Obstructive Hydrocephalus Mimicking Acromegaly Case Report

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Raised intracranial pressure is recognised to cause subtle hormone profile changes. Measurements of IGF-1 levels before and after shunting operations suggest that the reduced GH secretion and retarded linear growth observed in children with shunted hydrocephalus may be a consequence of decreased intracranial pressure and/or lack of normal pressure variations. Although reported in one case in which high IGF-1 level in obstructive hydrocephalus normalised after decompression, raised IGF1 is not a routinely recognised in association with hydrocephalus.

We report the case of twenty two year old lady who was referred to our endocrine department with possible acromegaly, presenting with an eighteen months long history of enlarged, swollen, painful hands, an increase in shoe size, a deepening voice and a broadening of the face. She also described occasional headaches and sleep problems. She has two children, age 28 months and 4 months, who were conceived naturally. Her periods were irregular, which was ascribed to possible PCOs, but these became significantly less frequent since the birth of her younger child. She was not breast feeding. She is a smoker with an unremarkable family history and has a past medical history of primary hypothyroidism on 50 mcg of Levothyroxine.

Her facial features and findings on the hands were suggestive of acromegaly with the rest of the examination being unremarkable. Visual fields were normal. Hormone profile assessment revealed normal prolactin (111 mIU/l), cortisol (342 nmol/l) and FSH (7 iU/l), and thyroid function tests showed under replacement with FT4 of 14.7 pmol/l and TSH of 11.7 mU/l; IGF-1 was elevated at 79.7 nmol/l (age specific normal range: 13.0–50.0 nmol/l). Interestingly, this effect was followed by full suppression of growth hormone (<0.1 µg/l) on standard glucose tolerance test. Brain MRI was performed to assess the pituitary and, surprisingly, it revealed grossly enlarged lateral and third ventricles, but normal sized fourth ventricle suggestive of aqueduct stenosis. The patient was referred to the neurosurgery and, after initial assessment, has undergone endoscopic 3rd ventriculostomy. We are yet to reassess postoperative hormone status.

This interesting case opens a debate on mechanism through which raised intracranial pressure affects secretion of growth hormone and IGF-1. It is clearly not entirely autonomic production as happens in true GH-secreting adenoma, given that normal glucose suppression is maintained. Our patient most likely had hydrocephalus for years, possibly since childhood. It did not significantly affect her pituitary function given that she went through puberty, manage to conceive normally and have children.

However, it is interesting to observe that years of raised IGF-1 secondary to untreated obstructive hydrocephalus can affect soft tissues i.e. face and hands in our patient, which to our knowledge, has not been reported before. The question arises as to whether we should be looking for other effects of persistently raised IGF-1, such as may impact on the colonic mucosa; perhaps screening for colon cancer should be routinely recommended as is the case with patients with true acromegaly.

We recommend that all patients with chronic hydrocephalus have a full pituitary assessment.