Pituitary hyperplasia and pituitary tumors cannot be reliably differentiated on imaging alone, despite significant improvement in imaging quality in recent years.

Pituitary hyperplasia (PH) occurs in heterogeneous settings and remains under-recognised. Increased awareness of this condition and its natural history should circumvent unnecessary trans-sphenoidal surgery. We performed an observational case series of patients referred to a single endocrinologist over a 3-year period. Four young women were identified with PH manifesting as diffuse, symmetrical pituitary enlargement near or touching the optic apparatus on MRI. The first woman presented with primary hypothyroidism and likely had thyrotroph hyperplasia given prompt resolution with thyroxine. The second and third women were diagnosed with pathological gonadotroph hyperplasia due to primary gonadal insufficiency, with histopathological confirmation including gonadal-deficiency cells in the third case where surgery could have been avoided. The fourth woman likely had idiopathic PH, though she had concomitant polycystic ovary syndrome which is a debated cause of PH. Patients suspected of PH should undergo comprehensive hormonal, radiological and sometimes ophthalmological evaluation. This is best conducted by a specialised multidisciplinary team with preference for treatment of underlying conditions and close monitoring over surgical intervention.

Normal pituitary dimensions are influenced by age and gender with the greatest pituitary heights seen in young adults and perimenopausal women.Pituitary enlargement may be seen in the settings of pregnancy, end-organ insufficiency with loss of negative feedback, and excess trophic hormone from the hypothalamus or neuroendocrine tumours.PH may be caused or exacerbated by medications including oestrogen, GNRH analogues and antipsychotics.Management involves identification of cases of idiopathic PH suitable for simple surveillance and reversal of pathological or iatrogenic causes where they exist.Surgery should be avoided in PH as it rarely progresses [1].

1)
De Sousa SM, Earls P, McCormack AI. Pituitary hyperplasia: case series and literature review of an under-recognised and heterogeneous condition. Endocrinol Diabetes Metab Case Rep. 2015;2015:150017. doi: 10.1530/EDM-15-0017. Epub 2015 Jun 1. PubMed PMID: 26124954; PubMed Central PMCID: PMC4482158.