

LIPOMA OF THE MIDBRAIN

POST-MORTEM FINDING IN A PATIENT WITH BREAST CANCER

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SUMMARY — Intracranial lipomas are rare, usually do not have clinical expression and are located more frequently in the corpus callosum. Other locations include the spinal cord, midbrain tectum, superior vermis, tuber cinereum, infundibulum and more rarely cerebello-pontine angle, hypothalamus, superior medullary velum and insula. We report the case of a lipoma of the left inferior colliculus which was a post-mortem finding in a woman who died of breast cancer. Although there are reports of intracranial lipomas in patients with malignant tumors there is no explanation for the co-existence of the two tumors. The present tumor also includes a segment of a nerve which is not uncommon, but a less common finding was the presence of nests of Schwann cells within it, shown by immunohistochemistry.

Lipoma do mesencéfalo: achado de necrópsia em paciente com câncer da mama.

RESUMO — Lipomas intracranianos são raros, em geral sem expressão clínica, localizados mais freqüentemente no corpo caloso. Outras localizações incluem medula espinhal, teto mesencefálico, vermis superior, tuber cinereum, infundibulum e mais raramente o ângulo ponto-cerebelar, hipotálamo, véu medular superior e insula. Relatamos o achado de necrópsia de um lipoma do colículo inferior esquerdo em uma mulher com câncer de mama. Embora haja relatos de lipomas intracranianos em pacientes com tumores malignos não há explicação para a co-existência dos dois tumores. O presente tumor também inclui o segmento de um nervo, o que não é incomum, mas um achado menos comum foi a presença de ninhos de células de Schwann no tumor, mostradas por imuno-histoquímica.

Lipomas are benign tumors which can rarely involve the central nervous system (CNS), the incidence not exceeding 0,5% of all the intracranial tumors^{1,9}. The intracranial lipomas are usually small, well circumscribed¹⁴ and have any age or sex predominance³ except for the spinal lipomas which predominate in children and young adults⁵. They are located more frequently in the corpus callosum^{14,15}, tuber cinereum¹⁴, infundibulum¹⁴, quadrigeminal plate^{3,6,14} and cisterna ambiens. In the last location the lesion may lie on the midbrain tectum and the superior vermis^{3,10}. It can also be found within the substance of the brainstem and cerebellum¹³ and more rarely in the cerebellopontine angle^{3,4}, hypothalamus³, superior medullary velum⁷ and insula⁸.

In the present paper we report the case of a lipoma found in the left inferior colliculus of a woman who died with a breast cancer and multiple metastases. The presence of intracranial lipoma and carcinoma elsewhere in the body has occasionally been described^{2,3,14}. We emphasize the presence of Schwann cells dispersed through the tumor which were shown by immunoperoxidase technique.

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CASE REPORT

HFS, a black female, aged 46 years was admitted to the hospital in January 1987 with pathologic fracture of the left humerus due to bone metastasis from an infiltrating ductal carcinoma of the left breast. The patient coursed with vomits, abdominal distension and died one month later. No neurological or ocular symptoms were described in the clinical history. Laboratory data showed no evidence of neurological disorder. Post-mortem examination showed a large tumor in the left breast (infiltrating ductal carcinoma) with metastases to the liver, peritoneum, epiploon, pleura and left humerus.

Neuropathological findings — Macroscopy: The unfixed brain weighed 1250 g. Leptomeninges were thin and transparent. There was slight atrophy of the frontal gyri. Basal vessels were normal. On sections the brain and the cerebellum were unremarkable. Transverse sections of the brainstem showed a yellow nodular lesion at the level of the left inferior colliculus measuring 0.5cm in diameter (Fig. 1). No metastatic lesion was found in the CNS. **Microscopy:** Histologic examination of the midbrain showed that the yellow nodule observed macroscopically was a benign tumor consisting of mature adipose cells separated from the nervous tissue by a fibrous capsule (Fig. 1). The tumor included a nerve bundle and some

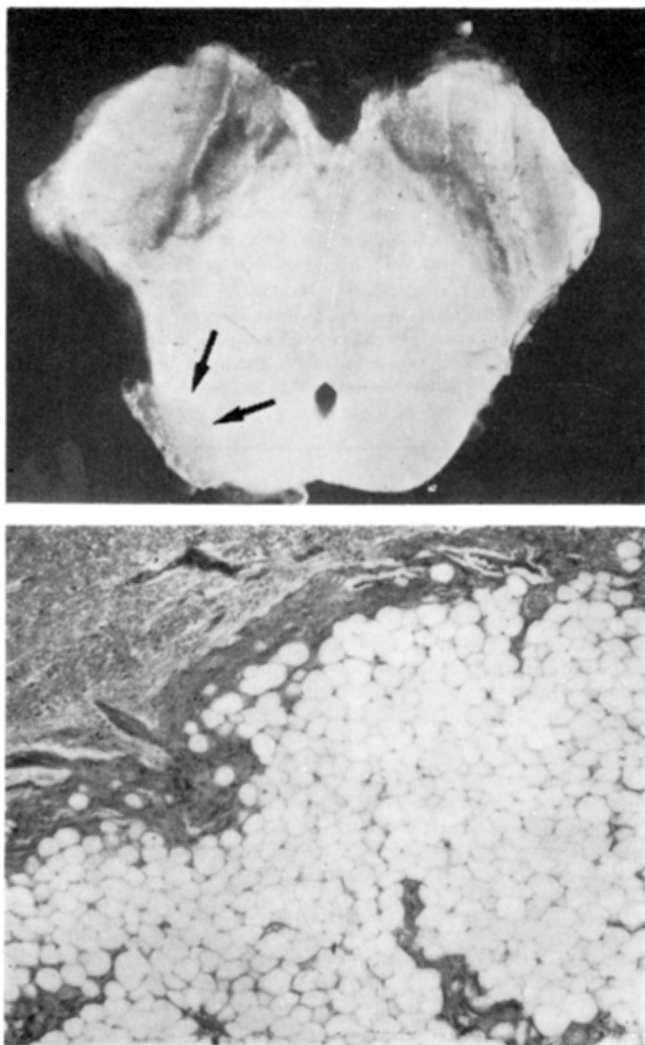


Fig. 1 — Case HFS. Above: Midbrain at the level of the inferior colliculi showing a small lipoma (arrows) partly involving the left inferior colliculus. Below: Histological section of the lipoma characterized by mature adipose cells separated from the adjacent nervous tissue by a fibrous capsule (HE $\times 40$).

relatively large blood vessels (Fig. 2). Immunohistochemistry for S100 protein using the immunoperoxidase technique showed a positive reaction in the nerve bundle as well as in nests of cells interpreted as Schwann cells, embedded in islands of fibrous tissue inside the tumor (Fig. 2).

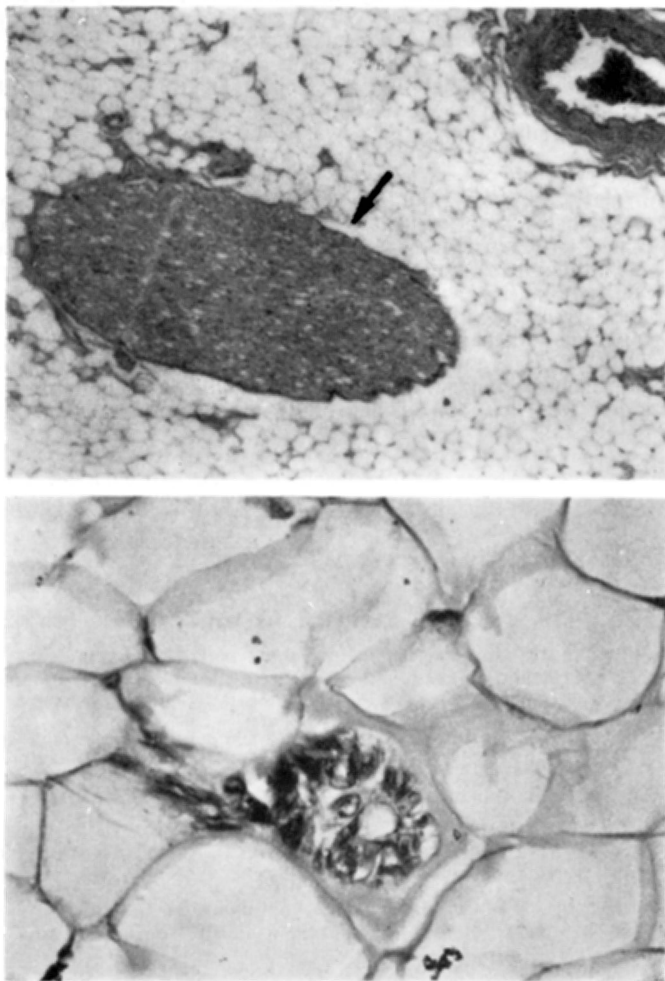


Fig. 2 — Case HFS. Above: A nerve bundle (arrow) is included in the lipoma which also contains some blood vessels (HE $\times 100$). Below: Detail of the lipoma showing some nests of cells positively stained with the immunoperoxidase technique for S100 protein ($\times 400$).

COMMENTS

Intracranial lipomas are not a frequent finding. Vonderhare & Niemer¹⁴ reported 4 cases in a series of 5000 autopsies. Only one lipoma was found in 4290 neurosurgical biopsies³. More than half of the intracranial lipomas are located in the corpus callosum¹⁵. Since the introduction of CT scan, unexpected findings of intracranial lipomas have increased. The CT diagnosis of a lipoma is based on its very low X-ray attenuation which produces typical images. Only dermoid cysts and teratomas may produce a similar CT appearance⁹. Most of the intracranial lipomas have any clinical expression and they are therefore incidental post-mortem findings^{3,14} as in the present case. However, they occasionally induce clinical symptoms which can be directly or indirectly related to the presence of the tumor. In the first case, obstructive hydrocephaly⁶ and acoustic nerve lesion³ have been reported while mental retardation^{3,10} and fits^{3,12} are usually described in cases in which other CNS dysgenesis like colloid and epidermoid cysts, angiomas, cerebellar microdysgenesias and other

malformations co-exist with the lipoma. Intracranial lipomas have also been described in association with extracranial malformations like spina bifida^{3,12}, cardiac malformation^{3,15} and cheilo-gnato-palatoschisis³. These dysraphies are however more commonly associated with spinal lipomas¹¹.

The nerve involved by the tumor is probably the left trochlear nerve although its origin is slightly below the inferior colliculus. The presence of cranial nerves within these tumors is not uncommon^{3,7,14}, and nests of Schwann cell have rarely been described. They have been considered as branches of the trochlear nerve⁷. Unlike the intraspinal lipomas which sometimes infiltrate the nerve roots⁵, the intracranial ones only exceptionally infiltrate the cranial nerves like for example the acoustic leading to vertigo, nystagmus and deafness³.

As for the presence of a lipoma in a patient with a breast cancer, we can not correlate the two findings. Reviewing some of the reported cases of lipomas in the midbrain, we found three cases in which a neoplasia was associated with the lipoma: one of them was described by Vonderhare & Niemer¹⁴ in 1944 and there was a lipoma of the right inferior colliculus in a 45 year old woman who died of rectosigmoid adenocarcinoma. Budka³ described a case in which a lipoma was associated with medulloblastoma in a three year old girl who had also mycropolygria and dysgenesis of the cerebellar nuclei. Another patient described by Bailey and Bucy² had a breast cancer with multiple metastases and a lipoma in the region of the quadrigeminal bodies which was an incidental finding at necropsy. In none of these reports was there any comment on the coexistence of lipomas and malignant tumors.

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