ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at: www.ijmacr.com

Volume – 3, Issue – 6, November - December - 2020, Page No. : 27 – 31

Asymptomatic Presentation of Pituitary macroadenoma in a patient with previous history of Pulmonary Tuberculosis

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Abstract: Non-functioning Pituitary tumour presentation can be symptomatic and asymptomatic. In a non-functioning pituitary adenoma the presentation can be non-specific such as lethargy. This abstract discusses a case of a 57years old man with previous history of TB, was suspected to have pituitary TB later diagnosed of pituitary macroadenoma after several investigations.

Keywords: adenoma, TB, non-specific

Introduction: Pituitary tumour's presentation can be symptomatic and asymptomatic. In a non-functioning pituitary adenoma the presentation can be non-specific such as lethargy. In patient with previous history of TB, pituitary mass due to TB has to be ruled out. {1-3}

Method: CASE REPORT

Case Data: A 57 years old Asian man with a previous history of TB with pulmonary scarring presented to ED with ongoing infected ulcer of the left leg with fever and tachycardia, on examination he was tall, thin with minimal body hair. No neurological deficit, No visual symptoms And had a 4*5 superficial venous ulcer on the medial aspect of the ankle, warm and tender on touch, on further investigations he was found to be hyponatremia with Na of 126, Hb: 79, CRP:383, his cortisol and testosterone levels were low i.e.19 and <0.4 respectively with prolactin level of 102, He was given antibiotics for cellulitis and managed for hyponatremia, given iron infusion as per haematology advise for iron deficiency anemia. Endoscopy showed normal small bowel, DVT (Deep Vein Thrombosis), and osteomyelitis were excluded. Given his history of pulmonary TB, he was suspected to have pituitary TB. Therefore, was planned to have an MRI pituitary which showed that there is 29*21*22mm sellar mass that extends into the suprasellar space and it is compressing the optic chiasma. It has expanded the sella and is invading the right cavernous sinus. He improved on the ward and was discharged on hydrocortisone 20mg – 10mg BD daily with endocrinology, anemia clinic, and eye clinic follow up. He was seen at the Endocrinology clinic and had a complete pituitary screen which showed FT4:11.0, TSH 1.25, Testosterone: <0.4 with normal FSH, LH:1.1, IGF1 was <15 , Prolactin 112, SHBG:70, these results were correlated with MRI report and were given a tentative diagnosis of pan –hypopituitary macroadenoma. His eye clinic assessment showed visual acuity of 0.14 and 0.2 in right and left respectively, bi-temporal hemianopia and marked right sector nerve fiber layer thinning, therefore was referred to neurosurgery, who planned to do a transsphenoidal resection given the visual symptoms and compression of the optic chiasma.

Image-guided endoscopic trans-sphenoidal pituitary adenoma resection was performed and the tumor was completely removed. His vision was stable and completely restored in one month. His cortisol level came back to normal at 352. His histology results of the tumor showed null cell, non-functioning pituitary adenoma.

His repeat MRI of the pituitary gland with contrast showed small residual pituitary adenoma in the floor of the sellar but the tumor was significantly reduced in size otherwise and there was no pressure on his optic chiasma. He did not complain of nasal crustiness or discharge and his energy levels were fine. He was having testosterone replacement as his levels were still low with hydrocortisone daily as per endocrinologist advice.

On further follow up after one month his pituitary profile showed a picture of partial hypo-pituitary affecting cortisol and gonadotrophic axis. Another axis appeared to be intact with normal TFTs and IGF1. His level of testosterone <0.1, Prolactin 149, FSH 2.8, LH (Luteinising Hormone) 2.7, FT4 13.7, LFTS normal, MRI showed good reduction in tumor size with no compression on the chiasma. His Dexa scan showed osteopenia with T score of –1.3 at femoral hip. He was doing well, had no complains of polyuria or polydipsia, no fatigue, no disturbance in sleep cycle, no erectile dysfunction. It was unsual that he was feeling so well given his testosterone levels were really low. As he was truly asymptomatic, not osteoporotic, and not keen on replacement, it was hold off for time being with aim to start in time. He was continued on hydrocortisone and advised on sick day rules.

Discussion: A macroadenoma is a benign tumor composed of glandular tissue growth larger than 10 mm (those under 10 mm are referred to as microadenomas). They usually grow in the adrenal and pituitary glands, but they can also grow in the colon, kidneys, and thyroid gland. A positive familial history of multiple endocrine neoplasia type 1 (a hereditary condition) can increase your possibilities of developing a pituitary macroadenoma or other types of macroadenomas of the endocrine system. The pituitary gland has distinct kinds of pituitary cells, each producing special hormones released into the bloodstream that affect other organs in the body. {1-3}

Functional Classification is that Pituitary tumors originate from one of these specialized cells. If the tumor cells are producing an excess of one or more hormones, it is called a "functional" adenoma. Pituitary tumors that do not secrete active hormones are called clinically non-functioning adenomas.

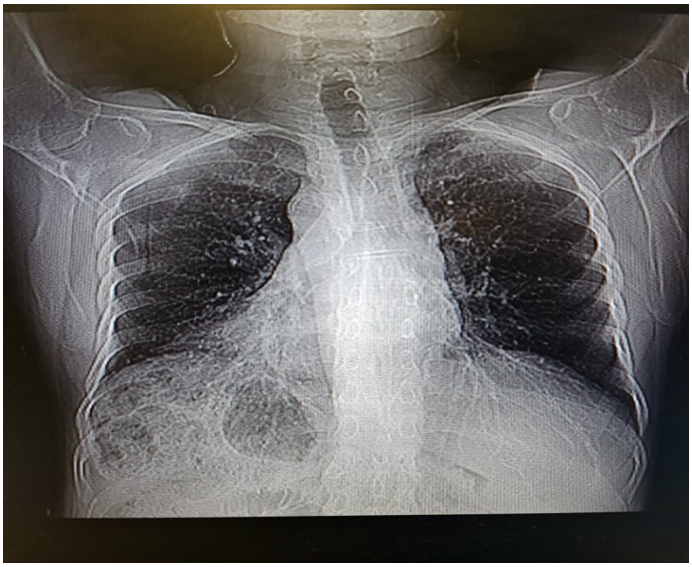
Histologically they were classed as either basophilic, acidophilic, or chromophobic based on whether they took up the tinctorial stains hematoxylin and eosin. This classification is no more in use, in favor of a classification based on what type of hormone is secreted by the tumor. 20-25% of adenomas do not secrete any readily identifiable active hormones ('non-functioning tumors' yet they are still sometimes referred to as 'chromophobic'. {4-7}

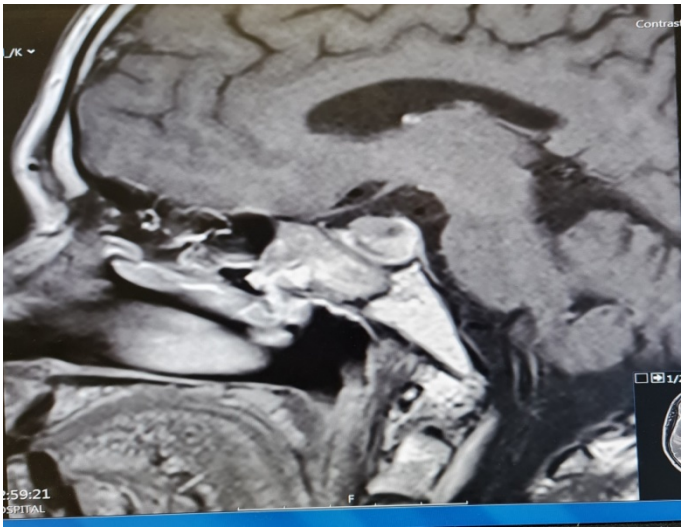
The non-secretory adenomas may be either null cell adenomas or a more specific adenoma that, however, remains non-secretive. Null cell adenomas by definition do not secrete hormones, but they commonly cause “stalk effect” by compressing on pituitary stalk. This leads to decreased levels of dopamine from the hypothalamus reaching the anterior pituitary gland. Dopamine exerts an inhibitory effect on prolactin secretion. With the absence of this inhibitory effect, prolactin levels increase and are often increased in null cell adenomas. This leads to symptoms of hypogonadism. {7-8}

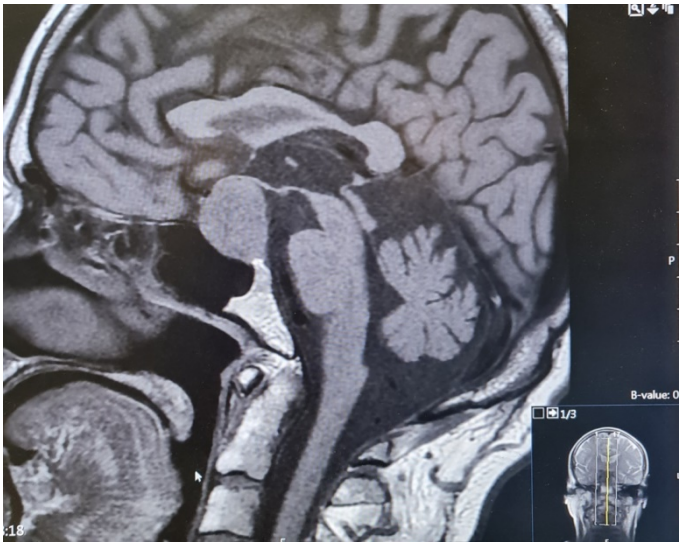
The key clinical signs and symptoms of a pituitary adenoma include: bitemporal hemianopia, reduced visual acuity, difficulty in reading, headaches, photophobia,

abnormal colour vision (red-green defect), poor stereopsis, optic atrophy, and ocular palsies. {6-7}

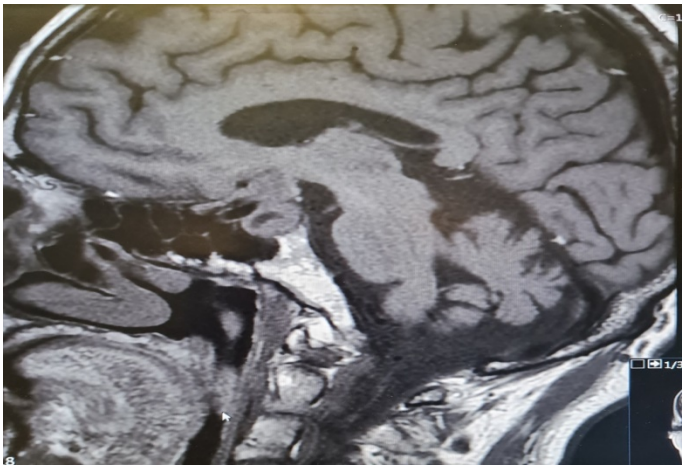
CXR Image showing right apical opacity







MRI Brain Images



Treatment options depending on type of adenomas are given in below table.

Type of adenoma	Surgical	Medical	Radiation
Growth hormone (GH) secreting	Treatment of choice	Octreotide reduces plasma GH and insulin-like growth factor-I concentrations and decreases tumour size in 30–40% of patients. Dopamine agonists (bromocriptine, pergolide or cabergoline) can be useful	Used for macroadenomas that cannot be removed surgically or for patients resistant to medical therapy
Adrenocorticotropic hormone (ACTH) secretin	Treatment of choice	Exogenous hydrocortisone can be administered once patients show	Used in patients with persistent ACTH

		symptoms of adrenal insufficiency. Adjunctive medical therapy can be used (ketoconazole, aminoglutethimides, mitotane, metyrapone)	hypersecretion after surgery
Gonadotrophic	Treatment of choice	Not indicated	Used for macroadenomas that cannot be removed surgically or those with recurrent tumours that are not compressing the optic chiasm
Thyrotropin secreting	Treatment of choice	Octreotide can decrease thyroid stimulating hormone levels and normalise hyperthyroidism in around 75% of cases and can shrink thyrotropin secreting tumours in about 30% of cases.	Used in cases where surgery is not possible
Non-secreting	Treatment of choice	Not indicated	Used in cases where surgery not possible

Conclusion

Pituitary macroadenomas can have very subtle symptoms as in this case. They can often be diagnosed once the patient has presented for something completely unrelated. Hyponatraemia has a wide differential diagnosis but in someone with previous TB, pituitary causes must be explored. The clinical presentation of Pituitary TB may mimic non-functioning pituitary adenomas and therefore pituitary TB has to be considered as one differential diagnosis in patient with previous history of TB.

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Acknowledgement: F.A Thanks Dr Gideon Mlawa , Consultant Endocrinologist, Education Lead and 2nd Author for constant support.

Biography: Dr Ayisha Afzal completed MBBS in Lahore, Pakistan and is currently working at Queens Hospital, BHRUT, London, UK.

How to citation this article: Ayisha Afzal, Sreelaksmi Sivakumar, Ahmad Imran, Hassan Rehmani, "Asymptomatic Presentation of Pituitary macroadenoma in a patient with previous history of Pulmonary Tuberculosis", IJMACR- November - December - 2020, Vol – 3, Issue -6, P. No. 27 – 31.