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CASE REPORT

GRAVES' DISEASE WITH NON-FUNCTIONING PITUITARY ADENOMA.

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Abstract

Pituitary adenoma may be associated with hyperthyroidism if there is excess production of thyroid stimulating hormone (TSH). However, the occurrence of Graves' disease and this slow-growing benign pituitary tumor (1% of functioning adenomas producing TSH) is rare. We report a case of difficult to control Graves's disease with myopathy diagnosed for the past 1 year. Pituitary adenoma was incidentally found when patient developed Addisonian crisis complicating severe gastroenteritis.

Key words: Graves' disease, Nonfunctioning pituitary adenoma, Incidentaloma, Addisonian crisis.

Introduction

Nonfunctioning pituitary macroadenoma (NFPA) is a benign tumour [1,2] and it is the most common of pituitary adenomas (28% to 37%).[3,4] There is a wide variation in progression and is frequently diagnosed in patient above 50 years and the symptoms may be subtle. The rare coexistence of Graves' disease and TSHoma has been described in previous case reports.[5,6,7] We present a patient with Graves' disease who developed Addisonian crisis which led to an incidental finding of a pituitary macroadenoma.

Case history

A 59-year old Chinese man was diagnosed as Graves' disease in early 2018 when he presented with loss of weight and episodic proximal myopathy. He had no other classical symptoms of hyperthyroidism. He did not have any ophthalmic symptoms, headache or goiter. He was easily fatigued and had changes in mood, being easily irritable. He also admitted to having erectile dysfunction. He had a history of hypertension and hypercholesterolemia for more than 20 years.

Neurological examination revealed proximal myopathy affecting predominantly both his lower limbs. He did not have a goiter, there was no bruit heard over his neck and there were no other signs of thyrotoxicosis. The reflexes were normal. Other systemic examination was unremarkable. His blood pressure was well controlled.

His initial thyroid function test showed markedly raised free thyroxine (FT4) 60.8 pmol/L (normal 9.1 – 24.4), free triiodothyroinine (FT3) 18.14 pmol/L (normal 2.23 – 5.35) and undetectable thyroid stimulating hormone (TSH) <0.01 mIU/L (normal 0.30 – 4.64) respectively. The thyrotropin TSH receptor antibody was raised, 2.74 IU/L (normal less than 1.75).

The creatinine kinase was normal. The serum sodium (Na+) and potassium (K+) levels were normal then. He was given carbimazole 20 mg daily. The following month, his FT4 and FT3 decreased to 13.8 pmol/L and 4.43 pmol/L respectively with resolving lower limb weakness and he gained weight. Clinically he was euthyroid. Over the ensuing two months, he was in a hypothyroid state with FT4 4.1 pmol/L and FT3 1.87 pmol/L with polymyalgia and cold intolerance but no constipation. Carbimazole was stopped but within 2 months the FT4 and FT3 increased to 18.0 and 8.19 respectively and the TSH remained undetectable (<0.02) and he developed recurrent episodes of proximal weakness. The creatinine kinase and other electrolytes remained normal. Subsequently he developed multiple joint pain and stiffness for 2 weeks but there was no clinical evidence of synovitis. He experienced excessive fatigability and blamed this on his travelling related to his job.

In late 2018, he was diagnosed with Addisonian crisis when he presented with severe gastroenteritis and persistent hyponatremia ranging from 112 – 114 mmol/L, and normal potassium. Urine sodium was 41 mmol (normal 54-150). The serum osmolarity was normal. Septic workout was negative. The thyroid function test was normal (FT4 10.5 pmol/L, FT3 4.35 pmol/L, TSH 0.61 mIU/L). However, he suddenly developed a syncopal episode without any other significant neurological deficit. There was no seizure noted. Computed tomography scan of the abdomen revealed normal adrenals. Magnetic resonance imaging (MRI) of the brain revealed a tumor mass arising from the pituitary fossa consistent with an adenoma (Figure 1A, 1B). Hormonal studies were done, his prolactin level was 18.61 ng/mL (normal 1.61 – 18.77), arginine vasopressin 0.5 pg/mL (normal < 4.3). The serum cortisol level remain low (1.0 ug/dL). The follicular stimulating hormone (FSH) and luteinizing hormone (LH) were normal.

The anti-thyroglobulin antibody (anti-TG) 0.4 IU/mL (normal less than 115), and anti-Thyroid

peroxidase (anti-TPO/AMC) 0.4 IU/mL (normal less than 34.0).

He underwent successful surgical resection by the transphenoidal approach. Histopathology showed cohesiveness of the tumour cells arranged in garland, festoons, cords and sheets with intervening thin vascularized stroma exhibiting uniform rounded nuclei and moderate amount of pinkish cytoplasm which was consistent with pituitary adenoma.

He remained euthyroid clinically and biochemically with normal hormonal studies post operatively.

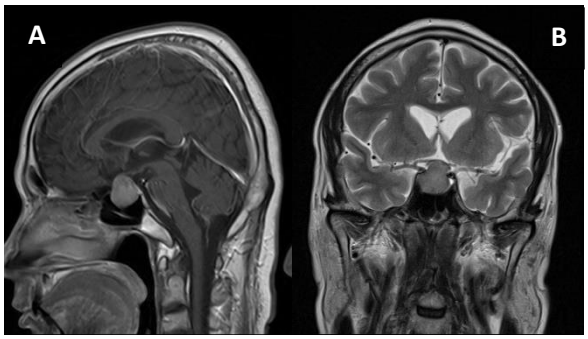

Figure 1. Magnetic resonance imaging sagittal (A) and coronal (B) sections of the brain showing a sellar mass measuring 18.6 mm x 17.9 mm x 20.2 mm resulting expansion of the pituitary fossa suggestive of pituitary macroadenoma.

Discussion

Graves' disease is classically associated with negative feedback suppression of TSH in response to increase in FT3 and FT4. The TSH may fall to undetectable level as illustrated in our patient. It has been described in the literature and case reports of a rare occurrence of coexistence of a state known as syndrome of inappropriate secretion of TSH (SITSH) in which the TSH level is usually increased. This was not the case in our patient although his thyroid condition was difficult to control as shown by a fluctuating clinical course and levels of FT3/ FT4.

The diagnosis of gastroenteritis with persistent hyponatraemia was treated as infective in origin though the possibility of uncontrolled hyperthyroidism or masked thyroid storm was entertained.[8,9]

The MRI findings were highly suggestive of pituitary macroadenoma. This was a non-functioning adenoma in our patient. His symptoms were very non-specific and he had no headaches. Macroincidentaloma of the pituitary has established diagnostic and management guidelines.[10] Successful surgery usually results in complete remission of symptoms though hormone replacement therapy specifically levothyroxine and cortisone may be necessary. In asymptomatic patients, surgery may be deferred with regular follow up, endocrinological assessment and neuroimaging. Symptomatic patient which neurological signs such as the visual field defects due to compression effect, pituitary apoplexy or hormonal hypersecretion warrant surgical intervention.[10]

Conclusion

This case highlights the diagnostic challenge for clinicians, and one must have a high index of suspicion in patients presenting with repeated unexplained respiratory symptoms. CT or MRI/MRA are usually diagnostic. Treatment and intervention is usually indicated only for symptomatic patients.

Conflict of interest

Authors declared no conflict of interest.

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