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Case Report

Giant Metastasis from a Non-Small Cell Carcinoma of the Lung with Destruction of the Cranial Vault

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Submitted: 17 April, 2023

Accepted: 20 April, 2023

Published: 22 April, 2023

ISSN: 2373-9819

OPEN ACCESS

Keywords
- Metastasis
- Non-small
- Cranial vault
- Lung carcinoma

Abstract

For routine clinical practice, it is vital to plan the steps same as possible complications that may occur and how to solve them before surgery. This case is of special interest for being a low-incidence pathology and a rarely used repair for the defect. The case is of high interest because of the large size of the defect and the complexity of managing and repairing the skull shell. This case highlights the importance of considering different possibilities, even two-step surgery when it comes to large defects on the skull after craniosynostosis diagnosis.

INTRODUCTION

Presentation of a case of a single metastasis of 9 cm in diameter seated in diploe with bone destruction in a patient diagnosed with non-small cell lung cancer. Metastasis are the most common tumors in the CNS [1-3], with lung tumors being the primary tumor that most frequently metastasizes to the brain through bone hematogenous spread. 80% of metastases occur in the brain parenchyma or leptomeninges, usually multiple [4].

CASE REPORT

A 65-year-old patient diagnosed with non-small cell carcinoma in 2018 underwent treatment with chemotherapy and radiotherapy. One year later, she developed a fast-growing right frontal tumor (3 weeks) associated with headache, nausea, and vomiting. A brain CT was performed, confirming a tumor with an epicenter in the diploe of the right frontal bone with an extensive soft tissue component, causing a mass effect with edema and underlying frontal gyri with midline deviation.

Programmed intra-extracranial frontal space-occupying lesion resection surgery was performed with dural resection and bone margins [5-7]. The patient presented a satisfactory clinical evolution. Obtaining an anatomopathological result of metastasis in the parietal vault of non-small cell carcinoma with focal squamous differentiation and abundant tumor necrosis and dural infiltration [8,9].

DISCUSION

Metastases in relation to the skull vault are relatively infrequent and can behave aggressively with rapidly progressive growth. Its management requires a multidisciplinary approach, with surgical resection being a fundamental pillar. Metastases are the most frequent cause of skull neoplasms and are mainly caused by hematogenous dissemination [10-13]. Most are asymptomatic and have a higher incidence than brain metastases [11]. Approximately one third of calvarial lesions will simultaneously present brain metastases [12]. Associated symptoms are headache and finding a palpable lesion. Although they can develop, focal or irritative symptoms due to the compressive effect of adjacent intraaxial nerve structures are rare. The study of the patient must include a complete laboratory (including electrophoretic proteinogram and study of Bence-Jones protein in urine [13], X-ray of the skull and long bones, bone scintigraphy, CT scan of the skull and MRI of the brain with and without gadolinium. In case of unknown primary total body screening is necessary.

The indications for surgery [13] are an unknown primary; Rapid growth with known chemo and radioresistance of the primary and solitary calvarial metastasis, as the only secondary lesion, with the possibility of block resection. The most frequent causes are: carcinoma, multiple myeloma, lymphoma, Ewing sarcoma and neuroblastoma.

CONCLUSION

Calvarial metastases are a frequent condition that use the hematogenous route for their dissemination. They may be asymptomatic or present with headache or a palpable lesion on the scalp. Studies include a complete laboratory with electrophoretic

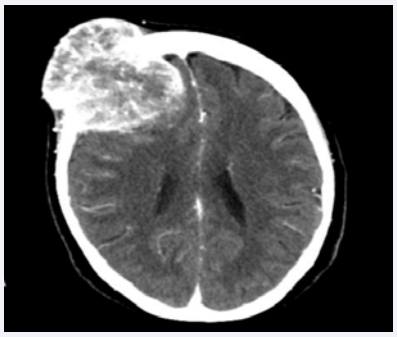

Figure 1 Axial brain CT.

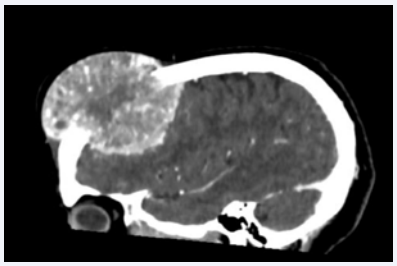

Figure 2 Sagital brain CT.

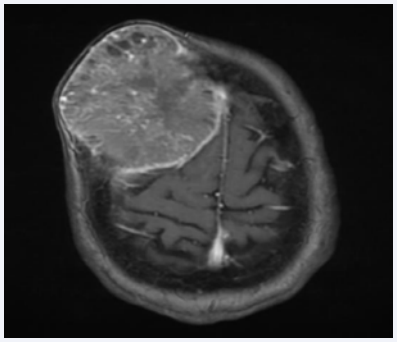

Figure 3 Axial brain MRI.

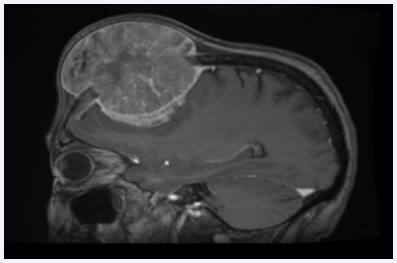

Figure 4 Sagital brain MRI.

proteinogram and skull X-ray. CT is useful for delineating the lesion and differentiating lytic from blastic characteristics, while MRI shows the degree of dural and parenchymal infiltration. The surgical indication is reserved for cases with an unknown primary, rapid growth with known chemo and radioresistance

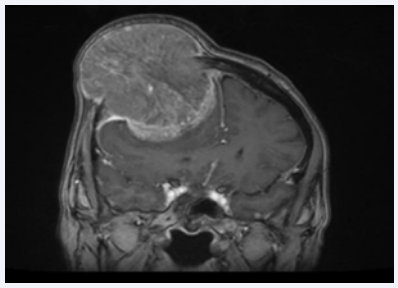

Figure 5 Coronal brain MRI.

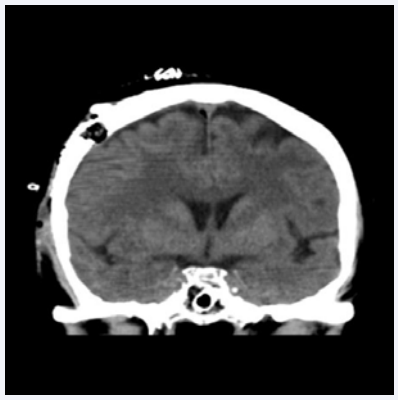

Figure 6 Post surgical coronal brain CT.

of the primary, and metastasis of the solitary cap as the only manifestation of secondary disease and the possibility of total block resection. Lung tumor metastases are frequent (44%), but the case is of great interest because the cranial vault is a rare location for metastasis with few cases reported in the literature due to its low incidence, the form of evolution of such a rapid growth of skin lesions in 3 weeks reaching 9 cm, and because of the importance of keeping in mind its diagnostic possibility

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