



Image Report

Skull base metastasis as initial presentation of hepatocellular carcinoma

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ABSTRACT

Background: Intracranial metastatic deposits due to hepatocellular carcinoma (HCC) are rare. Only a few cases are reported in the literature. These may be more likely to come to clinical attention than extrahepatic metastases in other sites since they often produce symptoms that necessitate neurosurgical intervention.

Case Description: We report a case of a 53-year-old male with biopsy-proven intracranial skull base metastasis from HCC as an unusual initial presentation of the disease and review the relevant literature on this entity.

Conclusion: Intracranial metastasis of HCC should be included in the differential diagnosis of rapidly growing metastatic lesions in unusual locations, particularly in chronic liver disease and hepatitis B surface antigen-positive or hepatitis C patients.

Keywords: Brain, Hepatocellular carcinoma, Intracranial, Metastasis, Neuroradiology

INTRODUCTION

Hepatocellular carcinoma (HCC) is the third leading cause of cancer mortality. The highest incidence rates are reported in Southeast Asia and sub-Saharan Africa due to prevalent hepatitis B and C infections in these regions.^[18]

Extrahepatic metastases of HCC are commonly seen in the lungs, lymph nodes, bone marrow, and adrenals.^[4] Intracranial metastasis is rare with a reported incidence of 1%.^[2,8,17] This number is likely expected to rise with therapeutic advances contributing to the prolonged survival of such patients.^[7]

CASE PRESENTATION

A 53-year-old diabetic male presented with complaints of right-sided hearing loss for the past 4 days. The patient also had an abrupt onset of numbness, weakness, and tingling sensations on the right side of the face and developed a loss of taste sensation. The patient's medical history was remarkable for chronic hepatitis C infection and was treated for it.

Magnetic resonance imaging of the brain and computed tomography (CT) scans revealed an extra-axial lesion involving the right petrous apex, the clivus, extending along the Meckel's cave, indenting the temporal lobe [Figure 1]. The lesion showed heterogeneous enhancement [Figure 2] and bony erosion [Figure 3].

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A right temporal craniotomy and biopsy was performed. Intraoperatively, the lesion was firmly attached along the petrous temporal bone. Histology sections examined

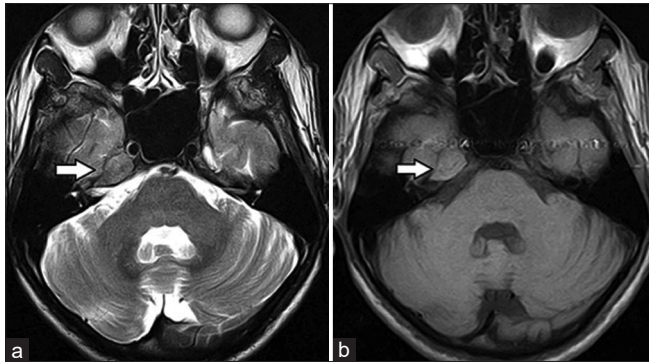


Figure 1: T2-weighted (a) and T1-weighted (b) axial magnetic resonance images. An extra-axial lesion involving the right petrous apex, extending along the Meckel's cave, indenting the temporal lobe and reaching along the posterior aspect of right cavernous sinus (arrows).

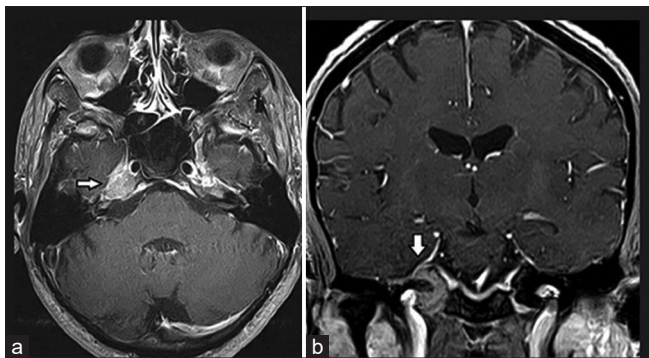


Figure 2: Post-contrast T1-axial (a) and coronal (b) magnetic resonance images. The enhancing lesion was bulging into the premedullary cistern on the right side (arrows). Posteriorly, it was abutting the hypoglossal canal, vestibulocochlear, and facial nerves.



Figure 3: Computed tomography axial bone window (a) and coronal soft-tissue window settings (b). An extra-axial lesion with bony erosion involving the right petrous apex, the clivus bone, and extending along the Meckel's cave (arrows).

revealed features of metastatic carcinoma, likely of primary hepatocellular origin [Figure 4]. CT of the abdomen confirmed HCC [Figure 5]. The patient opted for chemotherapeutic palliation with sorafenib. However, after 4 months of treatment, he succumbed to his illness.

DISCUSSION

Extrahepatic metastases of HCC are common; however, intracranial metastasis is the rarest form of presentation. Only a few sporadic clinical cases of intracranial metastasis from HCC have been reported in the literature [Table 1] and most of them have been brain metastases. Previous reviews

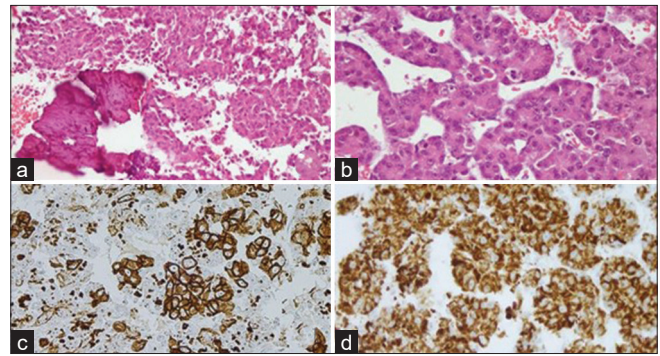


Figure 4: Histological slides (a) (H&E stain $\times 40$): Bony tissue infiltrated by metastatic carcinoma. (b) (H&E $\times 40$): Tumor cells with moderate eosinophilic cytoplasm, pleomorphic nuclei, prominent nucleoli, and trabecular pattern of growth. (c and d) Positive immunostaining for cytokeratin AE1/AE3 and HepPar1 in tumor cells.

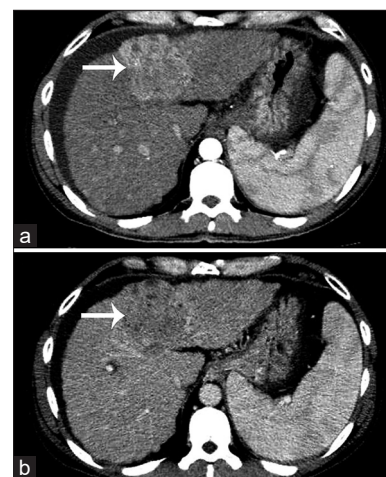


Figure 5: Computed tomography axial sections from arterial (a) and venous (b) phases. An ill-defined enhancing lesion in the liver on the arterial phase with washout on the venous phases, consistent with primary hepatocellular carcinoma (arrows).

Table 1: Literature review of HCC with intracranial metastases.

Author	Year of publication	Presentation
Moriya <i>et al.</i> ^[11]	1999	Brain metastasis 1 year after hepatectomy for HCC
Endo <i>et al.</i> ^[3]	1999	Subgaleal and epidural metastasis with epidural hemorrhage
Peres <i>et al.</i> ^[12]	1998	Cerebral metastasis as initial finding of HCC
Tanabe <i>et al.</i> ^[15]	1994	Two cases of unusual cerebral metastasis
Loo <i>et al.</i> ^[10]	1994	Two cases with cerebral metastasis as initial finding of HCC
Salvati <i>et al.</i> ^[13]	2002	Cerebral metastasis with stroke-like presentation
Asahara <i>et al.</i> ^[11]	1999	Brain metastasis after hepatectomy for HCC in five cases
Kim <i>et al.</i> ^[9]	1998	Seven patients with brain metastasis
Yen <i>et al.</i> ^[18]	1995	Eighteen cases of brain metastasis
Shuangshoti <i>et al.</i> ^[14]	1998	Nine cases of brain metastasis
Friedman <i>et al.</i> ^[5]	1991	A rare case with no identifiable risk factor for primary HCC

HCC: Hepatocellular carcinoma

have shown that intracranial metastases from HCC are often supratentorial, most show contrast enhancement, and many are hemorrhagic leading patients to manifest stroke-like events.^[5,6,16] Skull base metastasis particularly in the region of Meckel's cave as initial presentation of HCC has not been described previously.

CONCLUSION

Metastasis of HCC should be included in the differential diagnosis of rapidly growing lesions in unusual locations, particularly in chronic liver disease and hepatitis B surface antigen-positive or hepatitis C patients, even if a primary tumor cannot be radiologically identified.

Declaration of patient consent

Patient's consent not required as patient's identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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