INTRAVENTRICULAR MENINGIOMA
Report of two cases

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SUMMARY
Intraventricular meningiomas are rare tumors consisting only 0,5-2 % of all intracranial meningiomas. Although they may not cause any symptom for a long period of time, CT scan has considerably eliminated diagnostic problems.

In this paper, we present two cases with lateral ventricle meningiomas and discuss their current management.

Key Words: Meningioma, Intraventricular meningioma, Computerized tomography.

INTRODUCTION
Intracranial meningiomas consist of 13 to 18 % of all intracranial tumors (1,4). Lateral ventricle localization is only 0,5-2 % among intracranial meningiomas (1,5,6). In the medical literature, there are only few reports on this rare condition, mostly concerning diognostic problems and discussing various surgical approaches because of high surgical mortality rates. Their diagnosis has become considerably easier with the aid of Computerized Tomograph (CT) and satisfactory results are obtained using microsurgical techniques.

In this paper we report two cases with lateral ventricle meningiomas which were diagnosed and operated on in our clinic between the years of 1986 and 1989.

CASE REPORT
Case 1: A 24-year old female patient was admitted to our clinic complaining about severe headache. Her neurological examination was in the normal range. CT scan revealed a hyperdense mass of 88 HU, placed at the trigonum of the right lateral ventricle with a mean diameter of 3,5 cm. Calcified foci were present within the mass and contrast material enhancement was detected (Fig. 1a). She was operated on with the probable clinical diagnosis being intraventricular meningioma. Following right parietooccipital craniotomy, the right lateral ventricle was reached via a cortical incision. The tumor had originated from the choroid plexus and its feeding vessels were coagulated and dissected using appropriate microsurgical technique. Thereafter the tumoral mass which remained free within the ventricle was totally removed. Her postoperative period was uneventful and the CT scan obtained in the second postoperative month was in the normal range (Fig. 1b). The patient had no complaint during the follow up period of six months and had no neurological deficit.

Case 2: A 60-year-old female patient, with a history of Parkinson's disease for 5 years, was admitted to our neurosurgical clinic complaining of severe headache which had increased during the last two months. Her neurological examination was normal except for moderate Parkinsonian findings such as mild rigidity and tremor. CT scan disclosed a 84 HU right ventricular mass of 4 cm in diameter, located at the trigonum (Fig. 2a). Also, calcified foci and contrast enhancement were detected. Following cortical incision and lateral ventricle exploration, the mass was totally excised using microsurgical technique (Figs 2b-2c). Her last neurological examination held one year after the operation, revealed no neurological finding other than those related to Parkinson's disease, with a normal control CT scan (Fig. 2d).

DISCUSSION
Lateral ventricle meningiomas consist 0,5 to 2 % of all intracranial meningiomas and 9,3 % of all lateral ventricle localized tumors (1,3,7). This rate is much higher in the pediatric age group (7). Between the years of 1986 and 1989, 32 intracranial meningiomas were operated on in our clinic and intraventricular meningiomas make up 6,2 % of all.

As for other types of meningiomas, a 2/1 ratio of female sexual dominance is also valid for lateral ventricle meningiomas (2,5,8). Both of our patients were female, being in accordance with the literature.

Although 58 to 60 % of previously reported intraventricular meningiomas were placed in the left lateral ventricle without any known reason, in both of our patients the tumor was located on the right side. In the lateral ventricle they are usually localized at the atrium or trigonum, latter being noticed in our patients (1,2,5).

Lateral ventricle meningiomas arise from the choroid plexus. According to Mani (6), these tumors originate from arachnoid cells invaginated into the choroid plexus and ventricular system. On the contrary, Wannamaker (4) claimed that intraventricular meningiomas originate directly from the stroma of choroid plexus.

There is no specific clinical sign for lateral ventricle meningiomas. They may not cause any symptom for a long period of time unless they obliterate the ventricular passage. Fornari (1) classified the symptoms as permanent and transient, and suggested that intermittent obstruction of CSF pathways is the cause of transient symptoms. The most common complaint is headache and it was the only symptom present in our cases. Visual field constriction, epileptic fits, contralateral motor and sensory deficit or personality change may also be encountered to a less extent (5).

Accuracy rates of various neuroradiological methods used in the Pre-CT era were considerably low, being not more than 47 % for cerebral angiography (1). The diagnostic value of CT is 100 % (1,5). Despite the CT detected calcification rate of 1/3 which was reported by Fornari (1), both of our patients had obvious calcifications determined by using the bone window of the CT scanner. Although angiographic examination following CT scan was proposed by Mani (6) and Fornari (1), we claim that angiography is not needed in order to visualize the vascular bed of these tumors arising from the choroid plexus. In both of our cases we detected the choroid plexus on the tumor surface and easily coagulated the feeding vessels.

A cortical incision, 3 to 4 cm away from the interhemispheric fissure was proposed by Guidetti (5) in order to prevent damage to the optic radiation in masses localized at the trigonum. This route was used in both of our patients and tumors were removed completely. In his series Fornari (1) reported that all cases died following en bloc excision and therefore advocated division of the mass to smaller pieces within the ventricle. Because of our concern about causing seeding implantations into the ventricle and due to their moderate size, we preferred en bloc excision of tumors in our cases. As there is a well known risk of causing cortical damage by excessive traction in giant tumors, we suggest that intracapsular evacuation will be the appropriate surgical approach.

According to the current literature, there is a 0-22 % mortality rate following surgery for lateral ventricle meningiomas. Both of our patients were alive after 6 and 12 months with their neurological examinations and control CT scans being in the normal range.

We conclude that, CT scan has a high diagnostic value in cases with this rare kind of meningioma and that surgery should be preferred in the therapeutical approach.

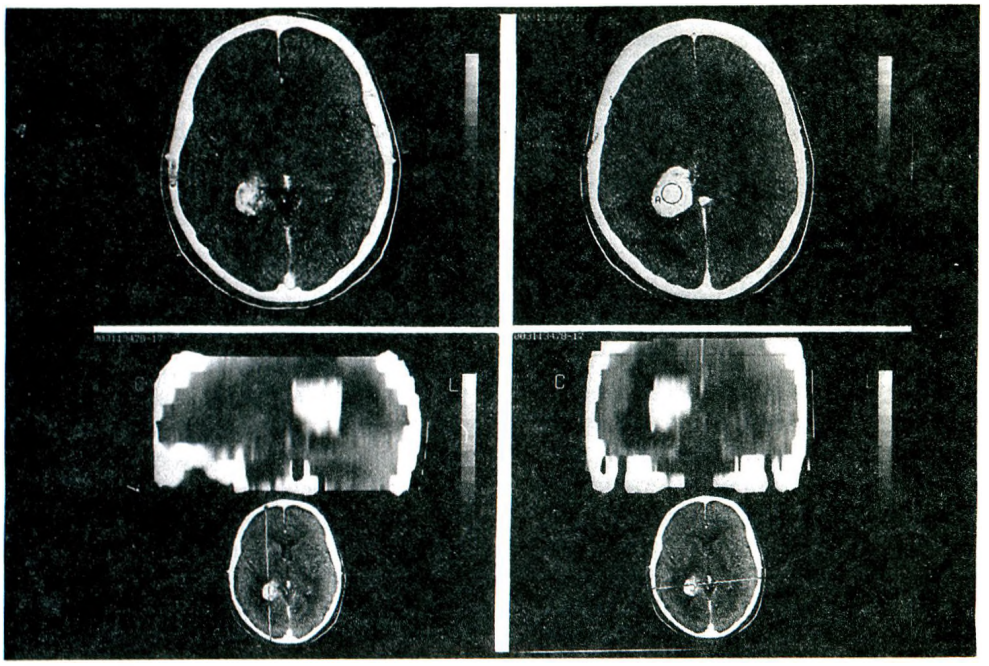

Fig. 1a: CT scanner of Case 1 revealed a hyperdense mass with multiple calcifications and marked enhancement within the atrium of right lateral ventricle.

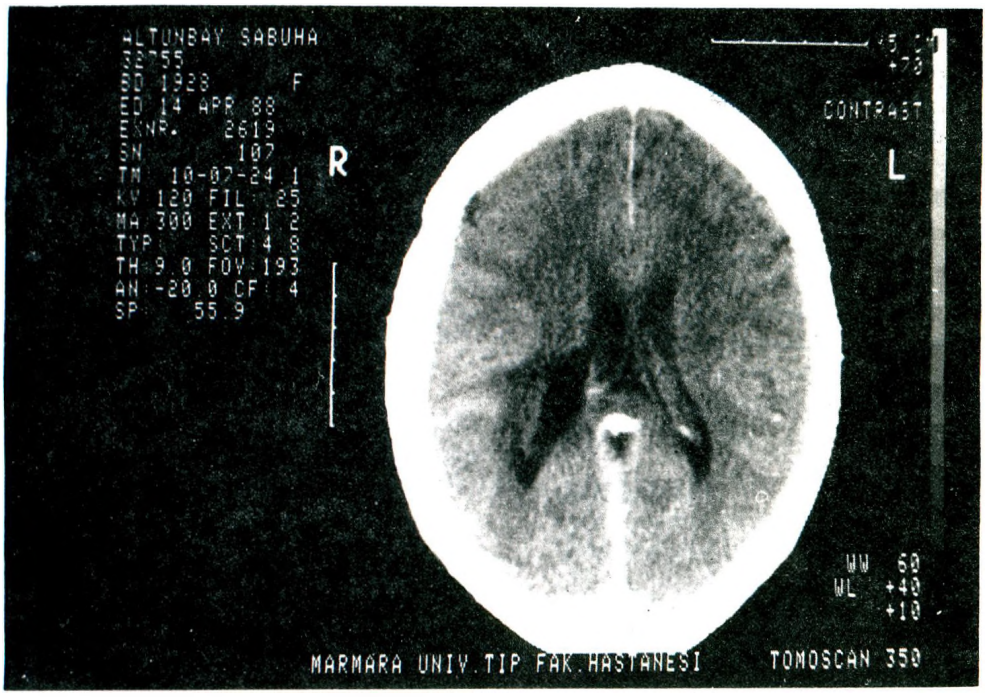

Fig. 1b: Postoperative CT scanner of Case 1 revealed total resection of the right intraventricular tumor. Slight atrophy of the operative area is evident.

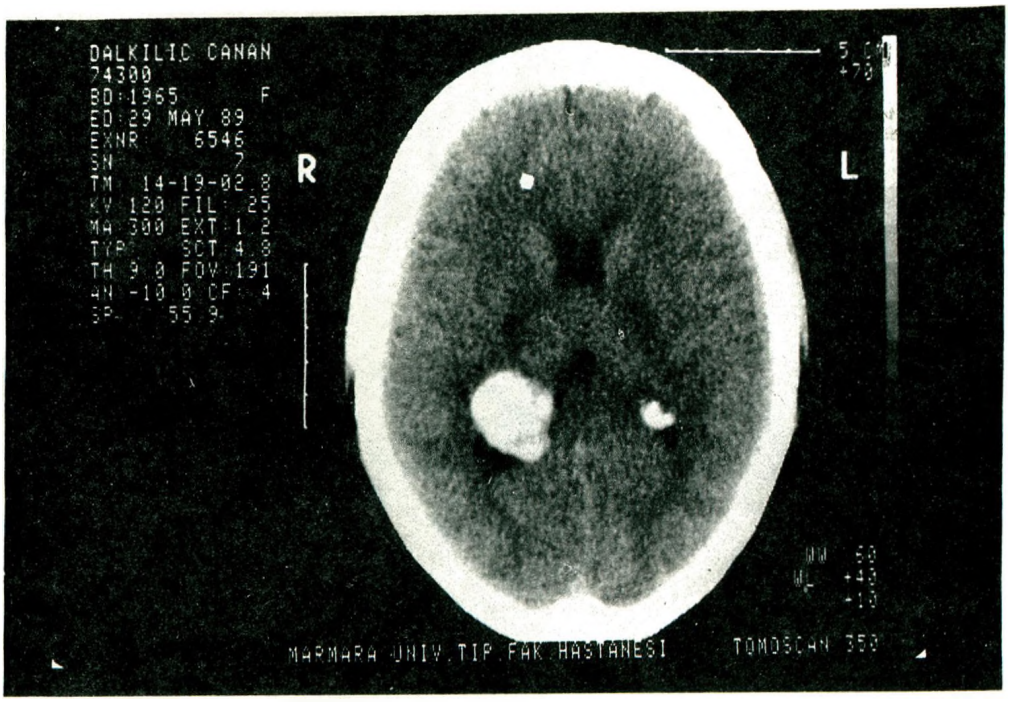

Fig. 2a: The CT scanner of Case 2 also revealed a hyperdense mass.

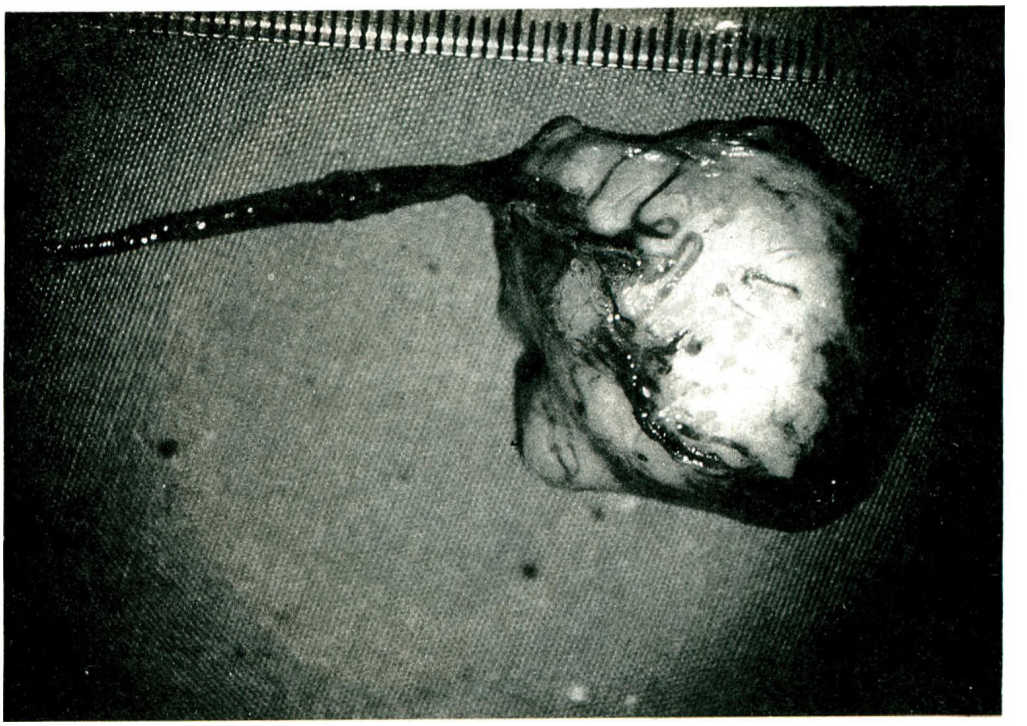

Fig. 2b: Macroscopical appearence of the tumor in Case 2 revealed a solid encapsulated mass with very close relationship of tumor and choroid plexus.

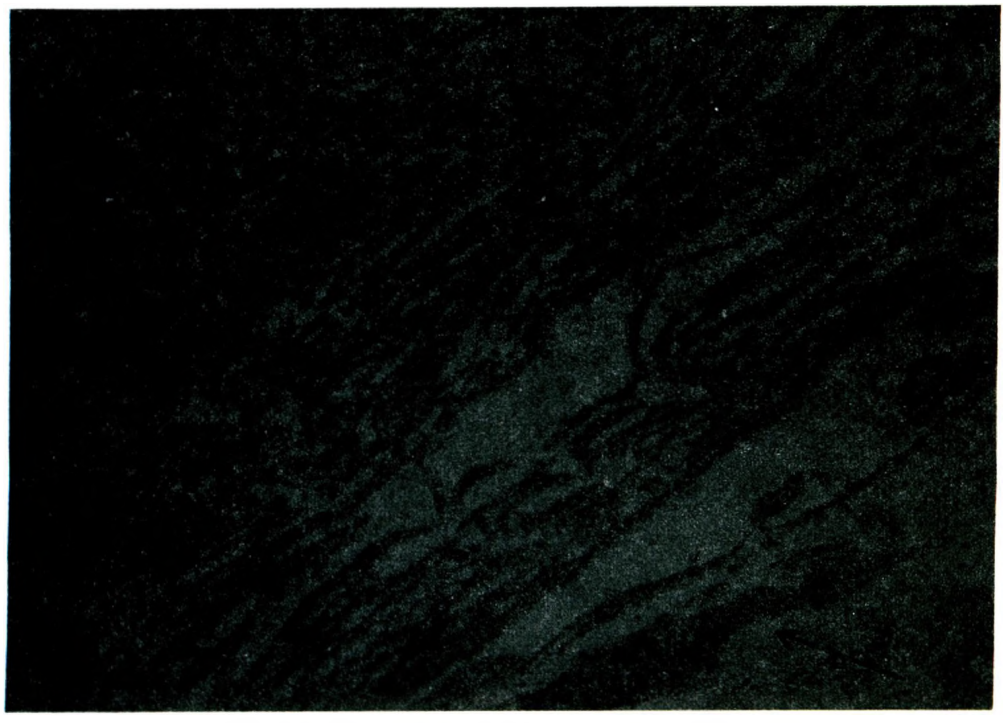

Fig. 2c: Histopathological examination of the same tumor revealed fibroblastic meningioma under well differentiated capsula and closely placed choroid plexus on the tumor. (HE×100)

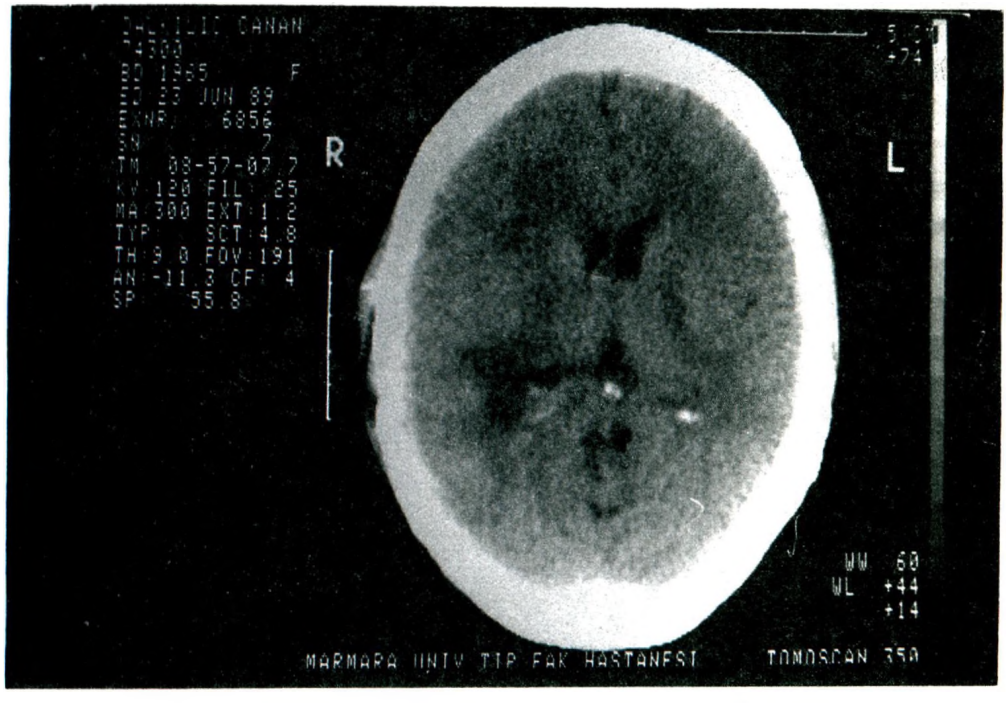

Fig. 2d: Postoperative CT scanner of the same case revealed a total resection.

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