

# Intracystic Nodule in a Rathke's Cleft Cyst

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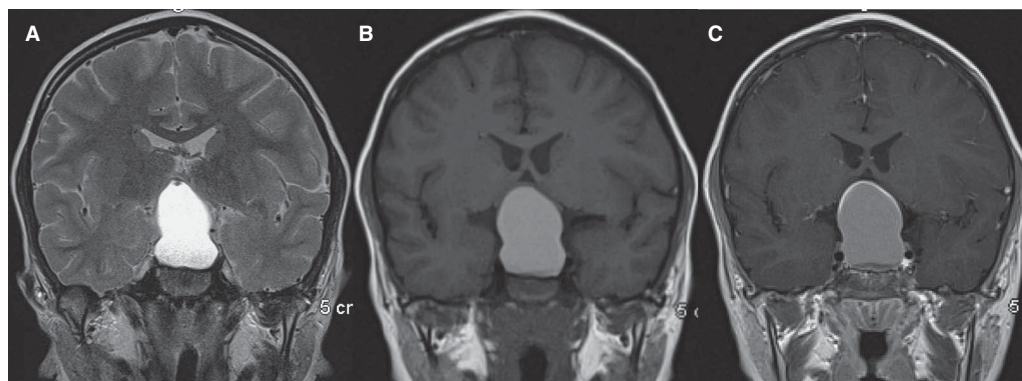
## CASE PRESENTATION

An 11-year-old boy presented to the Emergency Department with a two-month history of constant daily frontal headaches which gradually progressed to include visual disturbance. There was no significant prior medical or family history. On examination he was afebrile and had a bitemporal hemianopia visual field defect. The remainder of his neurological examination was normal. Blood investigations including a full blood count and serum electrolytes were normal with no biochemical evidence of pituitary dysfunction. He underwent an MRI brain for further evaluation (Figure 1 A-C) which confirmed the presence of a large sellar mass lesion with suprasellar extension. Despite the initial clinical diagnosis of a craniopharyngioma, radiological diagnosis of a Rathke's cleft cyst was made with high confidence.

Rathke's cleft cysts are derived from remnants of the embryological Rathke's pouch. They can be sellar, suprasellar or even infrasellar in location.<sup>1,2</sup> These cysts are usually asymptomatic and are frequently diagnosed as incidental findings on imaging studies. Due to their proximity to many important structures such as the pituitary, hypothalamus and as in this case, the

optic chiasm,<sup>1,2</sup> they may result in compression on these structures. The main differential diagnosis includes a cystic pituitary adenoma and a craniopharyngioma.<sup>1</sup> Craniopharyngiomas and Rathke's cleft cysts share a similar embryological origin and therefore may be found in similar locations.<sup>3</sup> Craniopharyngiomas have a bimodal peak, however Rathke's cleft cysts are usually more common in middle aged females. In this age group the adamantinomatous subtype of craniopharyngiomas are the most common, and up to approximately 90% may calcify. In contrast, Rathke's cleft cysts rarely calcify. There was no evidence of calcification in this case on both CT and MRI (not shown).

It may be difficult to distinguish between a craniopharyngioma and a Rathke's cleft cyst clinically and radiologically. However, an important differentiating feature to identify is an intracystic nodule, which is considered a pathognomonic imaging feature of a Rathke's cleft cyst. This nodule is typically T1 hyperintense and is obscured by the equally T1 hyperintense cyst contents with no enhancement following gadolinium administration. However, it is hypointense on T2-weighted sequences (Figure 2) making it easily distinguishable from surrounding hyperintense cystic fluid.<sup>1</sup> Although nodules are an occasional imaging feature of craniopharyngiomas, these are usually enhancing mural nodules



**Figure 1:** (A) T2-weighted, (B) T1-weighted non-contrast and (C) T1-weighted post-contrast coronal images, demonstrating a large mass in the sella with suprasellar extension, compressing the optic chiasm. There is associated widening and bony remodeling of the sella consistent with a chronic process. The imaging findings are suggestive of either a Rathke's cleft cyst or craniopharyngioma.

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**Figure 2:** Magnified T2-weighted coronal image with the hypointense nodule highlighted (arrow) characteristic of Rathke's cleft cyst, confirming the pre-operative imaging diagnosis.

and are T2 hyperintense compared to the hypointense Rathke's cleft intracystic nodule.<sup>1,4,5</sup> This case highlights an important imaging feature that may help to differentiate between two

important entities. Successful resection of the lesion confirmed that this was a Rathke's cleft cyst, and the patient's clinical symptoms improved.

#### DISCLOSURES

Sinead Culleton, Hong Kuan Kok, Seamus Looby, Alan O'Hare, John Thornton, Paul Brennan, and Hamed Asadi declare no conflict of interest.

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