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Case Report

A nonsecreting suprasellar ectopic pituitary adenoma: A case report ☆

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ABSTRACT

A pituitary adenoma in the suprasellar region without involvement of the Sella turcica is uncommon, with few examples recorded in the literature. Imaging, particularly magnetic resonance imaging, is critical for diagnosis. Radiological features aid in distinguishing ectopic pituitary adenoma from other possible diagnoses, which include Rathke cleft cyst, suprasellar abscess, diabetes insipidus, suprasellar cellular infiltrate, and suprasellar tumors such as germinoma, craniopharyngioma, optic pathway glioma, suprasellar hemangioblastoma, and pituitary lymphoma. A 48-year-old lady with impaired visual acuity underwent an MRI, which revealed a suprasellar ectopic pituitary adenoma in contact with the pituitary stalk and optic chiasm.

Introduction

Suprasellar ectopic adenomas are uncommon, with few examples recorded in the literature. It is classified as a pituitary adenoma that is located outside of the Sella turcica and has no continuity with the normal pituitary gland. MRI is critical for making a diagnosis and excluding alternative possibilities. Given that the suprasellar region contains an optic chiasm, such a situation might result in vision impairment. We discuss a case of a lady who presented with visual impairment and had an MRI that revealed a nonsecreting suprasellar ectopic adenoma.

Case Report

A 48-year-old lady reported to our hospital with impaired visual acuity on her right side. She has a history of high blood prolactin levels (89 ng/ml), which were normalized after medical therapy.

A physical examination revealed a decline in visual acuity in the right eye. The remainder of the physical examination was ordinary. The laboratory findings were normal.

Thus, an MRI was done. The technique included high-resolution sequences with narrow slices (2 mm slice thickness) and a small field of view coronal and sagittal on T1 and

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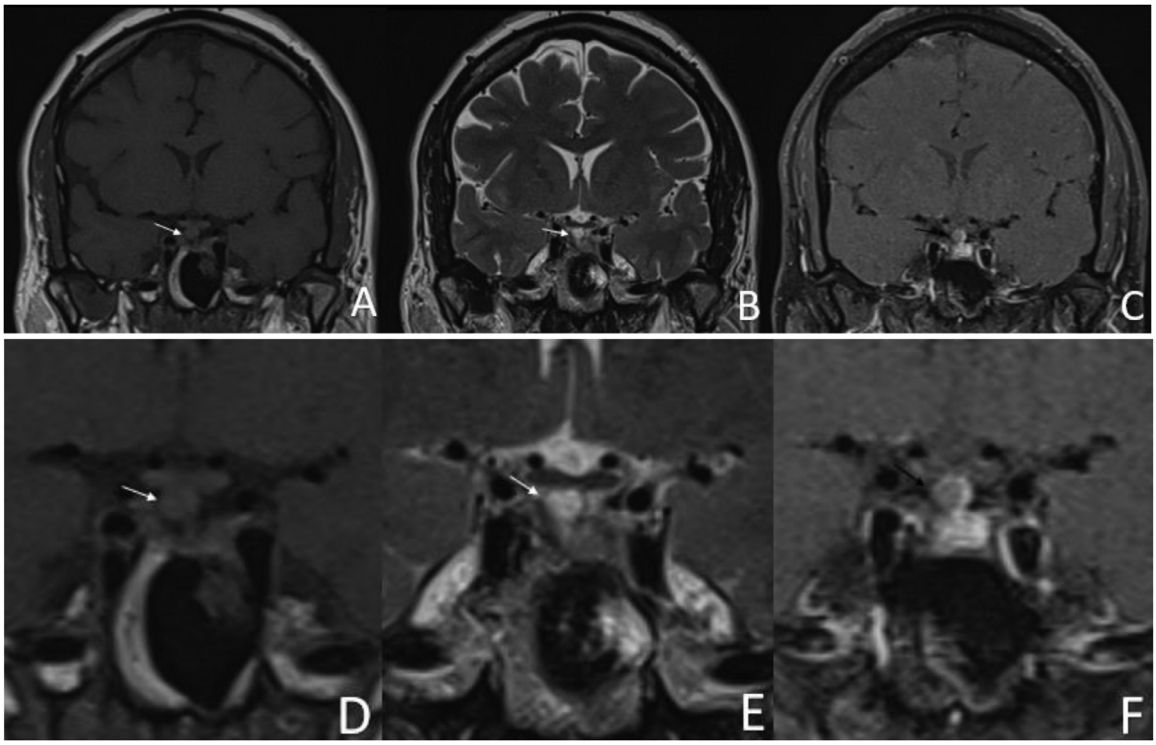

Fig. 1 – MRI images with coronal view: a suprasellar round shape formation, appearing iso intense compared to the brain on the T1-weighted images (A,D) and hyperintense on the T2 weighted images (B,E) (white arrow). T1 weighted images following contrast injection show peripheral enhancement (C,F) (black arrow). The tumor presents a contact with pituitary stalk medially and the optic chiasm above.

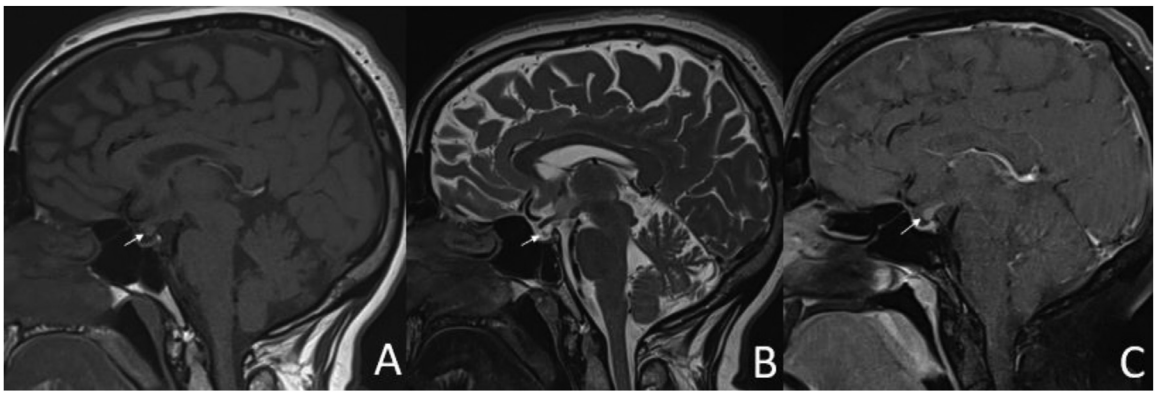

Fig. 2 – MRI images with sagittal view show an iso intense T1 (A) and hyper intense T2 (B) formation with peripheral enhancement (C) with no continuity with the pituitary gland which is normally located in the Sella turcica (white arrow). There is no abnormal signal within the pituitary gland.

T2 weighted sequences, as well as T1 weighted sequences following gadolinium administration. MRI indicated a 5mm tumor in the suprasellar region, with a round shape, looking iso-intense relative to the brain on the T1-weighted images and hyperintense on the T2-weighted images, with an aberrant peripheral enhancement following injection (Fig. 1). The pituitary gland in the Sella turcica appeared normal. The MRI revealed no continuity between the lesion and the pituitary gland, although there was contact with the pituitary stalk medially and the optic chiasm above, which was somewhat displaced (Figs. 1 and 2). Based on these radiological findings, an ectopic pituitary adenoma has been detected.

Discussion

Ectopic pituitary adenomas are rare and typically occur between the fourth and seventh decade of life. They are more

usually associated with ACTH and prolactin production, although nonsecreting tumors have also been recorded in the literature, as in our instance [1].

Ectopic adenoma has been found in a variety of anatomic places throughout the pituitary gland's evolutionary route, including the sphenoid sinus and the suprasellar area, which account for 36% and 27.7% of all ectopic adenoma, respectively [2].

Two ideas might account for the occurrence of a suprasellar peri infundibular ectopic adenoma. First and foremost, the adenoma can develop from the pars tuberalis, which is an upward growth of the anterior pituitary gland, and progress to malignant status. This possibility accounts for the bulk of instances described in the literature [3]. However, because there is continuity with the anterior pituitary lobe, a cancer arising from this site cannot be classified as ectopic. On the other hand, the tumor might develop from anterior pituitary cells in the peri-infundibular arachnoid [1]. These cells have no connection to the pituitary stalk, which may explain the suprasellar pattern of growth [3]. Given the location and lack of continuity between the adenoma in our case and the anterior pituitary tissue, our tumor might have originated from ectopic pituitary tissue in the arachnoid.

Differential diagnoses include pure suprasellar lesions that do not connect to the hypophyseal tissue.

Rathke's cleft cyst:

Rathke's cleft cyst can have radiologic characteristics comparable to our instance. Daniel El Barrow described several examples of Rathke cleft cysts that formed fully in the suprasellar area and had a normal Sella turcica [4]. They are usually found near the midline, are homogeneous, and have no septation within. The signal characteristics on MRI differ depending on whether the cyst is mucoid or serous. In most situations, there is no noticeable contrast enhancement [5]. However, in our situation, the lesion signal on the T2 weighted images is not completely cystic and includes some septations. Furthermore, our case features a peripheral thin wall enhancement.

Suprasellar tumor:

-germinoma:

Few examples of pituitary stalk lesions have been reported in the literature. According to Darian R. Esfahani, only a small percentage of suprasellar germinoma occur on the pituitary stalk [6]. It may show a T1 iso intensity in the brain parenchyma and a hyperintense T2. However, contrary in our situation, it may show a vivid and intense enhancement following injection.

-craniopharyngioma:

There have been 2 forms documented in the literature: adamantinous and squamous papillary. On MRI, squamous papillary shows a significant solid or mixed solid and cystic component in the suprasellar region. The solid component is heterogeneous, with significant enhancement and a tiny necrotic region. In contrast, adamantinous craniopharyngioma might have a single or many cysts with thin peripheral enhancement. A pattern of enhancement was discovered to be a significant factor in differentiating pituitary adenoma with solid substance from craniopharyngioma [7]. In our instance, it is more favorable for pituitary adenoma.

-glioma of the optic pathway

The dodge classification, based on the anatomical situation of gliomas, was proposed in 1958 [8] and divided them into 3 main groups: the first involves only the optic nerves, the second the optic chiasm (associated or not with optic nerve involvement), and the third involves the hypothalamus and/or neighbouring structures. Glioma arising from the chiasm may appear as a suprasellar lesion, as in our case [9]. Radiologic findings are nonspecific and often include thickening and enhancement of the optic tract, chiasm, or nerve on T1 weighted imaging [10]. Nonetheless, there is no thickening or homogeneous enhancement of the optic tract, but rather a nodular lesion hanging from the pituitary stalk and optic chiasm upward.

-Suprasellar hemangioblastoma:

Suprasellar Hemangioblastoma, although its rarity, might be a differential diagnosis with an iso-intense T1 and hyperintense T2. However, flow voids inside the lesion and a significant enhancement should be identified to validate the diagnosis and distinguish it from other putative suprasellar tumors [11].

-pituitary lymphoma:

CNS lymphoma appears as mass lesions with iso to hypointense signal on T1 and T2 weighted imaging, as well as strong homogeneous enhancement upon injection [12].

Pituitary granular cell tumor, pituicytoma, and pituitary metastases are examples of cancers having nonspecific radiologic characteristics that can be used to make a differential diagnosis.

Suprasellar abscess:

Exceptionally, inflammation and infection can arise in the suprasellar region and should be included in the differential diagnosis of suprasellar masses [13]. It can be caused by the direct extension of meningitis, an infection of the sphenoid or cavernous sinus. MRI features that are commonly associated with suprasellar abscesses include iso to hypo intensity on T1 weighted images and high intensity on T2 weighted images. There is also a ring enhancement after contrast injection. Furthermore, thickening of the infundibula and enhancement of adjacent leptomeninges may suggest the existence of tuberculoma in the context of tuberculous infection [13,14]. In our situation, there is no infection background, no description of abscess characteristics, and no thickening, only a mass hanging on the infundibula.

Diabetes insipidus:

Ten to thirty percent of cases of central diabetes insipidus are idiopathic, and various studies have shown that MRI can help diagnose hypothalamic-pituitary disease [15]. In many cases of diabetes insipidus, there is a lack of hyperintensity signal from the neurohypophysis on T1 weighted images, as well as thickening of the pituitary stalk [16]. Keh Chau Sheen also documented a nodular expansion of the pituitary stalk that was comparable to ours [15]. After all, the neurohypophysis signal is normal in our situation, and no history of diabetes insipidus has been observed.

Suprasellar cellular infiltrates:

Inflammatory disorders affecting the pituitary gland, such as Langerhans cell histiocytosis, lymphocytic hypophysitis, and sarcoidosis, share radiological characteristics. Common findings include pituitary stalk thickening, the absence of

bright spots on the neurohypophysis, and signal heterogeneity. It is possible to notice enhancement of nearby leptomeninges [17-19]. These factors are not present in our case.

Conclusion

Cross-sectional imaging is critical for diagnosing an ectopic pituitary adenoma, particularly if it is not secreting. A high-quality MRI study is required to determine whether there is continuity between the suprasellar tumor and the hypophyseal gland. It may be difficult to identify an ectopic pituitary adenoma from other suprasellar tumors. Some radiographic findings, especially the pattern of enhancement and the clinical history are necessary to rule out alternative differential diagnoses.

Patient consent

Informed consent for publication was obtained from the patient.

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