Mucinous cysts of the pituitary stalk

Report of two cases

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This report describes two cases of a mucinous cyst (Rathke's cleft cyst) in the pituitary stalk: the first was found in a 29-year-old woman 5 years following pregnancy and the second in a 30-year-old woman 6 years after pregnancy. The presenting symptoms are analyzed and the diagnosis is discussed, with emphasis on the role of magnetic resonance imaging.

KEY WORDS  •  Rathke's cleft cyst  •  mucinous cyst  •  pituitary stalk

Small mucinous cysts within the pituitary gland have been reported in as many as 22% of normal postmortem specimens. Like craniopharyngiomas, they appear to derive from Rathke's pouch but are lined with cuboidal or columnar rather than squamous epithelium and often contain cilia and goblet cells. There is controversy over whether they should be considered neoplasms.

Cysts of the pituitary stalk are much less common. Clinical manifestations are usually the result of pressure on the optic pathways, hypothalamus, and pituitary gland. Two cases of mucinous cysts in the pituitary stalk are described here, the presenting symptoms are analyzed, and the diagnosis is discussed, with emphasis on the role of magnetic resonance (MR) imaging.

Case Reports

Case 1

This 29-year-old woman had suffered from temporary blackouts without definite loss of consciousness since the age of 10 years. She felt "panicky" during these episodes and experienced vertigo. The incidents increased in frequency following a pregnancy at the age of 25 years. An electroencephalogram at that time was reported as borderline normal, and Dilantin (phenytoin) did not reduce the frequency of the episodes. The patient then developed new symptoms and, when seen at the Brigham and Women's Hospital, complained of fatigue, lack of interest in her surroundings, loss of libido, discouragement, diminished self-esteem, and a bleak outlook. A family history revealed that her father and brother had suffered from depression.

Physical examination was within the normal range. Blood chemistry findings were normal, and an endocrine workup revealed no abnormalities. A computed tomography (CT) scan showed a rounded hyperdense mass in the suprasellar cistern with minimal enhancement (Fig. 1A). On MR imaging, the mass exhibited minimal hyperintensity on T1-weighted images and definite hyperintensity on T2-weighted images (Fig. 1B, C, and D). The lesion was followed for 2 years, at which time it was explored surgically due to apparent enlargement.

A right pterional craniotomy was performed, and a gray cyst intimately associated with the pituitary stalk was found. The cyst was opened revealing 3 cc of mucinous material within a thin capsule. The pituitary stalk had been indented by the cyst but otherwise appeared normal up to the area of the hypothalamus. The cyst was totally emptied, and the capsule was gently stripped from the stalk. Pathological examination revealed a cyst with a segment of cuboidal epithelium within the wall, consistent with a Rathke's cleft cyst. The postoperative course was uneventful. The patient had no further panic episodes, but her depressed affect remained.

Case 2

This 30-year-old woman sought medical attention...
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because of infertility and galactorrhea. She had experienced an ectopic pregnancy at the age of 25 years, followed by normal return of her menses, but had been unable to conceive again. She had no neurological symptoms, but her laboratory tests showed moderately elevated prolactin levels of 20 to 30 ng/ml. The patient had been treated with bromocriptine for 4 years without noticeable effect on the prolactin levels. Multiple axial and coronal CT scans disclosed a mass extending into the suprasellar region with slightly high density and no enhancement in the sella turcica (Fig. 2A).

On MR imaging, a high-signal lesion was revealed (Fig. 2B and C). Sequential MR studies demonstrated enlargement of the mass, and transsphenoidal surgery was performed. The pituitary gland appeared normal. About 3 cc of mucinous material was aspirated through a thinned diaphragm. Pathological examination showed mucinous material. Postoperative MR images demonstrated complete absence of the mass and an intact pituitary stalk (Fig. 2D). The postoperative course was uneventful. The prolactin level obtained immediately postoperatively was 19.5 ng/ml.

Discussion

Rathke’s cleft cysts are believed to derive from remnants of the original Rathke’s pouch, a gut derivative, which closes in early embryonic life with only the apical extremity persisting postnatally as a cleft between the pars distalis and pars nervosa of the pituitary. The cleft may become distended with gelatinous material, sometimes persisting in this state into adult life but causing no functional disturbances. In contrast to the stratified squamous epithelium of craniopharyngiomas, Rathke’s cleft cysts are layered with columnar to cuboidal epithelial cells (many of which are ciliated), and may include mucous goblet cells. Squamous metaplasia has been noted in this epithelium. The mucin-secreting cells cause Rathke’s cleft cysts most often to contain mucinous fluid.

It is sometimes impossible to differentiate pathologically between Rathke’s cleft cysts and craniopharyngiomas because there is a transition between cuboidal...
and squamous epithelium. The two types of cyst may also coexist. Rathke's cleft cyst has also been found adjacent to a pituitary gland with a microadenoma. In the first case presented here, the symptoms of panic episodes and psychiatric disturbances described are not known to be associated with suprasellar masses; these may have been coincidental findings. In the second case, the amenorrhea/galactorrhea syndrome has rarely been associated with a Rathke's cleft cyst.

On CT scanning, Rathke's cleft cysts are usually seen as low-density nonenhancing masses; higher density is consistent with a higher protein content. Rathke's cleft cysts cannot be differentiated from other intra- and suprasellar cystic masses on CT scans alone, although metrizamide CT cisternography may help to distinguish low-density cysts from an empty sella.

On MR imaging, surgically verified Rathke's cleft cysts have been described as showing both high and low signal intensity atop the pituitary gland on T1-weighted images. The two cases presented demonstrate moderately increased signal intensity on T1-weighted images and high signal intensity on intermediate and T2-weighted images. A small high-intensity focus at the dorsal surface of the gland at the insertion of the stalk has been described as an incidental finding consistent with a small mucinous Rathke's cleft cyst; however, this was not confirmed histologically.

The use of MR imaging in the diagnosis may help in preoperative planning, and such cysts may be safely observed without surgery unless they are increasing in size or producing clear-cut symptoms. Magnetic resonance imaging may also be the most useful modality in the postoperative assessment of these cysts.

References


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