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Case Report

Central Nervous System Lipomas

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Kiymaz, N. and Cirak, B. *Central Nervous System Lipomas.* Tohoku J. Exp. Med., 2002, **198** (3), 203-206 —— The lipomas of the central nervous system are rare lesions of congenital origin and are located in the medial line and especially in corpus callosum. Intramedullary spinal lipomas can be seen in the life span of 30 years of age and most frequently coincide with initial puberty period. Magnetic resonance imaging and computerized tomography together with clinical trials are of crucial importance for diagnosis. The first case: A two-year-aged girl who had lipoma in quadrigeminal cistern and who suffered from encephalocraniocutaneous lipomatosis has been clinically studied. The fascial lipoma of the patient has been excised subtotally by the Plastic Surgeons; then the patient has underwent supracerebellar infratentorial operation where the intracranial lipoma has been excised by our team. The histopathology has been reported to be consisting of peripheric nerve tissue and calcification. The second case: A twenty-year-aged man with intramedullary lipoma localized between T1-T4 has been given our clinical trials. T1-T5 total laminectomy and subtotal excision were made for this patient. Due to the fact that the lipomas of central nervous system are rarely seen and are involved in nervous and calcific tissues except for fatty tissues they can be mistaken for hamartomatous masses. The total excision of the lipomas of central nervous system and especially the spinal intramedullary lipomas are quite difficult to be excised since they are tightly entangled with the neural tissue. So any attempt for total excision would be dangerous. Operation for decompression and biopsy is of primary concern.
—— intracranial lipoma; intramedullary lipoma; surgery

The lipomas of Central Nervous System (CNS) are rarely encountered lesions of congenital origin. They rather originate from a developmental disorder in mesodermal germ plaque beneath leptomenings and neural tissue during the early phase of pregnancy (Ammerman et al. 1976). The intracranial lipomas are frequently localized in medial line

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and especially corpus callosum. The other localizations are spinal cord, midbrain tectum, superior vermis, tuber cinereum, infundibulum and much rarely pontocerebellar angle, hypothalamus, superior medullary velum and incula (Gouvea et al. 1989; Graham 1996). Intracranial lipomas are considered to be the brain tumors rarely seen, and their incidence is 0.06–0.3 (Graham 1996). Half of all intracranial lipomas are asymptomatic. These lipomas can manifest themselves till thirty years of age and frequently coincide with the early puberty. They are most commonly localized in thoracic region and then cervical region (Kannuki et al. 1986; Medjek et al. 1992). Paraphresia, sensory disturbance, pain and urine incontinence in lower level locations are symptoms most commonly observed (Medjek et al. 1992; Mrabet et al. 1992). Magnetic resonance imaging (MRI) with computerized tomography (CT) and clinical tests are of greater prominence for the diagnosis (Turpin and Raux 1975; Medjek et al. 1992).

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The first case; A two-year-aged girl who posessed a lipoma in quadrigeminal cistern and who was diagnosed to be encephalocraniocutaneous lipomatosis has been the focus of our clinical concern. This patient has initially refered to the Department of Plastic and Reconstructive Surgery for asymmetry due to lipomatic mass in her face; where the fascial lipoma was subtotally excised. An intracranial lipoma has been observed in quadrigeminal cistern during CT tests and routine cranial examinations of the patient (Fig. 1). An operation was decided due to the growth of the mass which was observed in control MRI a year later. Intracranial lipoma was totally excised with a supracerebellar infratentorial operation. The histopathologic appearance was reported to be consisting of peripferal nerve tissue and fatty tissue containing of calcification (Fig. 2).

The second case; A twenty-years-aged man refered to our clinic for his progressive failure in walking for the last six mounts. In the neurologic examination of this patient who had urine incontinence, paraphresia to the progressive degrees in the lower extremities, a remarkable sense of loss beneath T1 level were determined. In thoracal MRI examinations a lipoma was observed. It was an intramedullary lipoma

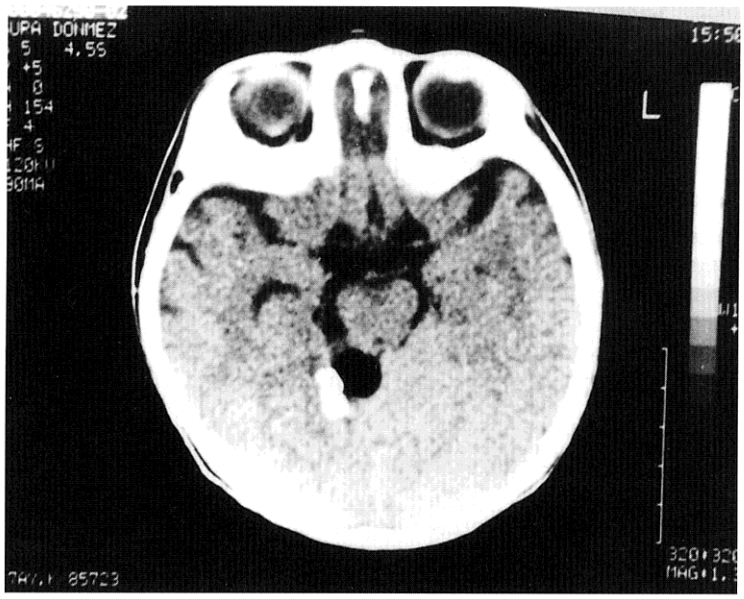

Fig. 1. Axial CT scan of the brain showing the intracranial lipoma which consists calcification.

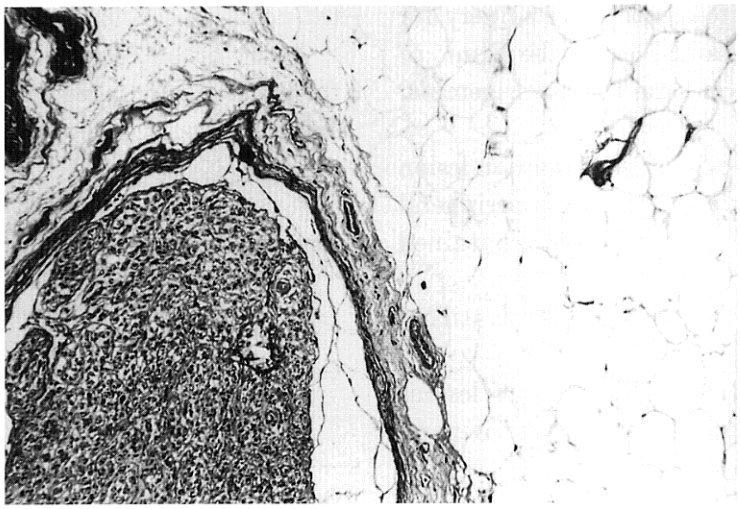

Fig. 2. The histopathological appearence of lipoma which consists peripheric nerve and fatt tissue.

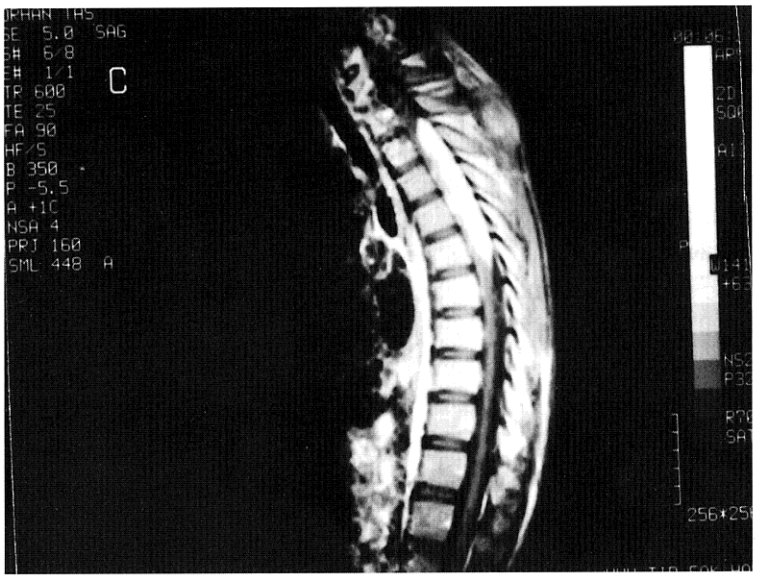

Fig. 3. Thoracal sagittal T1 weighted MRI showing intramedullary lipoma.

localized between T1-T4 (Fig. 3). The patient underwent T1-T5 total laminectomy and subtotal intramedullary lipoma excision. No improvement was observed in his postoperative findings. With the recomendations of the Department of Physical Treatment and Rehabilitation he was discharged.

Discussion

Although rare, lipomas in the CNS can have different cranial and spinal localizations. Intracranial lipomas are usually localized in the medial line but must frequently in and around corpus callosum.

Our first case was identified to have such a lipoma of medial line location a relatively rare localizing area which is in quadrigeminal cistern. Encephalocraniocutaneous lipomatosis is rarely seen in the related literature and is likely an anomaly of congenital origin.

The capsula and the surrounding cerebral tissue in intracranial lipomas often reflect calcifications (Parazzini et al. 1999). The first patient was initially operated in the Depart-

ment of Plastic and Reconstructive surgery for the mass on her face and then in the Clinic of Neurosurgery for the mass in the quedrigeminal cistern.

The histopathology of intracranial lesion was determined as consisting of peripheral nerve tissue and fatty tissue contained calsification.

The outcome of both of these operational trials was quite well.

Spinal intramedullary lipomas are lesions which cause neurological deficits like a paraplegia and incontinence.

The most common localizing area of intramedullary lipomas is thoracal region (Kannuki et al. 1986; Medjek et al. 1992). Total excision is difficult for they are tightly adjacent to the neural tissue. The advisable treatment is decompressive subtotal excision and biopsy (Kannuki et al. 1986).

In the second case of our study progressive paraphresia, urine incontinence and a leveled sense failure were evident. We hold that the best method of the diagnosis for spinal lipomas is MRI (Medjek et al. 1992; Mrabet et al. 1992). So in the thoracal examination of the patient's MRI an intramedullary lipoma was determined between T1-T4.

A total laminectomy and subtotal mass excision between T1-T5 were conducted on the patient and then a biopsy was made.

No change was observed postoperatively. But in the control examinations of our patient the existed neurological deficits have not been observed to be progressive. Our suggestion is that early operations should not be conducted till neurological findings become evident.

The probable deficits could be avoided if these criteria are taken into consideration (Pang 1995; Parazzini et al. 1999).

References

Ammerman, B.J., Henry, J.M., De Girolami, U. & Earle, K.M. (1976) Intradural lipomas of the spinal cord. A clinicopathological correlation. *J. Neurosurg.*, **44**, 331-336.

Gouvea, V.M., Hahn, M.D. & Chimelli, L. (1989) Lipoma of the midbrain. Post-mortem finding in apatient with breast cancer. *Arq. Neuropsiquiatr.*, **47**, 371-374.

Graham, D.G. (1996) Lipoma of thr corpus callosum. In: *Neurosurgery*, edited by R.H. Wilkins & S.S. Rengachary, New York, McGraw-Hill Componies, pp. 1745-1749.

Kannuki, S., Okajima, K., Sato, K., Kusaka, K. & Matsumoto, K. (1986) Intracranial lipoma of the temporal lobe. *No Shinkei. Geka.*, **14**, (Suppl. 3), 379-384.

Medjek, L., Adjmi, M. & Hammoum, S. (1992) Intradural spinal cord lipoma. Apropos of 2 cases. *J. Radiol.*, **73**(12), 653-656.

Mrabet, A., Zouari, R., Mouelhi, T., Khouaja, F., Ghariani, M.T., Hila, A. & Haddad, A. (1992) Cervicobulbar intramedullary lipoma. *Neurochirurgie*, **38**, 309-314.

Turpin, J. & Raux, E. (1975) Pronostic du lipome du Corps Calleux de I'enfont et de I'adolescent. *Pediatrics*, **30**, 513-524.

Parazzini, C., Triulzi, F., Russo, G., Mastrangelo, M. & Scotti, G. (1999) Encephalocraniocutaneous lipomatosis: Complete neuroradiologic evaluation and follow-up two cases. AJNR. *Am. J. Neuroradiol.*, **20**, 173-176.

Pang, D. (1995) Spinal cord lipomas. In: *Disorders of the Pediatric Spine*, edited by D. Pang, Raven Press, New York, pp. 175-202.