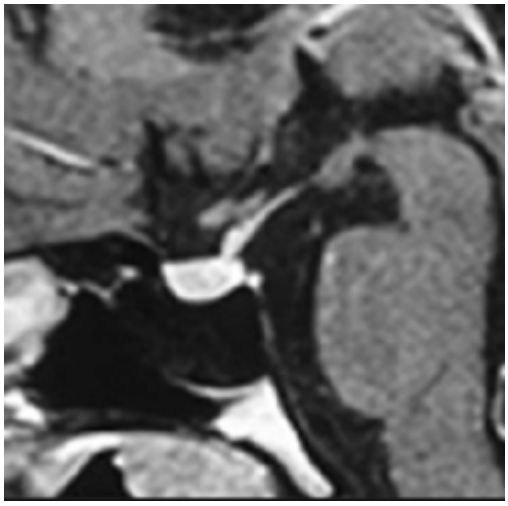
Pituitary stalk thickening



The diagnosis of lesions determining pituitary stalk thickness is challenging, and the identification of the underlying condition may require a long-term follow-up. Thus, clinicians should readily recognize that, when the diagnosis of central diabetes insipidus has been established, specific MRI sequences should be used in the assessment of the hypothalamic-pituitary region, and whole-brain evaluation is recommended. For clinical practice, a timely diagnosis is advisable to avoid central nervous system damage, pituitary defects and the risk of dissemination of germ cell tumours or organ involvement by LCH. Proper aetiological diagnosis can be achieved via a series of steps that start with careful observation of several neuroimaging predictors and endocrine dysfunction and then progress to more sophisticated and advanced imaging techniques [1)].

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325 patients with pituitary stalk thickening in the tertiary teaching Ruijin Hospital between January 2012 and February 2018 were enrolled. Basic characteristics and hormonal status were evaluated. Indicators to predict etiology in patients with histological diagnoses were analyzed.

Of the 325 patients, 62.5% were females. Deficiencies in gonadotropin was most common, followed by corticotrophin, growth hormone and thyrotropin. The increase of pituitary stalk width was associated with a risk of central diabetes insipidus (OR=3.57, P<0.001) and with a combination of central diabetes insipidus and anterior pituitary deficiency (OR=2.28, P=0.029). The cut-off pituitary stalk width of 4.75 mm had a sensitivity of 69.2% and a specificity of 71.4% for the presence of central diabetes insipidus together with anterior pituitary deficiency. Six indicators (central diabetes insipidus, patterns of pituitary stalk thickening, pituitary stalk width, neutrophilic granulocyte percentage, serum sodium level and gender were used to develop a model having an accuracy of 95.7% to differentiate neoplastic from inflammatory causes.

Pituitary stalk width could indicate the presence of anterior pituitary dysfunction especially in central diabetes insipidus patients. With the use of a diagnostic model, the neoplastic and inflammatory causes of pituitary stalk thickening could be preliminarily differentiated [2)].

CSF-human chorionic gonadotropin (hCG) concentrations that exceed the established reference interval (undetectable values to 0.7 IU/L) in the presence of suprasellar lesions and pituitary stalk

thickening must be considered pathological, establishing the need to exclude the presence of germinoma [3].

Diabetes insipidus (DI) associated with a thickened pituitary stalk is a diagnostic challenge in the pediatric population. Langerhans Cell Histiocytosis (LCH) is a rare cause of this entity. A 4-year-old male child presented with central DI of 1-year duration, associated with a thickened pituitary stalk. The etiology for the same remained elusive as the patient had no other manifestation to suggest LCH. A year later, the patient developed a left frontal scalp swelling. Neuroradiology demonstrated multiple punched out osteolytic lesions in both the frontal bones. The infundibulum was thickened and showed post-contrast enhancement. Histology and immunohistochemistry (IHC) of the biopsy specimen confirmed LCH. The child was administered chemotherapy according to LCH protocol, which resulted in 33% reduction in the size of the skull lesions. The DI was controlled with medical management. The present case highlights the need for serial follow-up and magnetic resonance (MR) imaging that led to a diagnosis of LCH [4].

References

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