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Abstract

Background: Meningiomas are mostly benign intracranial tumours. Diaphragma sallae meningiomas are rare and may be hard to differentiate from pituitary adenomas. We report a rare case of diaphragma sellae meningioma mimicking pituitary macroadenoma in a 32-year-old man.

Case Presentation: The patient was admitted to Ahwaz Golestan Hospital with a 2-year history of headache, especially at night. Also, he had a bilateral ocular pain with visual field defects. Endocrinology examination revealed hyperprolactemia. His cranial radiographs revealed an enlarged sellae turcica and destruction of dorsum sellae. Computed tomography (CT) reveals a homogeneous, enhancing, and isodense mass in the intra- and suprasellar lesion without calcification. Magnetic resonance imaging (MRI) showed a solid mass with well defined margin. This mass was isointense on both T1 and T2 weighted images and homogeneously enhanced. The preoperative diagnosis was pituitary macroadenoma. A transsphenoidal rinoseptal approach was used. The specimen consisted of fragments of brownish soft tissue. External surface was irregular. Sections showed a lesion compound spindle cell proliferation with dense nucleus and scanty cytoplasm with whorling pattern, which suggested meningioma (fibrous type).

Conclusion: It is necessary to distinguish diaphragm sellae meningioma from pituitary macroadenoma for the appropriate surgical approach and to subsequently decrease the complications from surgery.

Keywords: Diaphragma sellae, Meningioma, Pituitary adenoma

Introduction

Meningiomas are mostly benign tumours originating from the arachnoid cap cells. Meningiomas account for 13-26% of all intracranial tumours. The annual occurrence of meningiomas is estimated to 2-7/100,000/year for women and 1-5/100,000/year for men (11). Diaphragma sallae meningiomas are rare and may be hard to differ from pituitary adenomas (12). It is important to differentiate the rare diaphragma sellae meningioma from the pituitary adenoma; because their surgical approach is different. We report a rare case of diaphragma sellae meningioma mimicking pituitary macroadenoma, both clinically and radiologically. In this case we could remove the entire tumor via transsphenoidal rinoseptal approach.

Case report

A 32-year-old man was admitted to Ahwaz Golestan Hospital with a 2-year history of headache, especially at night and early morning. Also he had a bilateral ocular pain, without any visual complaints. The general physical examination was normal. Visual field examination revealed upper temporal quadrantanopsia on the right side and incomplete temporal hemianopsia on the left side, whereas other neurological examinations were normal.

Routine laboratory examinations were unremarkable. Endocrinology examination revealed hyperprolactemia (prolactin: 48 ng/ml, normal value: 2-18 ng/ml). Other pituitary hormones were in normal values. His cranial radiographs revealed an enlarged sellae turcica and destruction of dorsum sellae. Computed tomography (CT) revealed a homogeneous, enhancing, and isodense mass in the intra- and suprasellar region without any calcification. Magnetic resonance imaging (MRI) showed a solid mass with well defined margin. This mass was isointense on both T1 and T2 weighted images and homogeneously enhanced (Fig. 1). The preoperative diagnosis was pituitary macroadenoma.

A transsphenoidal rinoseptal approach was used. The floor of sellae and the dura matter were intact. The tumor had no pressure effect on chiasma optic. The tumor was a firm and brownish solid mass, which was entirely removed. Follow-up postoperative MRI showed no remnant mass (Fig. 2).

The specimen consisted of fragments of brownish soft tissue, with largest measuring was 2×1×0.5 cm. External surface was irregular. Sections showed a lesion compound spindle cell proliferation with dense nucleus and scanty cytoplasm with whorling pattern, which suggested meningioma (fibrous type) (Fig. 3).

Discussion

Diaphragma sellae meningiomas are rare lesions and may be hard to differ from pituitary adenomas (1). Kinjo et al in 1995 classified diaphragma sellae meningiomas according to site of origin into three types: Type A, originating from the upper leaf of the diaphragma sellae anterior to the pituitary stalk; Type B, originating from the upper leaf of the diaphragma sellae posterior to the pituitary stalk; and Type C, originating from the inferior leaf of the diaphragma sellae. Distinguish of Type C (intrasellar) meningiomas is difficult from pituitary adenomas (3).

The clinical manifestations of these tumors may be similar as well. Intrasellar meningioma similar to pituitary macroadenoma presented with symptoms caused by the compression of the optic nerve or pituitary gland. The main symptoms of intrasellar meningioma are visual field defects, visual disturbance, hypopituitarism, headache, and elevated prolactin (3). Similarly, our patient had headache and hyperprolactemia with visual field defects.

It is important to differentiate the intra- and suprasellar meningioma from the pituitary adenoma, because craniotomy is done for meningioma (4), whereas a trnssphenoidal route is preferred for most pituitary adenomas. Although, many authors prefer the transcranial approach for intrasellar meningiomas, Kinjo et al suggested the transcranial-transsphenoidal approach because of its wider exposure and safer hemostasis (3); and Jallo and Benjamin suggested a pterional craniotomy with microsurgical dissection of the sylvian fissure allows access to tuberculum sellae meningiomas with minimal neurological and ophthalmological morbidity (5).

Watanabe et al (1987), Nagao et al (1990), Abe et al (1999), Matsumoto et al (2001), and Pinzer et al (2004) reported the intra- and suprasellar meningioma (6-10). Our case was younger than these cases. In all of these cases, similar to our case, the pre-operatory diagnosis was pituitary adenoma, but after histopathological examination there were revealed to be meningiomas . Presentations of above cases approximately were panhypopituitarism or visual disturbances, similar our patient had chronic headache and hyperprolactemia with visual field defects. First surgical approach in all these cases, similar our case was transsphenoidal. We could resect the entire meningioma in first operation, whereas Nagao et al and Abe et al used the second operation (craniotomy) for total resection of tumor (7,8).

Deformation on plain X-ray films due to pituitary macroadenoma and meningioma is similar. These tumors can cause to enlargement of the sella turcica and destruction of the floor of the sellae (8). Even, enhancement characteristics of a pituitary adenoma

and a meningioma on CT and MRI may be similar (11). However, MRI with contrast can aid us in differentiating a sellae meningioma from a pituitary adenoma. There is heterogeneous, relatively poor enhancement in pituitary adenomas; whereas there is bright, homogeneous enhancement in meningiomas (12,13). Also, dural-based tail is a very important MRI finding in a meningioma (14). Thus, careful examination of enhanced, high quality, thin section sagittal or coronal MRI of parasellar region will allow the correct preoperative diagnosis in patient with any of these tumors (8). Additionally, using angiography can more helpful for distinguish between these tumors (15).

Conclusion

Although, Clinical observation, radiological and endocrinological findings of intrasellar meningioma are similar to pituitary macroadenoma, many authors believe that pre-operative distinguish of these tumors is necessary for selecting appropriated surgical approach. In this case, we could use transsphenoidal approach for resection of sellae meningioma.

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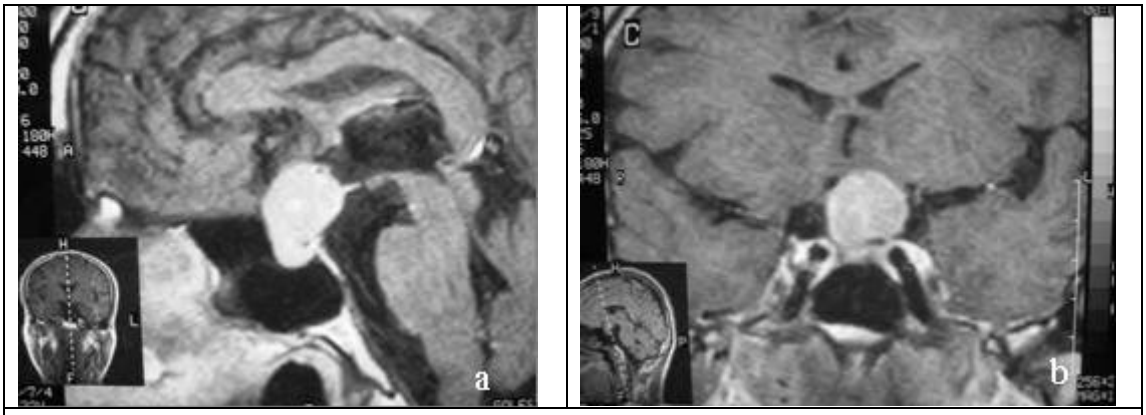

Figure 1: Preoperative MRI. Sagittal (a) and coronal (b) T1 weighted MRI with contrast show an isointense intra and and suprasellar mass. This mass had homogeneously enhanced.

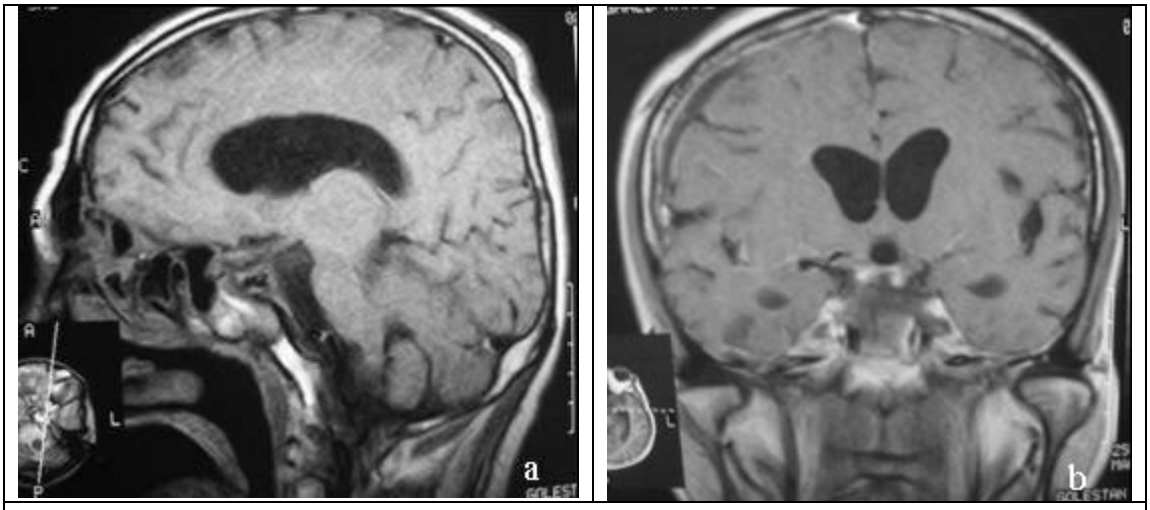

Figure 2: Postoperative MRI. Follow-up postoperative MRI showed no remnant mass.

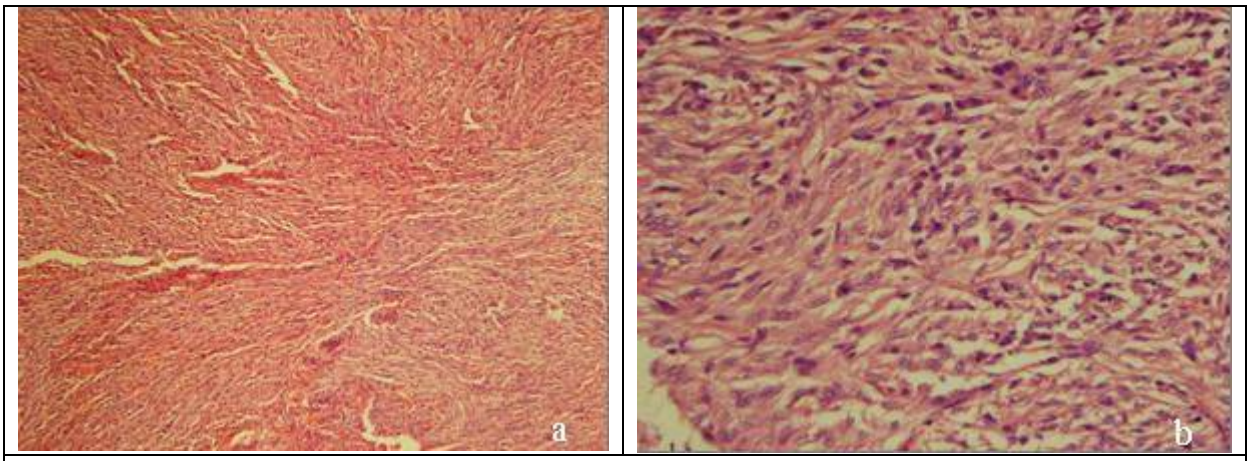

Figure 3: Pathological findings. Sections show compound spindle cell proliferation with dense nucleus and scanty cytoplasm with whorling pattern (H & E stain, 3.a ×100 and 3.b ×400).