

Pitfalls in reporting of Paediatric Pituitary Scans

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Introduction

- MRI scan is the modality of choice in evaluating pituitary hypothalamic pathologies. However, detecting pituitary lesions can be challenging.
- It is a standard practice in our district general hospital (DGH) to seek second opinion on paediatric cranial MRI scan by a specialist Paediatric Neuro-radiologist .
- This is a retrospective study comparing the initial reporting of MRI scans by a general radiologist and subsequently by the specialist Paediatric Neuro-radiologist.
- The second objective of the study was to assess whether discussion of MRI by two independent centres helps in improving detection of abnormalities of pituitary gland and other brain structure abnormalities .

Methods

- Evaluation of pituitary MRI scans in 18 patients. A second opinion from a paediatric neuro-radiologist is compared with the opinion of a general radiologist. We also evaluated difference in diagnosis and the possible effect on the management.
- We assessed the benefit of seeking second opinion by examining by differences in diagnostic opinions between DGH hospital and tertiary hospital.
- We divided the study group depending on their symptoms into endocrine or non-endocrine related.

Results

- Over a period of six months, 18 patients were identified. Ten patients were male and eight were females; the mean age was 7 years and 10 months.
- Eleven out of the total 18 patients with endocrine pathology were included in the study. The remaining seven patients presenting with non-endocrine-related symptoms were excluded.
- Specialist opinion on MRI was different from the initial report in 9 out of 11 patients.
- 4 diagnosed as possible pituitary microadenoma were either normal or Incidental Pars Intermedia Cyst.
- 1 identified as possible Hypothalamic Hamartoma was an artefactual abnormality.
- 1 identified as possible Langerhan Cell Histiocytosis with thickened infundibulum was later considered a congenital malformation.
- 2 scans reported as normal or possible bulky pituitary underwent rescanning for further information. 1 scan was amended with additional findings of thickening of skull bones, suggesting a different pathology

Discussion

MRI with its multi-planar capability is the modality of choice in evaluation of pituitary–hypothalamic morphology and associated endocrinopathies.

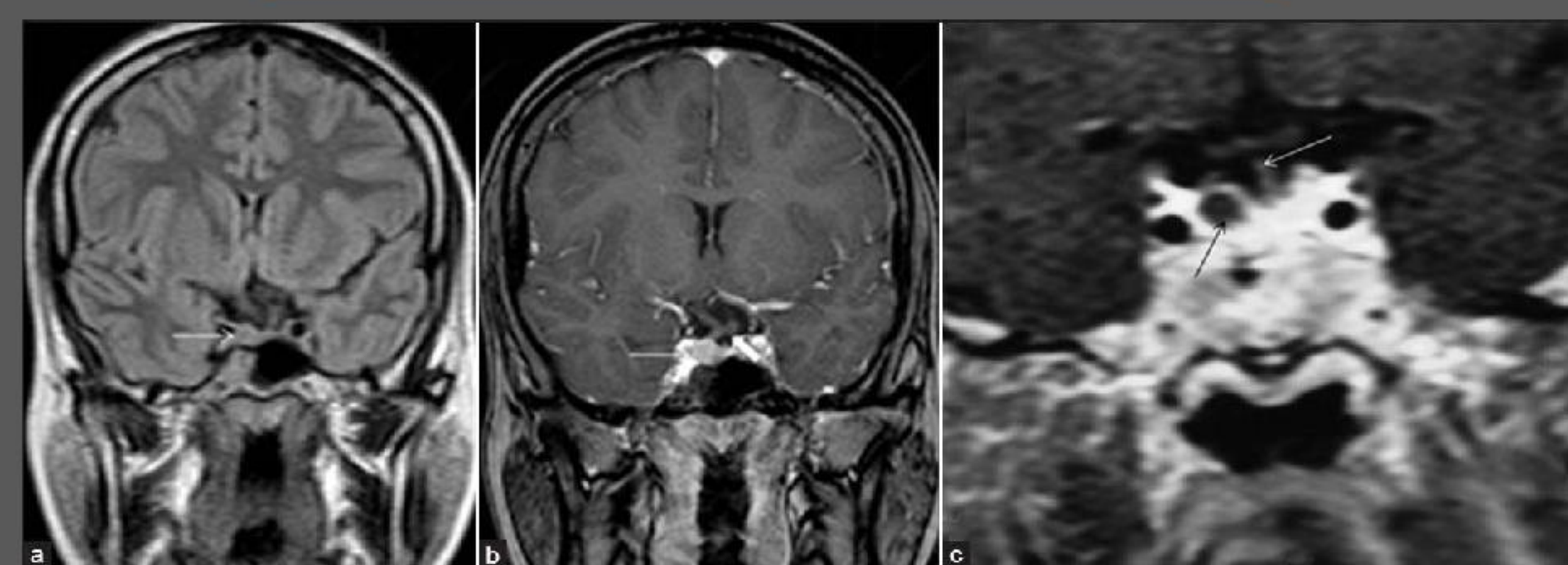
MRI evaluation of the pituitary gland/hypothalamic-pituitary axis is challenging, particularly in paediatric population, because of its small size and versatile disease processes.

In addition to the diagnostic differentiation of these lesions, MRI also provides useful information about relationship of pituitary gland/hypothalamic–pituitary axis with adjacent anatomical structures and helps to plan medical or surgical strategy.

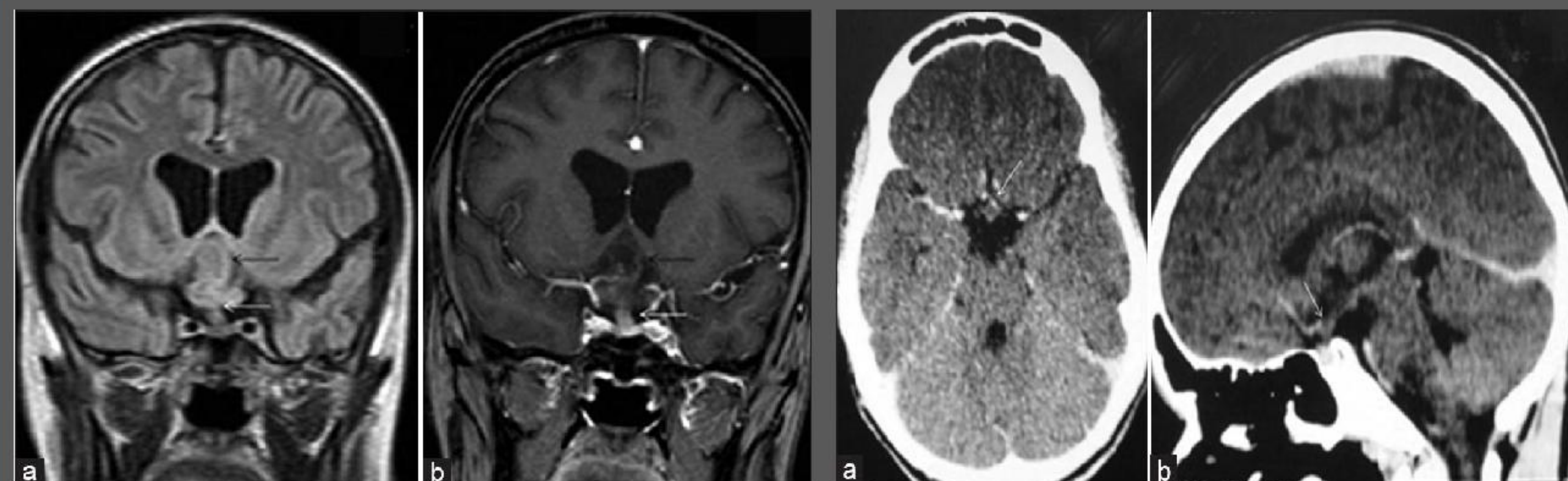
Rathke's cleft cysts, also known as pars intermedia cysts, are nonneoplastic, sellar or suprasellar epithelium-lined cysts arising from the embryologic remnants of rathke pouch in pituitary gland and often difficult to distinguish from cystic craniopharyngiomas or cystic pituitary adenomas on radiologic studies

Pathology that arises within this region is often similarly complex, and requires a combination of endocrinologic, ophthalmologic, and neurologic examinations combined with advanced neuroimaging modalities.

Microadenoma



LCH



Hamartoma

Conclusion

- False positive results in paediatric pituitary scans can lead to parental anxiety and wrong management plans.
- Paediatric pituitary MRI should be reported by specialist paediatric neuroradiologists in conjunction with the clinical multi-disciplinary team.

