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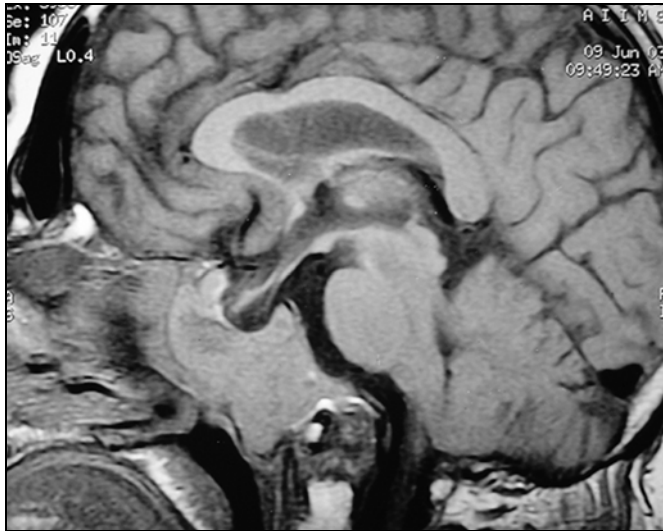
Ectopic Pituitary Adenoma with an Empty Sella

Pituitary adenoma located in the sinonasal region is a rare entity. Further, an adenoma in the sinonasal location associated with an empty sella is extremely uncommon [1]. We report a

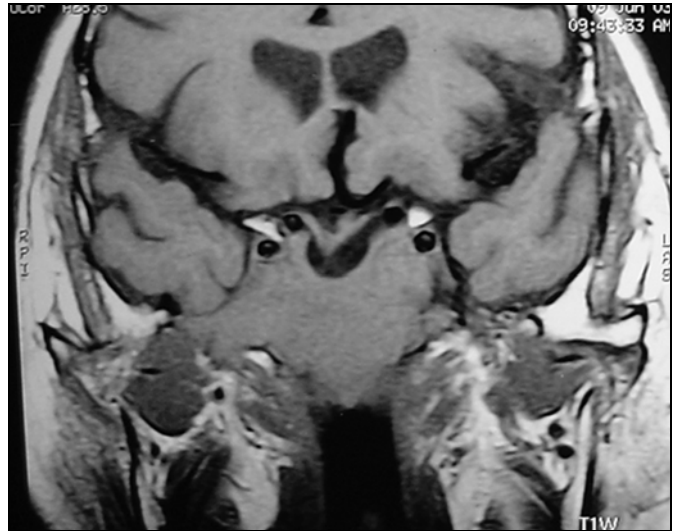
case of pituitary adenoma in the paranasal sinuses and nasopharynx with an empty sella.

A 43-year-old man presented to the ear, nose, and throat department with epistaxis of 3 months' duration. On transnasal endoscopy, a polypoid mass was seen in the region of the posterior choana. On MRI, T1-weighted im-

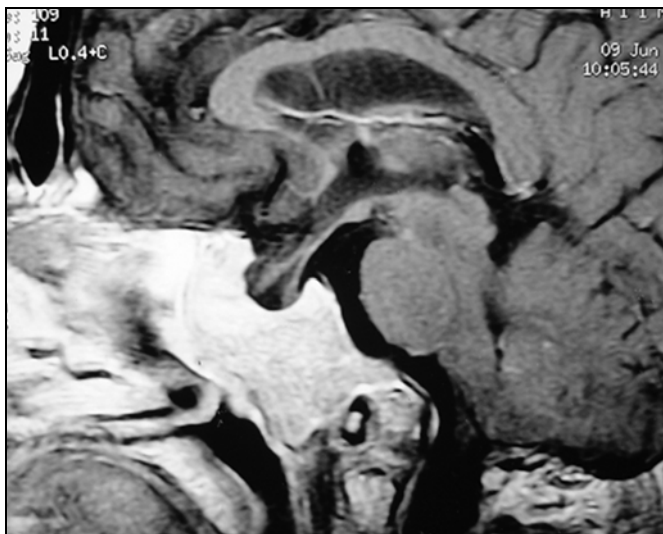
ages revealed a low-signal-intensity mass in the sphenoid and ethmoid sinuses extending into the nasopharynx, bilateral cavernous sinuses, and right petrous apex. The pituitary stalk was central extending up to the floor of the sella indicating an empty sella (Fig. 1). Contrast-enhanced images showed signifi-



A



B



C



D

Fig. 1—43-year-old man who presented with epistaxis of 3 months' duration. On transnasal endoscopy, polypoid mass was seen in region of posterior choana. **A** and **B**, T1-weighted images in sagittal (**A**) and coronal (**B**) planes reveal low-signal-intensity mass in sphenoid and ethmoidal sinuses extending into nasopharynx, bilateral cavernous sinuses, and right petrous apex. Pituitary stalk was central, extending up to floor of sella indicating empty sella. **C** and **D**, Contrast-enhanced images showed significant enhancement of mass.

cant enhancement of the mass (Fig. 1). A transnasal biopsy sample of this mass revealed an invasive pituitary adenoma. Physical examination was unremarkable. Laboratory investigation showed normal pituitary hormone levels. On the basis of the radiologic and pathologic findings, a final diagnosis of nonfunctioning invasive pituitary adenoma was made.

Although rare, there are reports in the literature of patients presenting with initial complaints of epistaxis or nasal blockage [2–4]. Still rarer is the association of an empty sella with these masses. According to most reports on the topic, sinonasal masses of pituitary origin also have sellar and suprasellar components.

The explanation of this association is complex. In the case of an invasive mass, there are two possible explanations. One is that an empty sella existed primarily and a pituitary adenoma developed subsequently and then herniated inferiorly through a sellar floor defect. The other explanation is that the adenoma in the sella turcica first extended into the sphenoid sinus; in the course of tumor growth, the intrasellar tumor underwent necrosis and a secondary empty sella developed [2]. In our patient, no history suggestive of apoplexy was available. In case of an ectopic pituitary mass with an empty sella, the speculation is that during the course of formation of the anterior pituitary gland most of the precursors of nasopharyngeal origin remained in the sphenoid sinus, from which the adenoma arose, and only a small number of cells constituted the anterior pituitary, leading to the empty sella [5].

The differentiation between invasive or ectopic tumor rests on the visualization of intact dura of the sellar floor. Dynamic contrast-enhanced MRI elegantly shows the signal intensity of the tumor and the anatomic relationship between the sinonasal tumor and the sellar floor. In our patient, contrast-enhanced MRI showed an intact sellar floor; hence, a diagnosis of an invasive ectopic pituitary adenoma was made. However, surgical correlation, which is the gold standard for evaluation of the sellar floor, could not be obtained in our patient.

In conclusion, the association of an empty sella with ectopic pituitary adenomas in the sphenoid sinus is extremely rare and relates to a developmental disorder of the anterior pituitary tissues. Contrast-enhanced MRI remains the investigation of choice for the evaluation of such tumors. The final diagno-

sis depends on surgical proof of an intact dura mater of the sellar floor.

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