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Large frontal lobe meningioma

Meningiomas are generally slow-growing brain tumors comprised of neoplastic arachnoidal cells arising from meninges. They comprise 13–26% of all primary intracranial tumors. Meningiomas have an annual incidence of 6 per 100,000 population and they are twice more common in female than in male population. Most of them are idiopatic and of unknown etiology (4).

Meningiomas can arise from the dura at any site, most commonly at the skull vault (about 20%), parasagital area (20%), the sphenoid wings (10%), suprasellar region (10%), the posterior cranial fossa (10%), intraventricular (5%), and at sites of dural reflection (3). About 10% of meningiomas arise in the spine, most often in the thoracic part (4).

Histological grading of meningiomas is based on the current WHO classification. The most numerous group is WHO grade I (about 90%) with generally benign clinical course and occasional mitotic figures. WHO grade II (5–7%) comprises atypical meningiomas and the last group (WHO grade III) comprises anaplastic cells (2).

Slow growth of meningioma allows gradual adaptation of the brain tissue thus tumors can achieve a significant size (3). Symptoms and neurological signs of elevated intracranial pressure could be due to the large size of meningioma or due to the oedema surrounding the tumor. Meningiomas commonly present with seizure disorders (27–67%), partial (37%) or generalized (60%). Large tumors in the posterior cranial fossa can cause obstructive hydrocephalus clinically present with an early-morning headache (4). Headache as well as cognitive disorders are the most common symptoms of meningiomas of lateral ventricles (1). Focal neurological deficits are generally related to the direct brain location, cranial nerve or spinal compression. In meningiomas arising in the anterior skull base, psychomotor symptoms and behavioral disturbances are predominant (4).

Cranial neuropathies causing visual disturbances, ophthalmoplegia or trigeminal aesthesia are also common. Progressive unilateral visual loss is a feature of meningiomas of optic-nerve sheath (4).

Brain or spine imaging with computed tomography (CT) and magnetic resonance imaging (MRI) is used to diagnose meningiomas. MRI is the preferred investigation of choice because it can show the dural origin in most cases. Meningioma is a well-defined, extra-axial mass which displaces the adjacent brain tissue (4).

The most common primary management of meningiomas is the surgical excision of the tumor and its dural base. The surgical morbidity decreased significantly during the last 20 years by 5–10% (3). Selective microcatheter embolisation of the meningeal arterial supply can be also a useful treatment method of meningiomas. Because of slow growth and low mitotic rate, radiotherapy does not have a wide application in meningioma treatment (4).

CASE DESCRIPTION

A 33-year-old female patient was admitted to the Department of Neurology because of a progressive visual disorder with gradual increase of headache over the past three months. Before this time, the patient reported no neurological symptoms. The most important feature of visual disturbances was a short-time (about 1 minute) visual loss of both eyes recently, appearing several times per day (from 3 to 8 times per day). The mild headache, localized mainly in the crown and in the forehead, accompanied by the visual loss, continued for one hour. The patient also reported deterioraton of the visual sharpness in the past two months, but glasses were not used. In the ophthalmoscopic view of the retina, bilateral oedema of optic discs was observed. There was no other neurological dysfunction. We have noticed no cognitive or mental disorders. The family history did not reveal an increased incidence of cancer, or brain tumors.

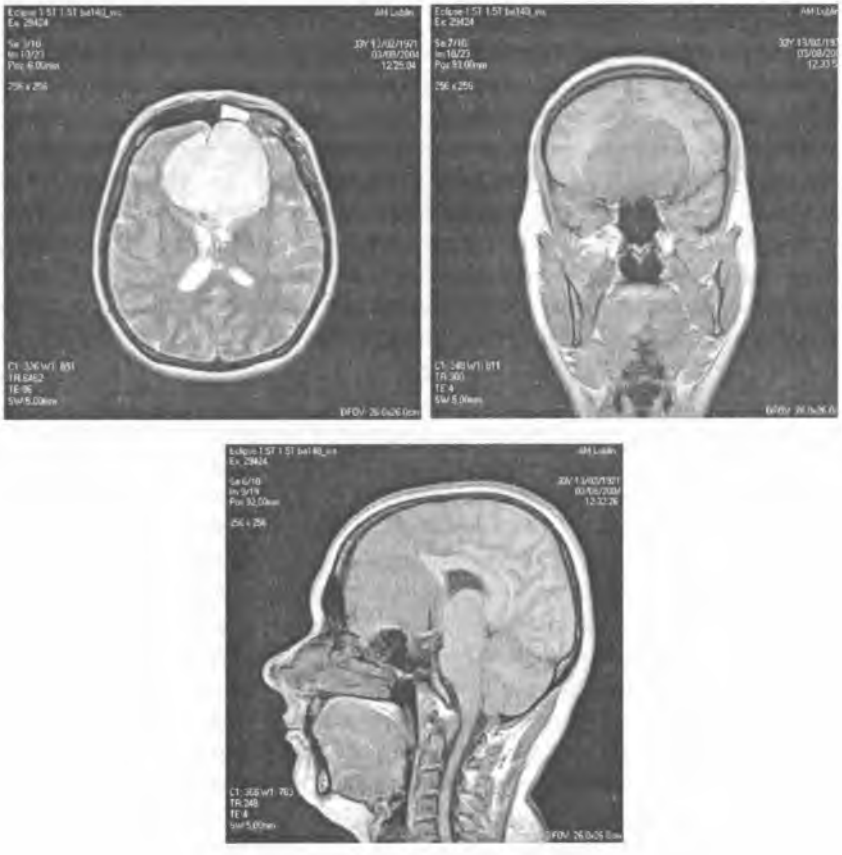

Fig. 1. The described meningioma in T2 and T1 MRI scans

An MRI scan (Picker Eclipse 1,5 T) revealed one large, well-defined mass leasion, with central localization in the frontal area, affecting both frontal lobes with typical features of meningioma. Peritumoral oedema was not observed. The size of the leasion reached 6 cm in all dimensions. Optic

chiasma region was thick, anterior part of Willis's circle was moved backwards and under the tumor. Intravenous injections of paramagnetic revealed intensive enhancement within the meningioma.

The patient was referred to the Neurosurgical Department for a surgical excision. A histopathological investigation confirmed the diagnosis of meningioma. During the follow-up visit 2 months after the surgery no neurological dysfunction was observed.

DISCUSSION AND CONCLUSIONS

Slow growth of meningiomas (for many years except rapidly growing benign meningiomas) allows gradual adaptation of the brain tissue, therefore the first symptoms often appear a few months before admitting to hospital. In this case we showed a large meningioma affecting frontal lobes. The onset of visual loss and headache was three months prior to the diagnosis of meningioma. Because the tumor developed into both frontal lobes, the patient reported visual disturbances in both eyes. We also noticed bilateral oedema of optic discs and an impairment of visual sharpness. Despite frontal localization of the meningioma we did not observe any psychomotor symptoms or behavioral disturbance. Seizures were not present, either.

This case shows that a large meningioma of frontal lobes can give very late and not characteristic neurological symptoms.

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SUMMARY

Meningiomas comprise 13–26% of all primary intracranial tumors. The paper describes a 33-year-old female patient's case with a large meningioma (6 cm in all dimensions) localized in frontal lobes without an oedema zone surrounding the tumor revealed in an MRI scan. Neurological symptoms were only short-time (about 1 minute) visual losses of both eyes appearing several times per day with an accompanied mild headache. The onset of symptoms was about 3 months before admitting to hospital. Neurological examination revealed bilateral oedema of optic discs in ophthalmoscopy. The patient was referred to the Neurosurgical Department for further treatment. During the follow-up visit 2 months after surgery no neurological dysfunction was observed.

Duży oponiak płatów czołowych

Od 13 do 26% wszystkich pierwotnych guzów wewnątrzczaszkowych stanowią oponiaki. Niniejszy opis przedstawia przypadek kliniczny 33-letniej pacjentki z dużym oponiakiem (około 6 cm we wszystkich wymiarach), zlokalizowanym w obu płatach czołowych bez strefy obrzęku otaczającej zwykle guzy wewnątrzczaszkowe. Objawami neurologicznymi były jedynie krótkotrwałe (trwające

około 1 minuty) epizody obuocznej utraty wzroku, pojawiające się kilkakrotnie w ciągu dnia z towarzyszącym im bólem głowy. Dolegliwości rozpoczęły się trzy miesiące przed przyjęciem do szpitala. Badanie neurologiczne ujawniło jedynie obustronny obrzęk tarczy nerwu wzrokowego. Pacjentka została poddana zabiegowi neurochirurgicznego usunięcia guza. Podczas wizyty kontrolnej w dwa miesiące po zabiegu nie zaobserwowano żadnych odchyleń od stanu prawidłowego.