

Vanishing Pituitary Mass: Report of two cases

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Introduction

Commonest cause of enlarged pituitary gland is pituitary adenoma that can be functioning (secreting hormones like acromegaly, prolactinoma, cushings disease, etc) or non-functioning¹. Both can produce hypopituitarism by pressure effect, commonest sequel being Gonadotropins (LH & FSH), Growth hormone (GH), Thyrotropin (TSH) and Corticotropin (ACTH)². Other than functional status (functioning / non- functioning) important indication for surgery remains pressure effect i.e. pressure to visual pathway. We report two cases of enlarged pituitary gland diagnosed initially as non-functioning pituitary tumour (NFPT) disappeared on conservative follow up.

Case 1

A 52-year-old man presented to Casualty in semicomatose state with hyponatraemia [109 (N- 130- 145) meq/L]. His complete blood count, liver function, renal function and sugar were normal. TSH was suppressed [0.1(N-0.5- 5) mIU/L] and free T4 was low [0.4 (N-0.8- 1.2) ng/dL]. With a diagnosis of secondary hypothyroidism in mind, pituitary function test was done. Cortisol & GH response were found to be inappropriately low with insulin induced hypoglycaemia. He also had secondary hypogonadism (low LH and Testosterone with normal Prolactin). MR scan showed an enlarged pituitary gland (1.2 x 1.4 x 1 cm) (Fig 1.a). Visual fields were normal (Fig 2). He did not have diabetes insipidus. A diagnosis of NFPT with complete anterior hypopituitarism was made. He was started on replacement therapy with Hydrocortisone, Thyroxine and Testosterone with dramatic subjective & objective improvement. As there was no pressure effect it was decided to follow up with repeat scan. MR scan six months later did not show any change in size (Fig 1.b), but done 18 months after the initial

diagnosis revealed an empty sella (Fig 1.c). He is currently on maintenance therapy with Thyroxine (100mcg), Hydrocortisone (10-5-5-0 mg) and Testosterone (250mg once a month). We are not contemplating GH therapy in view of his good quality of life. Spontaneous atrophy of pituitary gland and absence of haemorrhage made us to review the diagnosis to Lymphocytic Hypophysitis (LyHy) with subsequent atrophy of the pituitary gland producing empty sella.

Case 2

A 49-year-old postmenopausal woman presented to us with generalised fatigue and abnormal thyroid function (TSH – 0.2, free T4- 0.7). Again with a diagnosis of secondary hypothyroidism in mind pituitary function was assessed to find her to be deficient in cortisol and GH. Her LH [3.4(N 26-95)mIU/ml] and FSH [6.3(N 20-120)mIU/ml] were low for the postmenopausal status and her Prolactin was normal [13 (N-3-24) ng/mL]. She did not have polyuria to suggest diabetes insipidus and her electrolytes were normal. MR scan (Fig 3.a) showed enlarged pituitary (2 x 1.8 x 2 cm) to make a diagnosis of NFPT with anterior hypopituitarism. Perimetry did not show visual field defect. She was started on replacement therapy with Hydrocortisone and Thyroxine & she improved clinically and biochemically. Absence of pressure symptoms made us to continue conservative treatment. Repeat MR scan a year later showed an empty sella (Fig 3.b). She is currently doing well on replacement therapy with Thyroxine and Hydrocortisone. As in the first case we are convinced with a diagnosis of LyHy in her case too.

Discussion

Lymphocytic hypophysitis is a rare chronic inflammatory disease with little known natural history, usually diagnosed unexpectedly at surgery for presumptive pituitary adenoma. Its aetiology is unclear³. The association with other autoimmune diseases in 30% of the patients, usually a thyroiditis, may be a diagnostic hint for LyHy⁴. The preponderance of females often with a peripartum onset and the sudden onset of diabetes insipidus are clinical hallmarks of LyHy⁵. Initially LyHy was thought to be in

women only but now several cases in men have been reported⁵. LyHy may become worse due to progressive pituitary insufficiency, but also may improve spontaneously. The histological characteristics of LyHy are well established³. The defining pathological features of LyHy are infiltration of the gland with lymphocytes with presence of plasma cells (53%), eosinophils (12%) and fibrosis (47%). Radiologically it is difficult to differentiate LyHy from NFPT, though the presence of symmetrical enlargement of the pituitary gland, thickened but rarely displaced stalk, intact sella and the precontrast homogeneity of the mass would be more in favour of LyHy². Differential diagnosis for LyHy would be pituitary adenoma, germinoma, Involvement of the anterior pituitary by a neoplastic haematopoietic process particularly leukaemic infiltration, lymphoma, and plasmacytoma, other inflammatory and infectious process such as tuberculosis, sarcoidosis and giant cell granuloma. The presumptive diagnosis of LyHy may be established by careful follow up in a high proportion of patients. However, some uncertainty will always persist without histological confirmation of the diagnosis⁶. Surgery for mass effect in LyHy invariably leads to rapid relief of neurological symptoms but endocrinological improvement was seldom reported. In both our cases the diagnosis of LyHy was made without invasive procedures.

As of today, approach to pituitary mass will remain the same, i.e., if there is significant compression to visual pathway we need to intervene with surgery. Only exception to this would be macroprolactinoma where bromocriptine can reduce the compression quite rapidly. In absence of compressive features it will be worthwhile to wait and watch for change in size of pituitary gland by serial imaging. Much remains to be learned about the natural history of LyHy, which ranges from spontaneous recovery to death. Important contribution to literature from our cases is the time taken for the gland to get atrophied. Most of the published literature of primary empty sella syndrome are retrospective diagnosis of LyHy and till now we do not know how long it takes for the pituitary gland to get atrophied. Here we could document two cases where pituitary mass took 18 and 12 months to get atrophied, respectively. In conclusion, LyHy remains an important differential diagnosis for enlarged pituitary gland, which without pressure effect does not require surgical intervention. The deficient hormones need to be replaced.

Summary

Enlarged pituitary gland is not uncommon and all do not require surgery. Hormone producing tumour and tumours causing pressure effect are main indications for surgery. Lymphocytic Hypophysitis is recently recognised entity, which presents with pituitary mass with or without pressure effect and hormonal deficiency. Replacing deficient hormones and careful monitoring is all that is required in most of the cases.

Learning Points

1. Commonest cause of pituitary mass is pituitary adenoma.
2. All the pituitary mass presenting with compressive symptoms require surgical intervention except for prolactinoma, which is amenable to medical therapy.
3. The diagnosis of Ly Hy is becoming much more common due to increased awareness of the condition and it should be kept in mind as differential diagnosis for pituitary mass.
4. It is possible to diagnose Ly Hy with proper clinical and radiological assessment at regular intervals with out the help of biopsy.
5. Appropriate replacement of deficient hormones as in any case of hypopituitarism would suffice as treatment for Ly Hy

Subtitle for figures

Fig 1 Sagittal view of MR Scan Pituitary gland [a. At diagnosis, b. Six months later, and c.18 months later] (Case 1)

Fig 2 Perimetry showing normal visual fields (Case 1)

Fig 3 Sagittal view of MR Scan Pituitary gland [a. At diagnosis, b. One year later] (Case 2)

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