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Case report

An interesting presentation of pituitary adenoma

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ABSTRACT

Pitutary adenomas are one of the commonest tumors of seller region of which prolactinomas and non- functioning adenomas predominate. The usual presentation are symptoms of endocrine dysfunction and mass effects. We present a case report of 37 year old male presenting with frontal headache and vomiting. Clinical observations revealed frontal bossing with enlarged hands and feet which arose a suspicion of Acromegaly. Investigations revealed elevated IGF 1 (insulin like growth factor) and growth hormone levels. Magnetic resonance image of the brain were done which showed pituitary adenoma. This case highlights the importance of clinical examination and the treating physician must have high clinical index of suspicion to detect endocrine dysfunction and use the modern techniques like stereotactic radio surgery (SRS).

Keywords: Acromegaly, Headache, Pitutary adenoma, Sellar mass, SRS

INTRODUCTION

Pituitary adenomas are the most common type of pituitary disorder.[1] In 1886, Pierre Marie, a French neurologist termed acromegaly and was the first to postulate that the pituitary gland was involved in the pathogenesis.[2] The pituitary gland is involved in multiple homeostatic mechanisms like metabolism, growth and reproduction. Most pituitary tumours are adenomas that develop in the adenohypophysis, that secrete peptide hormones. When tumors arise in pituitary somatotroph cells, aberrant secretion of GH leads to the distinctive clinical features of acromegaly. Pituitary adenomas exhibit a wide range of hormonal and proliferative features. The majority of these tumors are incidentalomas without clinical significance.[3,4] Tumors are also categorized based on size into microadenoma (less than 10 mm) and macroadenoma (more than 10 mm). Microadenomas are slightly more common than macroadenomas.

CASE REPORT

A 37 year old male who was a chronic smoker presented with complaints of headache and vomiting for few days. The headache was acute, bi-frontal, non-radiating and non-pulsatile in nature. There was no history of fever, cough, head injury, seizures, blurred vision or diplopia. Systemic examination and fundus examination were normal. On observing the patient, he had large hands and feet with thick fingers and toes (Figure 1). His coarse facial features with frontal bossing (Figure 2) and protrusion of the lower jaw (prognathism) was suggestive of probable growth hormone excess.

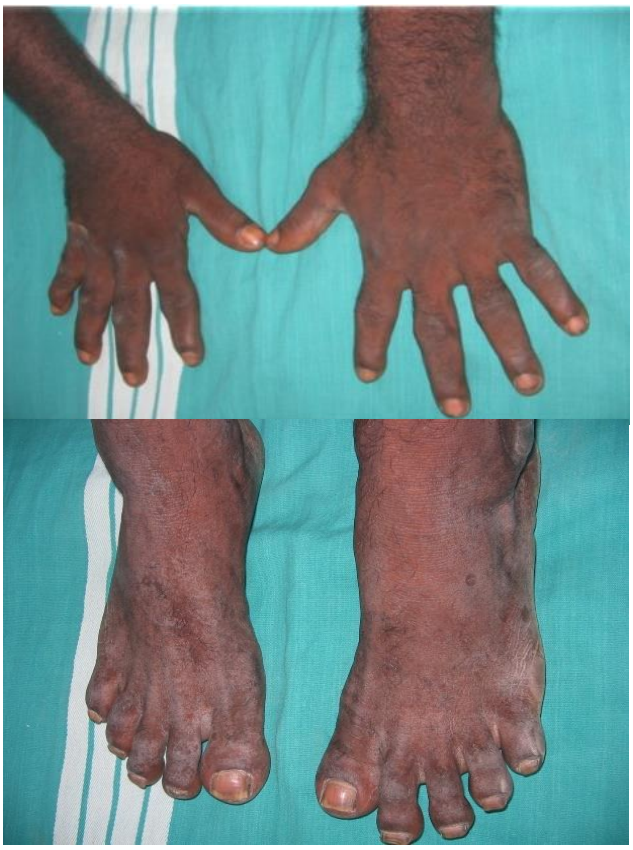

Figure 1: Enlarged hands and feet.

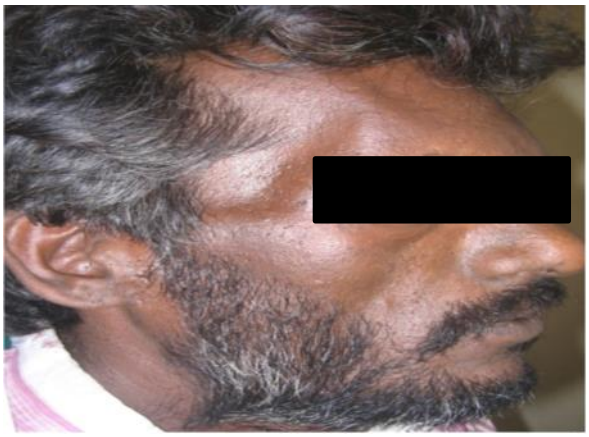

Figure 2: Frontal bossing.

Routine blood investigations were within normal limits except for impaired fasting glucose. Oral glucose tolerance test (OGTT) was performed and it confirmed the presence of diabetes mellitus. His X ray skull and foot revealed calcification of sella and increased heel pad thickness respectively (Figure 3 and 4). With the possibility of acromegaly looming large, MRI Brain was done which revealed a large, well defined, invasive pituitary adenoma involving sella and supra-sellar region showing figure of eight appearance with well-defined margins and tiny foci of calcification without any foci of hemorrhage or necrosis (Figure 5). Insulin like growth factor 1 (IGF 1 reference range - 76 to 328 ng per mL) and growth hormone levels were elevated (normal level - less than 5 ng/mL). A final diagnosis of pituitary adenoma presenting as acromegaly was made and was started on bromocriptine, octreotide and insulin. Thereafter, he underwent transphenoidal surgery, where near total resection of the tumor was achieved.

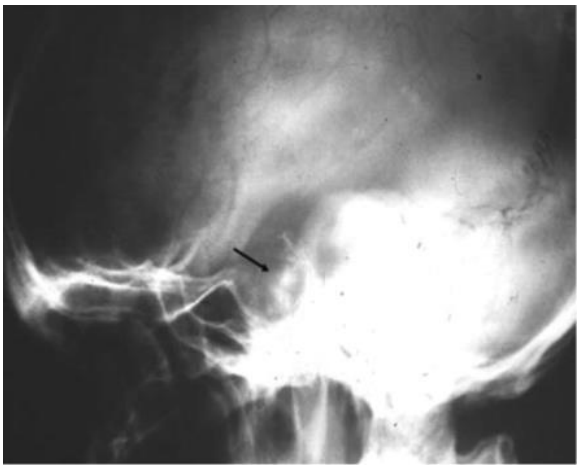

Figure 3: Sellar calcification.

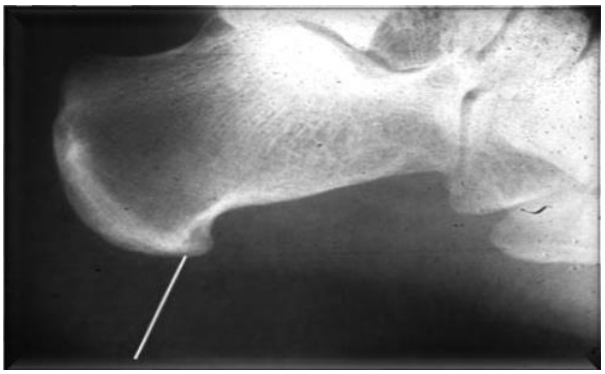

Figure 4: Increased heal thickness.

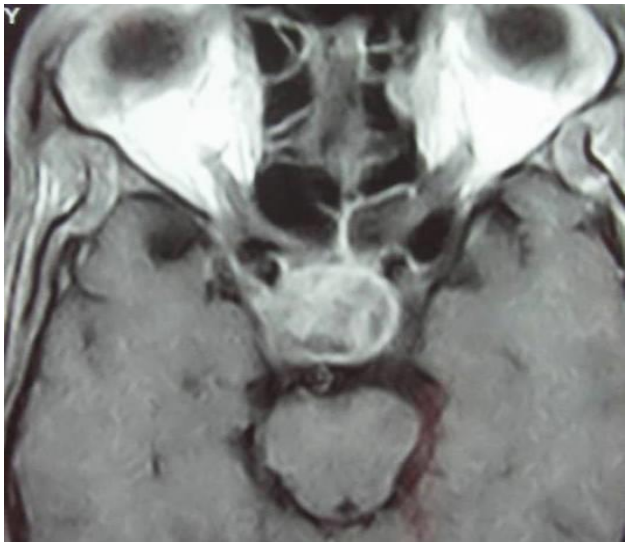

Figure 5: MRI brain showing sellar mass.

DISCUSSION

Pituitary adenomas are benign neoplasms that account for 10% to 15% of all intracranial masses, of which prolactinomas comprise 40% to 57%, followed by non-functioning adenomas (28% to 37%), growth hormone-secreting adenomas (11% to 13%), and adrenocorticotropic hormone (ACTH)-secreting adenomas (1% to 2%). Pituitary adenomas that secrete follicle-stimulating hormone (FSH), luteinizing hormone (LH), or thyroid-stimulating hormone (TSH) are rare.[5]

Patients with pituitary adenomas may present initially with symptoms of endocrine dysfunction such as infertility, obesity, decreased libido, mood disorders, galactorrhea and other features of hypopituitarism or with neurologic symptoms such as headache, vomiting and visual changes. Impact on vision can be very severe when it compresses the optic nerve, optic chiasma and cavernous sinus. Pituitary tumors extend upward due to the restriction of the bony sella. As the tumor extends it stretches the overlying diaphragm sellae, thereby irritating its pain sensitive nerves and producing headaches often associated with the disease. Cluster headache is more common in men and typically manifests itself between 3rd and 5th decades of life. The clinical suspicion for acromegaly must rise when there is enlargement of hands and feet, coarse facial features like enlargement of distal nasal cartilage, Carpal tunnel syndrome, prognathism, temporal joint arthralgia, Osteoarthritis, headache, excessive sweating, snoring and obstructive sleep apnoea.[6,7] In less than 20% of acromegaly patients, there is development of impaired glucose tolerance or secondary diabetes mellitus as was in this case. The evaluation of a patient with a probable pituitary adenoma consists of imaging, endocrine assessment, ophthalmology examination and histology. Magnetic resonance imaging (MRI) scanning of the pituitary region, with sagittal and coronal reconstruction, is the gold standard imaging method for pituitary disease. Gadolinium enhancement of pituitary MRI can be helpful for small microadenomas. It is also important to measure the random and fasting blood sugars to rule out secondary diabetes or impaired glucose tolerance. The differential diagnosis for sellar mass includes Craniopharyngiomas, Rathke's cyst, Arachnoid cyst, metastatic tumors, Meningiomas, Lymphocytic hypophysitis, Germinomas, Granulomatous disease (tuberculosis), Vascular aneurysms, Tumors of the clivus (chordomas), Histiocytosis-x, Gliomas, teratomas and gangliocytomas. Medical management aims in reducing GH and IGF-1 levels, thereby decreasing the tumour volume and patients symptoms. Drugs used are Somatostatin analogues (Octreotide), Dopamine analogues (Cabergoline, bromocriptine) and GH receptor antagonists (Pegvisomant).[8-10] Microadenomectomy or macroadenoma decompression is approached transsphenoidally in most patients. Modern radiation therapy like Stereotactic radiosurgery/stereotactic radiation therapy and proton beam therapy involves the sophisticated delivery of ionizing radiation to target tissues Stereotactic radiosurgery typically delivers the whole radiation dose in one session, thereby achieving local control rates of 90-100% across all pituitary adenoma types and biochemical complete response in approximately 50% of patients, with even more achieving hormonal normalization with the addition of medical therapy.[11] The indications for radiation include hormonally uncontrolled tumors after maximal surgical and medical therapy, surgically inaccessible tumor (e.g. cavernous sinus), nonsurgical candidate, recurrence or progression of tumor after surgery.

Impaired glucose tolerance, hypertension, and hyperlipidemia should be screened and managed. Benign colonic polyps have been reported in 45% of patients and hence colonoscopy is warranted in those patients every 3-5 years.[12] Multimodality approach and assistance is needed across various specialists for treatment as the disease involves multisystem.

CONCLUSION

We report an interesting case of growth hormone secreting pituitary adenoma presenting as acromegaly. We highlight this case to emphasize the need for imaging in patients with chronic headache. All headaches are not the same and hence evaluation is vital to identify the cause of headache. In all cases of headache, we need to rule out organic & treatable causes before labeling it as migraine or functional or tension headache. In modern medical era, it is possible to treat patients medically and by using newer radiation techniques like cyber knife and gamma knife. Careful history and clinical skills in addition to imaging is the most vital step in recognising features of pituitary adenomas and the endocrine abnormality associated with it.

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REFERENCES

1. Famini P, Maya MM, Melmed S. Pituitary magnetic resonance imaging for sellar and parasellar masses: ten-year experience in 2598 patients. J Clin Endocrinol Metab. 2011;96(6):1633-41.
2. Marie PI. Sur deux cas d'acromegalie. Hypertrophic singuliére non congenitale des extremités superieures, inferieures et cephaloque. Revue Med. 1886;6:297-333.
3. Hall WA, Luciano MG, Doppman JL, Patronas NJ, Oldfield EH. Pituitary magnetic resonance imaging in normal human volunteers: occult adeno¬mas in the general population. Ann Intern Med. 1994;120(10):817-20.
4. Ezzat S, Asa SL, Couldwell WT, Barr CE, Dodge WE, Vance ML, et al. The prevalence of pituitary adenomas: a systematic review. Cancer:

Interdisciplinary Int J Amer Cancer Socie. 2004 Aug 1;101(3):613-9.
5. Daly AF, Rixhon M, Adam C, Dempegioti A, Tichomirowa MA, Beckers A. High prevalence of pituitary adenomas: a cross-sectional study in the province of Liege, Belgium. J Clin Endocrinol Metab. 2006;91(12):4769-75.
6. Arafah BM, Prunty D, Ybarra J, Hlavin ML, Selman WR. The dominant role of increased intrasellar pressure in the pathogenesis of hypopituitarism, hyperprolactinemia, and headaches in patients with pituitary adenomas. J Clin Endocrinol Metab. 2000;85(5):1789-93.
7. Melmed S. Medical progress: acromegaly N Engl J Med. 2006;355(24):2558-73.
8. McKeage K, Cheer S, Wagstaff AJ. Octreotide Long-Acting Release (LAR). Drugs. 2003 Nov 1;63(22):2473-99.
9. Levy A. Pituitary disease: presentation, diagnosis, and management. J Neurol Neurosur Psychiat. 2004 Sep 1;75(suppl 3):iii47-52.
10. Stewart PM. Pegvisomant: an advance in clinical efficacy in acromegaly. Eur J Endocrinol 2003;148(suppl 2):S27-32.
11. Loeffler JS, Shih HA. Shih Radiation Therapy in the Management of Pituitary Adenomas. J Clini Endocrinol Metabol. 2011;96(7):1992-2003.
12. Melmed S, Kleinberg DL. Anterior pituitary. Williams Textbook of Endocrinology. 10th ed. Philadelphia: WB Saunders company; 2003:177-281.

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