

Intracranial Meningioma and Cerebral Infarction

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Abstract : The ischaemic phenomenon can be seen in patients with meningioma. In this study, six patients, all with cerebral infarction and intracranial meningioma are reported. Although there

are several possibilities, the mechanism of the association remains unclear.

Key Words : Cerebral infarction, Meningioma.

INTRODUCTION

In patients with intracranial tumours, temporary motor and sensory deficits like transient ischaemic attacks have been reported as well as cerebral infarction(2,3,4,5). Narrowing or occlusion of vascular structures, cerebral steal or blood flow variation and intermittent uncal herniation have been claimed to be responsible , but they could occur coincidentally.

Clinical Material : Six cases were admitted to hospital with clinical signs of stroke and computed tomography (CT) findings of infarction associated with cerebral tumour. Two patients had a history of transient ischaemic attack-like temporary disorders, whereas the others had no specific symptoms previously. Following clinical examination, CT, routine laboratory studies, electrocardiography, bilateral carotid doppler ultrasonography and cerebral angiography were performed in all patients except one.

Clinical and radiological data of the cases is shown in Table I. Radiological features of cases 2, 5 and 6 are shown in Figures 1a, b and c. Two patients (nos 1, 5) had hypertension and one (no 6) had cardiac disease. In two (no 5,6) electrocardiographic variations were detected. In addition, in one case (no 1) bilateral 50 percent stenosis and in case no 5 stenosis and ulceration of the cervical internal carotid

artery in carotid doppler ultrasonography were shown. The sixth case died before operation. In the other 5 cases, the diagnosis of meningioma was histopathologically verified as; 3 cases meningotheial, 1 psammomatous and 1 fibroblastic type.

DISCUSSION

A stroke-like clinical picture is often seen with gliomas and metastatic tumours (9,10), but supratentorial meningiomas are tumours which usually cause intermittent cerebral deficits which are explained by cerebral steal, intermittent uncal herniation, spreading cortical depression or coincidental cerebrovascular disease(5,8). Weisberg(10) detected mass lesions in 15 percent of transient ischaemic attack-like cases.

Three patients had high blood pressure and/or cardiac disease and in two of them, electrocardiographic variations and extracranial carotid disease findings with doppler ultrasonography were detected. With these extracranial pathological signs that can cause cerebral infarction, it is highly possible that meningioma and infarction had occurred coincidentally. The diagnosis of meningioma particularly in aged people, has increased due to advances in neuroradiological methods (1,7). Since stroke is also a disease of the elderly it seems natural to detect these two pathological conditions together

Table I. Clinical and radiological features of cases.

Case No	Age-Sex	Presentation	Location of tumour	Location of infarct	Angiography
1	61-F	Right hemiparesis " hemihypoesthesia	Right parietal	Left PCA distribution	Cervical ICA stenosis
2	46-M	Aphasia, right hemiplegia	Olfactory groove	Left internal capsula, periventricular right caudate nucleus	Fusiform aneurysm of right MCA
3	56-M	Left hemiplegia	Right parasagittal	Right PCA distribution	Nonspecific for infarct
4	44-M	Right hemiplegia	Right parasagittal	Left internal capsula and periventricular	Nonspecific for infarct
5	58-M	Left hemiparesis, dysphasia	Olfactory groove	Right internal capsula, periventricular	Stenosis of intracranial part of right ICA, occlusion of right MCA
6	58-F	Left hemiparesis	Right parietal	Right MCA distribution and left frontoparietal	-

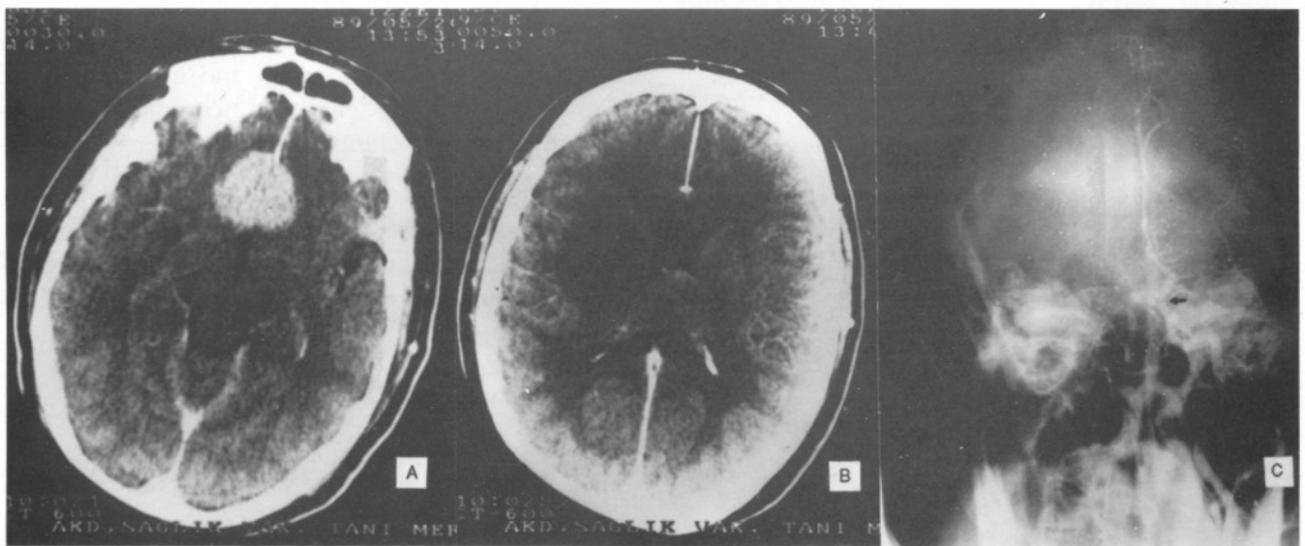


Fig 1 a and b; CT scans of case 2 showing tumour and infarction. c; angiography of case 2 showing fusiform aneurysm of right middle cerebral artery. No pathological finding in left carotid angiography.

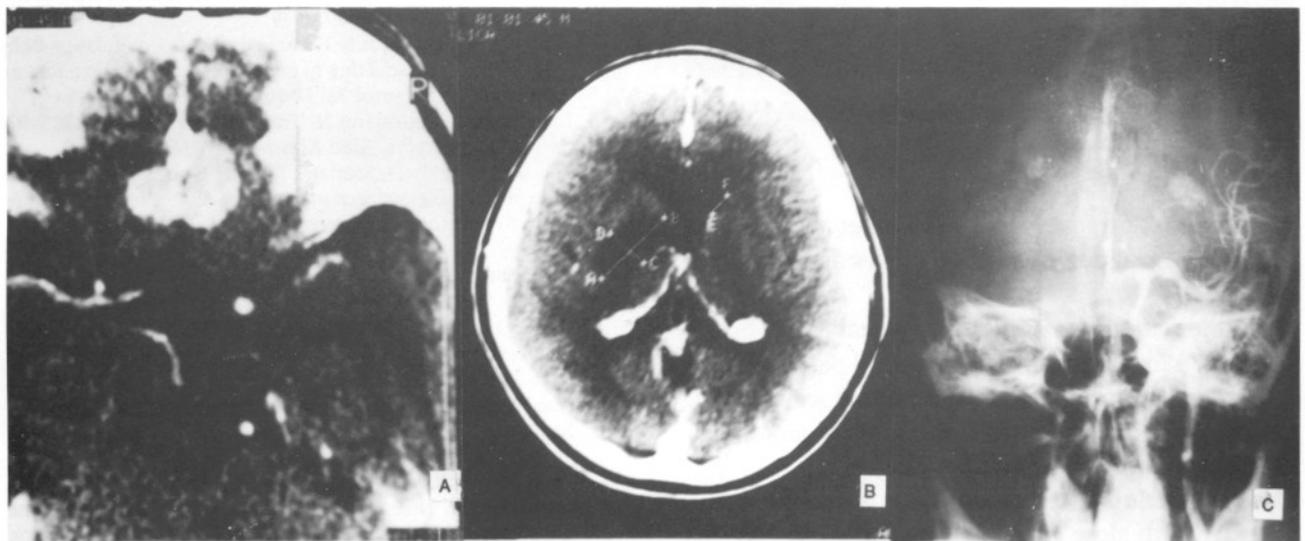


Fig 2 a and b; CT scans of case 5 showing meningioma and right internal capsula and periventricular infarction. c; angiography of case 5 showing stenosis of intracranial part of right internal carotid artery and occlusion of right middle cerebral artery.

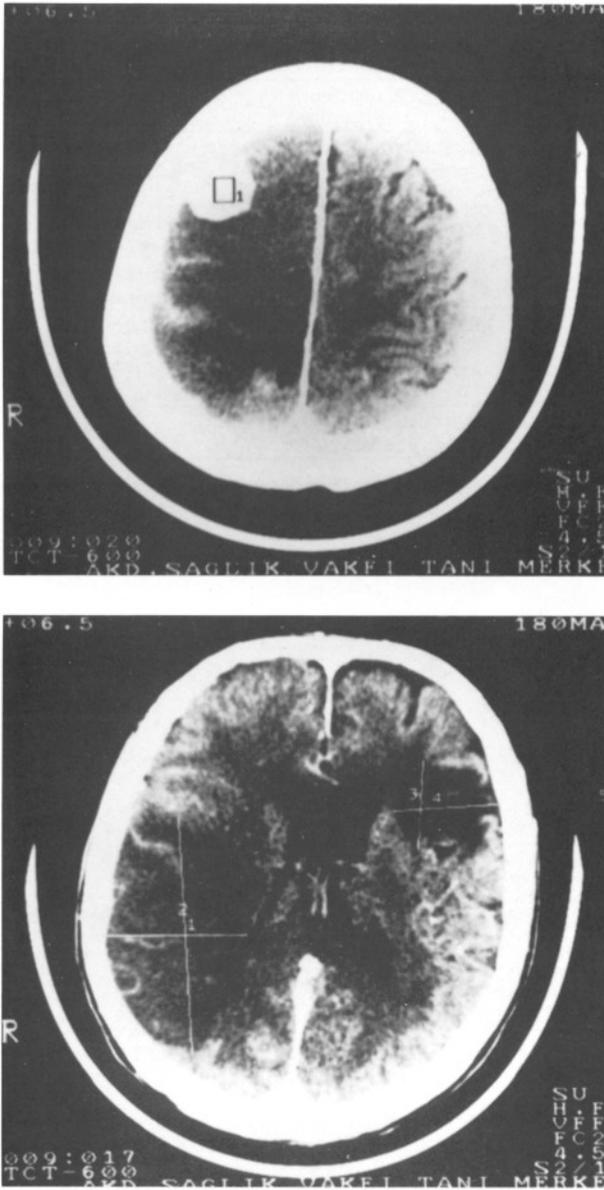


Fig 3 a and b; CT scans of case 6. This case was considered to be meningioma according to CT pattern.

with increased frequency. But Awad et al (1) did not find this association in any of 75 cases aged ones 60.

In the patient no 5, middle cerebral artery occlusion and narrowing of the intracranial part of the internal carotid artery were observed angiographically. Launay et al (4) reported 12 meningioma cases presenting arterial narrowing and occlusion. Occlusive arteriopathies particularly seem to occur together with slow growing tumours located at the skull base (6). This arterial narrowing is thought to

be a result of arterial kink or compression and traction (4).

In the other olfactory groove meningioma case (no 2) a right middle cerebral artery fusiform aneurysm was detected on angiography. No obvious vasospasm on angiography nor bleeding during operation could be discovered.

In one of the two cases with tumours located parasagittally, the infarction was at the contralateral hemisphere probably with coincidental association. However in case no 4 no pathology that might cause infarction could be detected. In case no 3, the tumour and the infarction were located in the same hemisphere and the infarction was at the distribution of the posterior cerebral artery. Ross (8) reported that occipital lobe ischaemia and infarction could develop by intermittent uncal herniation and compression of the posterior cerebral artery over the tentorial edge.

Though the mechanism has not yet been explained completely, it is thought that meningiomas could cause ischaemic symptoms. Mortality and morbidity increase if ischaemic complications are added.

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