An intrasellar cystic mass and hypopituitarism

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A 44-year-old man had suffered from headache, general fatigue and impotence for three months. Physical examination revealed a bitemporal visual field defect. Skull X-ray films showed ballooning of the sella turcica. Magnetic resonance imaging (MRI) revealed an intrasellar cystic mass compressing optic chiasma (figure). The cyst was removed by a transsphenoidal approach. Anterior pituitary function was evaluated by combined provocative testing (luteinising hormone-releasing hormone test, thyrotropin-releasing hormone test, and insulin tolerance test) before and 21 days after surgery (table).

Table Combined provocative testing before (B) and after (A) surgery

Times (min):		0	15	30	60	120
Plasma glucose	B	5.1	3.9	2.3	4.0	5.2
	(3.9–6.1 mmol/l)	A	4.9	3.6	1.9	3.7
Plasma adrenocorticotropin	B	2.6	3.3	3.3	4.2	4.0
	(2.0–11.5 pmol/l)	A	3.1	3.3	3.7	22.0
Serum cortisol	B	38.6	52.4	57.9	113.1	104.8
	(110–505 pmol/l)	A	146.2	162.8	162.8	306.2
Serum growth hormone	B	0.7	0.8	0.8	0.9	0.9
	(<1.46 µg/l)	A	0.4	0.4	0.4	0.3
Serum prolactin	B	4.9	9.2	9.9	7.0	5.3
	(<30 µg/l)	A	4.4	10	9.5	7.4
Serum thyroid-stimulating hormone	B	1.4	5.2	6.4	5.9	3.4
	(0.34–3.5 mU/l)	A	3.0	10.9	15.2	11.0
Serum luteinising hormone	B	0.5	0.5	0.8	1.1	1.1
	(0.2–20 IU/l)	A	0.5	0.8	1.2	1.4
Serum follicle-stimulating hormone	B	2.0	2.2	2.5	3.1	3.6
	(0.8–22.9 IU/l)	A	2.5	2.8	3.1	3.5

The numbers in parentheses indicate the normal range of basal hormone levels

Figure T1-weighted MRI of an intrasellar arachnoid cyst. The coronal views demonstrate a cystic lesion arising within the sella with suprasellar extension. The difference in imaging characteristics between cerebrospinal fluid (CSF) within the cyst and the ventricle is related to the fact that the CSF within the arachnoid cyst is stagnant

Questions

- 1 Suggest two causes of the man’s illness.
- 2 How would you describe his endocrine status?

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Answers

QUESTION 1

The most important causes of intrasellar cystic masses are shown in the box. Intrasellar arachnoid cysts are rare lesions that are hard to differentiate from intrasellar pituitary cysts or Rathke’s cleft cysts. As adenomas and craniopharyngiomas are more common than cysts, the cyst is often misdiagnosed. An empty sella also should be ruled out. The empty sella freely communicates with the subarachnoid space above the diaphragma sellae on positive contrast computed tomography (CT) cisternography. In this patient, we excluded the empty sella because a cystic mass extended to the suprasellar lesion and had different imaging characteristics compared with the ventricle. We excluded a pars intermedia cyst because it was reported to be very small (2–3 mm in diameter).

It is impossible to reach the diagnosis before surgery. The final diagnosis must wait for histological examination of the specimens obtained at the operation.

QUESTION 2

The patient presented with clinical symptoms of hypopituitarism.^{1–3} Combined provocative testing in the patient indicated the presence of panhypopituitarism pre-operatively.

Discussion

An intrasellar cystic mass was demonstrated by MRI in this patient. The cyst was removed by a transsphenoidal approach. The cyst contained a small amount of clear, colourless, fluid, in

Causes of intrasellar cystic masses

- pars intermedia cysts
- Rathke’s cleft cysts
- arachnoid cysts
- pituitary cysts (parenchymal or adenomatous)
- cystic craniopharyngiomas
- miscellaneous cysts (epidermoid cysts, cysticercosis cysts)

contrast to the yellowish mucoid fluid in Rathke’s cleft cysts. Histological study revealed that the walls of the cysts were composed of connective tissue and arachnoid cells. Thus, an intrasellar arachnoid cyst was diagnosed. Post-operatively, the provocative test demonstrated that responses of adenocorticotropin, cortisol, and thyroid-stimulating hormone were normalised. Hypopituitarism due to an intrasellar arachnoid cyst is very rare; until now, one case has been reported by Spaziante *et al*¹, four cases by Baskin *et al*² and two cases by Meyer *et al*.³ Only one of these patients showed partial recovery in anterior pituitary function after surgery.

An intrasellar arachnoid cyst should be considered as one of the possible disorders causing hypopituitarism. Surgical removal of the cyst results in restoration of the anterior pituitary function when detected and treated in an early stage.

Final diagnosis

An intrasellar arachnoid cyst.

Keywords: intrasellar arachnoid cyst, hypopituitarism

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