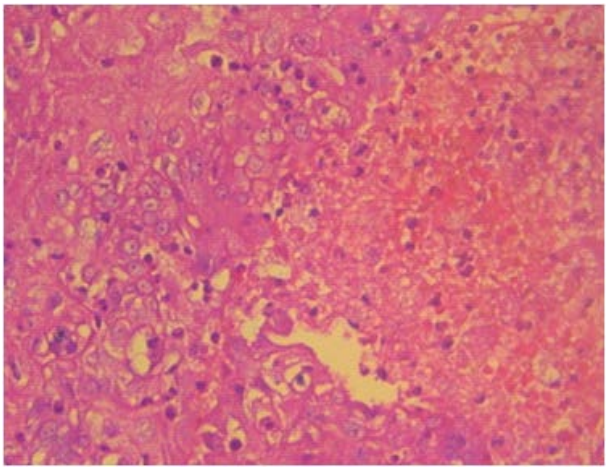

Fig 2: Histology Report:
Tiny fragments of tissue composed of degenerated cells in vague sinusoidal pattern separated by areas of hemorrhage and suppuration.

Diagnosis: Non-specific Abscess in a ?? Pituitary adenoma.

DISCUSSION

The incidence is low and difficult to exactly estimate. Cushing's classic series of pituitary tumours showed no reference. The study done by Jain et al revealed that pituitary abscess accounted for 0.6% of all pituitary lesions. According to Hanel et al (2002) it accounted for about 0.2% in a series of five hundred and three (503) sellar lesions. Scanarini et al (1980) reported 2 cases out of five hundred expansive pituitary lesions. Twenty four cases were reported from University of California San Francisco by Vates et al (2001). About 0.6% incidence has been noted by an Indian largest series. The index case is the only one seen in MEDICA Superspecialty Hospital, Kolkota , India , in a series of about fifty cases.

There is a slight female preponderance but no familial predisposition.

Aetiology/Classification: Two classifications exist viz;

1. Primary (primitive) in which about 50% of cause is unknown evidenced by these publications: Baggan et al (1985), Abs et al (1983), Lindholm et al (1973), Har-El Gardy et al (1996).

2. Secondary: This accounts for one-third of the pituitary abscess. Three groups are identifiable here.

They include pre-existing lesions such as Adenomas, Craniophyrangiomas, Rathke's ceft cyst (Obenchain et al. 1972; Domingue et al.1977; Kimura et al.1994; Boggan et al.1996). Secondly, it could result from irradiation, surgery, infarction, systemic immunosuppression as reported by Jain et al (1997). According to the report by Berger et al (1986) direct extension or hematagenous spread of infection of sphenoid sinus, meningitis, cavenous sinus, thrombophlebitis, contaminated CSF leakage have been implicated. However, in the index patient an impression of non-specific abscess in a suspected background of Pituitary adenoma was made.

Clinical Features: Clinical features of pituitary abscess are vague and non- specific, headache, features of hypopituitarism and vomiting are the most consistent (Karina Danilomiz et al. 2008). Dutta et al (2006) described triad of fever, meningism and leukocytosis as suggestive of pituitary abscess. Our index patient presented with recurrent intermittent headache of two years duration with a week history of projectile vomiting.

Diagnosis and Imaging:
It is usually difficult to establish diagnosis before surgery. Only about five cases were reported as diagnosed prior to surgery in literature. Close differential diagnosis from MRI include Ratchke's cleft cyst, acute apoplexy, necrotic adenomas, granulomatous hypophysitis in the presence of diabetes insipidus. Wolansky et al (1997) described a non-specific appearance or high signal intensity. In the index patient the radiologist made an impression of pituitary microadnoma.

Important and characteristic MRI features of pituitary abscess include contrast enhanced images with absence of central necrosis, meningeal enhancement and absence of posterior lobe bright signals (Fig. 3). Zhang et al (2012) however recorded 2 out of 15 patients (13.4%) studied with ring enhancement.

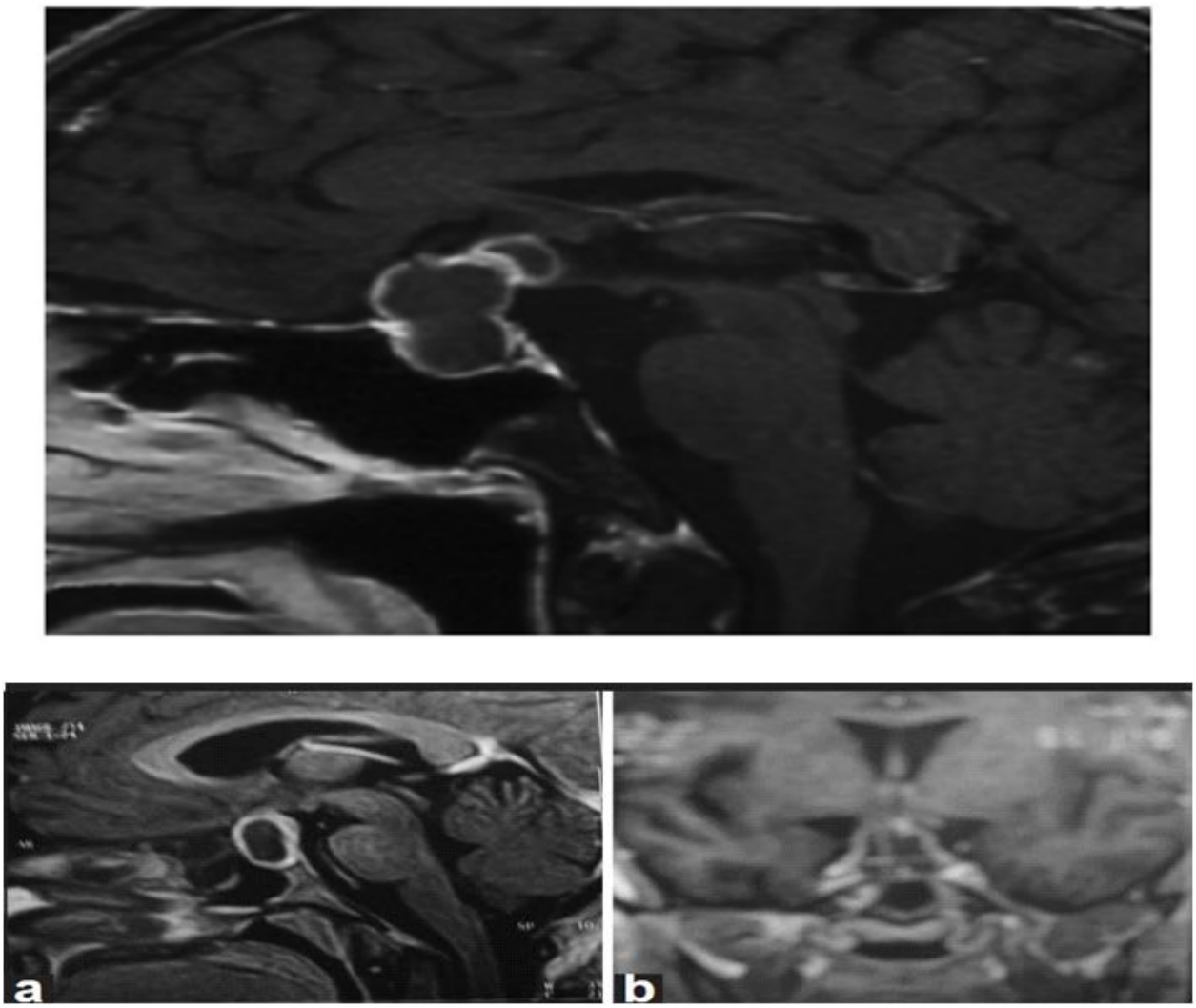

Fig 3: MRI features of Pituitary Abscess

Treatment: Standard treatment of pituitary abscess includes transphenoidal drainage, antibiotics therapy and hormonal replacement. This treatment modalities were offered to the index patient.

Pathology: Ten (10) out of twenty-four (24) cases were negatives. Hanel et al (2002). Often culture is negative. Dominque and Wilson (1977) reported 14 cases negative out of 29 cases analyzed. However, Sterile abscess due to liquefactive necrosis of infarcted pituitary gland, tumour or contents of atypical pituitary cyst may be seen. Positive cultures revealed are usually from the following: *Staphylococcus* sp, *Streptococcus* sp, *Neiseria* sp, *E.coli*, *Crynebacterium* sp. Mycotic-abscess involved are as a result of (*Aspergillus Spp*), Candida, *Coccidiomycosis*, Histoplasmosis, Blastomycosis. Finally, Parasitic due to *Cysticercosis*, *Echinococosis*, *Brucellosis.* In this index patient, the Microbiology (culture including fungal + AFB) was negative and histopathology revealed a pituitary abscess in association with existing pituitary microadenoma.

Complications of Treatment: Complications of treatment include Post-op meningitis in 45%, CSF leak and intracranial dissemination of infection. Mortality is as high as 28%.

Table 1: Summary of some cases of the reviewed literature compared with the index case:

AUTHOR	AGE/ SEX	SYMPTOMS	HORMONAL STATUS	TREATMENT	MICROBIOLOGY
Case 3 of Vates et al	69/M	Headache hemianopia	panhypo	TS drainage	Gram –positive cocci
Case 5 of Vates et al	12/M	Headache hemianopia	panhypo	TS drainage	Negative
Case 12 of Vates et al	69/M	Headache quadrantanopia	panhypo	TS drainage	Staph aureus
Case 4 of Jain et al	24/M	Fever, headache, visual deterioration	Not mentioned	TS drainage	Aspergillus
Case 4 of Dutta et al	12/F	Fever, headache, visual deterioratiion	No deficiency	TS drainage	Acinetobacter & Staph species
Maneet et al	53/M	Headache, visual deterioration	panhypo	TS drainage	Negative
MEDICA	63/M	Headache, vomiting	panhypo	TS drainage	Negative

CONCLUSION

Pituitary abscess is a rare and potentially life-threatening condition. Diagnosis before surgery is difficult. Attention of Neurosurgeons is drawn to its rarity and the possibility of an abscess should be entertained in the differential diagnosis in patients with hypopituitarism with sellar or parasellar mass. Microsurgical transsphenoidal drainage is the gold standard of treatment. Course of antibiotics and long term hormonal replacement are essential components of treatment.

REFERENCES

Khan A, Khan K, Manepali AN, Bucholz RD, Wehmeier KR. (2010). Pituitary abscess presenting as an adenoma: A case report and review of literature .JIMA: 39; 2007: 88.

Baggan JE, Wilson CB (1985). Pituitary abscess. Wilkins RH(Ed). In Neurosurgery. Vol 3, New York: Mc Graw-Hill: pp 1967- 1969.

Bayar MA, Elmaci E, Yasitli U. (1999). Hypothalamo-Pituitary Abscess: A case report. Turkish Neurosurgery. 9: 151- 154.

Boggan JE. (1996). Pituitary abscess. In; Wilkins RH, Rengachary SS(eds). Neurosurgery. 2nd ed. London: McGraw- Hill Book Company; 1996.3321-2.

Danilowicz K, Manavela M, Bruno OD, Sanz CF, Gomez RM. (2008). Pituitary abscess: a report of two cases. Pituitary. 11:89 – 92.

Domingue JN, Wilson CB. (1977). Pituitary abscess: Report of seven cases and review of the literature. J Neurosurg. 46:601-607.

Dutta P, Bhansali A, Singh P, Kotwal N, Pathak A, Kumar Y. (2006). Pituitary Abcess: Report of four cases and Review of literature. Pituitary. 9(3):267-273.

Gill M, Pathak HC, Singh P, Garg MK. (2012). Recurrent primary pituitary abscess. Case report. World J Endoc Surg. 4;(3): 108- 111.

Hanel RA, Koerbel A, Prevedello DM, Moro MS, Araujo JC. (2002). Primary Pituitary Abscess. Case report.Arq Neuropsiquiatr. 60(3-8):861-865.

Hanel RA, Koerbel A, Prevedello DM, Aroiyo JC. (2002) Primary pitiutary smmond abscess . Arq Neuropsiquiwtr. 60: 1-7.

Har –E Gady, Swanson RM, Kent RH. (1996). Unusual presentation of pituitary abscess. Surg. Neurol. 45:351-353.

Jain KC, Varma A, Mahapatra AK. (1997). Pituitary abscess: a series of six cases. Br J Neurosurg. 11;(2):139-43.

Lindholm J, Rasmussen P, Korsgaard O. (1973). Intrasellar or pituitary abscess. J Neurosurg. 38: 6:16- 19.

Ovali GY, Tarhan S, Senturk H, Bayindir P, Pabuscu Y. (2004). Pituitary abscess simulating macroadenoma. Turk J Med. Sci. 34:337- 339.

Rengachary SS (1996). Neurosurgery. 2nd ed. London: Rengachary SS (eds). McGraw- Hill Book Company. 3321-2.

Scanarini M. Cervellini P, Rigobello L, Mingrino S (1980). Pituitary abscesses: report of two cases and review of the literature. Acta Neurochir (Wien). 51: 209- 217.

Vates GE, Berger MS, Wilson CB et al. (2001). Diagnosis and management of pituitary abscess: a review of twenty four cases. J Neurosurgery 95: 233 – 241.

Wolansky LJ, Gallagher JD, Heary RF, Malantic GP, Dasmahapatra A, Shaderowfsky PD, Budhwani N. (1997). MRI of pituitary abscess: two cases and review of the literature. Neuroradiology. 39:499-503.